MECHANICAL SPECIFICATIONS

A. GENERAL CONDITIONS OTHER CONTRACT DOCUMENTS

1. THE GENERAL CONDITIONS AND OTHER CONTRACT DOCUMENTS AS SET FORTH HEREBY ARE TO BE INCORPORATED INTO AND BECOME A PART OF THE SPECIFICATIONS FOR THE WORK UNDER THIS DIVISION.

B. CODES AND PERMITS

1. COMPLY WITH RULES, REGULATIONS OF STATE, COUNTY, AND CITY AUTHORITIES HAVING JURISDICTION OVER THE PREMISES, INCLUDING SAFETY REQUIREMENTS OF OSHA. DO NOT CONSTRUE THIS AS RELIEVING CONTRACTOR FROM COMPLYING WITH SPECIFICATIONS WHICH EXCEED CODE REQUIREMENTS AND NOT IN CONFLICT THEREWITH.

2. SECURE AND PAY FOR ALL PERMITS AND CERTIFICATES OF INSPECTION REQUIRED. MAKE PAYMENTS TO ALL PUBLIC UTILITIES FOR WORK PERFORMED BY THEM IN PROVIDING SERVICE CONNECTIONS.

C. LOCAL CONDITIONS

1. VISIT SITE, BECOME FAMILIAR WITH CONDITIONS AFFECTING THIS WORK. NO ADDITIONAL PAYMENT WILL BE MADE ON CLAIMS THAT ARISE FROM LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

D. DRAWINGS

1. DRAWINGS AND SPECIFICATIONS ARE TO BE CONSIDERED AS SUPPLEMENTING EACH OTHER. WORK SPECIFIED SHALL BE PERFORMED OR FURNISHED AS THOUGH MENTIONED IN BOTH SPECIFICATIONS AND DRAWINGS.

E. SHOP DRAWINGS

1. THIS CONTRACTOR SHALL SUBMIT SHOP DRAWINGS ON THE ITEMS OF EQUIPMENT AND SYSTEMS AS NECESSARY TO CLEARLY SHOW EQUIPMENT AND CONSTRUCTION.

F. SUPERVISION

1. THIS CONTRACTOR SHALL HAVE IN CHARGE OF THE WORK, A COMPETENT SUPERINTENDENT WITH EXPERIENCE IN THE WORK TO BE INSTALLED UNDER THIS CONTRACT.

G. COORDINATION

1. THIS CONTRACTOR SHALL COORDINATE HIS WORK AND COOPERATE WITH THE OTHER CONTRACTORS. HE SHALL ARRANGE HIS WORK WITH THEIRS SO THAT THERE WILL BE NO DELAY IN THE PROPER INSTALLATION.

2. EXAMINE WORK OF OTHER TRADES WHICH COMES IN CONTACT WITH OR IS COVERED BY THIS WORK. DO NOT ATTACH TO, COVER, OR FINISH AGAINST ANY DEFECTIVE WORK, OR INSTALL WORK OF THIS DIVISION IN A MANNER WHICH WILL PREVENT OTHER TRADES FROM PROPERLY INSTALLING THEIR WORK. CONSULT ALL DRAWINGS, SPECIFICATIONS AND DETAILS OF OTHER DIVISIONS OF THE WORK.

H. CUTTING AND PATCHING

1. ALL CUTTING AND PATCHING WORK RELATED TO THIS CONTRACT WILL BE THE RESPONSIBILITY OF THIS CONTRACTOR.

I. GUARANTEE AND WARRANTIES

1. WARRANT THAT EQUIPMENT AND ALL WORK IS INSTALLED IN ACCORDANCE WITH GOOD ENGINEERING PRACTICE AND THAT ALL EQUIPMENT WILL MEET REQUIREMENTS SPECIFIED. ANY EQUIPMENT FAILING TO PERFORM OR FUNCTION AS SPECIFIED SHALL BE REPLACED WITH COMPLYING EQUIPMENT, WITHOUT COST TO THE OWNER.

2. GUARANTEE AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS; MAKE GOOD REPAIR OR REPLACE ANY DEFECTIVE WORK, MATERIAL OR EQUIPMENT WITHIN ONE YEAR FROM DATE OF ACCEPTANCE.

J. INSTALLATION REQUIREMENTS

1. LOCATION OF EQUIPMENT, DUCTS, ETC., ON THE DRAWINGS IS DIAGRAMMATIC; INDICATED POSITIONS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE; EXACT LOCATIONS SHALL BE SUBJECT TO BUILDING CONSTRUCTION AND INTERFERENCES WITH OTHER WORK. ARCHITECT RESERVES RIGHT TO MAKE MINOR CHANGES IN LOCATION OF ANY PART OF THE WORK UP TO THE TIME OF ROUGHING-IN WITHOUT ADDITIONAL COST.

K. TEST AND ADJUSTMENTS

1. OBTAIN ALL INSPECTIONS REQUIRED BY LAW, ORDINANCES, RULES, REGULATIONS OF AUTHORITIES HAVING JURISDICTION, FURNISH CERTIFICATES OF SUCH INSPECTIONS. PAY ALL FEES AND PROVIDE ALL EQUIPMENT, POWER AND LABOR NECESSARY FOR INSPECTIONS AND TEST.

2. PRESSURE TESTS

a. TEST MEDIUM FOR REFRIGERANT PIPING SHALL BE OIL PUMPED DRY NITROGEN. TWENTY-FOUR HOUR STANDING TIME MINIMUM. TEST THE LOW SIDE OF THE SYSTEM TO 150 PSI AND THE HIGH SIDE TO 300 PSI. TESTS SHALL CONFORM TO ANSI STANDARD B31.5 "REFRIGERATION PIPING."

L. HVAC SYSTEMS ADJUSTMENTS AND BALANCE

1. PUT ALL HEATING, VENTILATING, EXHAUST AND AIR CONDITIONING SYSTEMS AND EQUIPMENT INTO FULL OPERATION AND CONTINUE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING. ALL TESTING AND BALANCING SHALL BE DONE UNDER BOTH SUMMER AND WINTER DESIGN CONDITIONS.

2. PERFORM TESTS AND BALANCE SYSTEMS IN ACCORDANCE WITH FOLLOWING REQUIREMENTS:

a. BALANCE AND ADJUST ALL AIR HANDLING SYSTEMS FOR DESIGN FLOW OF SUPPLY, RETURN, RELIEF, EXHAUST AND OUTSIDE AIR TO WITHIN 10% OF DESIGN REQUIREMENTS.

b. AFTER OR DURING ONE COMPLETE HEATING-COOLING SEASON, MAKE ANY MINOR ADJUSTMENTS THAT MAY BE NECESSARY TO INSURE UNIFORM TEMPERATURES THROUGHOUT THE SPACE.

M. INSULATION

1. ALL INSULATION SHALL BE INSTALLED OVER CLEAN DRY SURFACES. INSULATION MUST BE DRY AND IN GOOD CONDITION. WET OR DAMAGED INSULATION WILL NOT BE ACCEPTABLE. NO INSULATION SHALL BE APPLIED PRIOR TO PRESSURE TEST COMPLETION OF THE RESPECTIVE PIPING SYSTEMS.

2. FIBERGLASS PIPE INSULATION SHALL BE INSTALLED WITH JOINTS BUTTED FIRMLY TOGETHER. JACKET LAPS TO BE SEALED WITH FACTORY APPLIED ADHESIVE. BUTT JOINTS TO BE SEALED WITH BUTT STRIPES, HAVING FACTORY APPLIED ADHESIVE. VALVES AND FITTINGS SHALL BE INSULATED USING MITERED SECTIONS OF INSULATION, INSULATION CEMENT, OR PREMOLDED FITTING INSULATION. THE INSULATION APPLIED TO THE VALVES AND FITTINGS SHALL BE COVERED WITH THE SAME TYPE OF COVERING AS USED ON THE PIPE INSULATION.

3. PROVIDE THE FOLLOWING INSULATION PRODUCTS AS MANUFACTURED BY OWENS-CORNING. INSULATION PRODUCTS AS MANUFACTURED BY ARMSTRONG, CERTAINTEED OR KNAUF ARE ACCEPTABLE. ADHESIVE SHALL BE BENJAMIN FOSTER OR EQUAL.

4. OWENS CORNING KAYLO 10: 1 1/2" THICK CALCIUM SILICATE BLOCK INSULATION

SERVICE

KITCHEN HOOD EXHAUST DUCTWORK

5. OWENS CORNING FIBERGLAS 705: 1" THICK ASJ EQUIPMENT INSULATION (DENSITY 6 PCF) OR ARMSTRONG AP ARMAFLEX SHEET AND ROLL INSULATION (3/4")

SERVICE

EXPOSED SUPPLY AIR DUCTWORK (IN NON AIR CONDITIONED SPACES)
EXPOSED OUTSIDE AIR INTAKE DUCTWORK
A.C. UNIT MIXED AND SUPPLY AIR PLENUMS INCLUDING STANDING SEAMS AND STEEL ANGLE FRAMING

6. OWENS CORNING ED 150 FRK 25: 2" THICK FACED DUCTWRAP

SERVICE

CONCEALED SUPPLY AIR DUCTWORK (EXCEPT IN RETURN AIR PLENUMS)
CONCEALED OUTSIDE AIR INTAKE DUCTWORK

7. DUCT LINING: OWENS-CORNING, 1" THICK "AEROFLEX DUCT LINER" TYPE 300. LINING SHALL BE INSTALLED WITH STICK-KLIPS AND ADHESIVE PER MANUFACTURER'S INSTRUCTIONS.

N. DUCTWORK

1. PROVIDE ALL SHEET METAL WORK AS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH THE LATEST EDITION OF THE ASHRAE GUIDE AND DATA BOOK, SMACNA STANDARDS AND THIS SPECIFICATION, THE MOST DEMANDING OF WHICH SHALL BE THE MINIMUM STANDARD.

2. LOW PRESSURE DUCTWORK

a. ALL DUCTWORK SHALL BE CONSRTUCTED OF GALVANIZED STEEL EXCEPT WHERE NOTED ON PLANS TO BE ALUMINUM. EXPOSED DUCTWORK IN ARCHITECTURALLY FINISHED SPACES SHALL BE FABRICATED FROM "PAINT GRIP" GALVANIZED STEEL OR SIMILAR MILL SURFACE ETCH TREATMENT.

b. CONSTRUCT ALL DUCTWORK FOLLOWING SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," 1995 EDITION.

c. ALL DUCTS, EXCEPT KITCHEN EXHAUST, SHALL BE CONSTRUCTED TO 1" W.G.

d. SEAL ALL DUCTS TO SEAL CLASS "C."

3. SPECIAL SERVICE DUCTWORK

a. KITCHEN HOOD EXHAUST – CONCEALED: 16 GAUGE BLACK STEEL, STEEL ANGLE REINFORCING, JOINTS AND SEAMS WELDED WATERTIGHT. EXPOSED: 18 GAUGE TYPE 302 STAINLESS STEEL, JOINTS AND SEAMS WELDED, GRIND AND POLISH TO A NO. 2 FINISH.

4.. FLEXIBLE DUCTS

a. OMNIAIR MODEL 1300 LOW PRESSURE NON INSULATED FOR EXHAUST DUCTS AND SUPPLY AIR DUCTS IN CONDITIONED SPACES UP TO 6" STATIC PRESSURE.

b. INSTALL FLEXIBLE TUBING FULLY EXTENDED, FREE OF SAGS AND KINKS. MAXIMUM LENGTH OF TUBING SHALL BE 14' 0". FLEXIBLE TUBING SHALL BE CONNECTED TO SUPPLY AIR DUCTS WITH FLARED SPIN COLLAR FITTING.

FLEXIBLE AIR DUCTS SHALL BE LISTED AND LABELED AS CLASS 0 OR CLASS 1 AND SHALL BE TESTED IN ACCORDANCE WITH UL 181.

O. WIRING

1. ALL WIRING INCIDENTAL TO THIS TEMPERATURE CONTROL SYSTEM SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR.

2. THE TERM "WIRING" SHALL BE CONSTRUED TO INCLUDE FURNISHING OF WIRE, CONDUIT, MISCELLANEOUS MATERIALS AND LABOR AS REQUIRED FOR MOUNTING AND CONNECTING ELECTRICAL CONTROL DEVICES, AND PROVIDING ELECTRICAL INTERLOCKS BETWEEN EQUIPMENT.

P. THERMOSTATIC CONTROLS:

C403.4.1 THERMOSTATIC CONTROLS (MANDATORY)
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 (MANDATORY)
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. REQUIRING PRECISION IN INDOOR TEMPERATURE CONTROL AS APPROVED BY THE CODE OFFICIAL.

C403.4.1.3 SETPOINT OVERLAP RESTRICTION (MANDATORY)
WHERE A ZONE HAS A SEPARATE HEATING AND A SEPARATE COOLING THERMOSTATIC CONTROL LOCATED WITHIN THE ZONE, A LIMIT SWITCH, MECHANICAL STOP OR DIRECT DIGITAL CONTROL SYSTEM WITH SOFTWARE PROGRAMMING SHALL BE CONFIGURED TO PREVENT THE HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT AND TO MAINTAIN A DEADBAND IN ACCORDANCE WITH SECTION C403.4.1.2.

C403.4.2 OFF-HOUR CONTROLS (MANDATORY)
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 (MANDATORY)
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 (MANDATORY)
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 (MANDATORY)
AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE 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.

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 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.

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

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

D. 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.

E. 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.

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

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

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

END OF SECTION 230593

SECTION 230713 – DUCT INSULATION

1.1 QUALITY ASSURANCE

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

1.2 FIELD QUALITY CONTROL

A. FIELD INSPECTIONS: BY OWNER-ENGAGED AGENCY.

1.3 INDOOR DUCT AND PLENUM INSULATION SCHEDULE;

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

B. FLEXIBLE ELASTOMERIC, MINERAL-FIBER BLANKET, MINERAL-FIBER BOARD OR POLYOLEFIN WITH MINIMUM INSTALLED THERMAL RESISTANCE AS FOLLOWS:
UNCONDITIONED SPACES WITHIN BUILDING: R-6
WITHIN BUILDING ENVELOPE ASSEMBLY: R-8
OUTSIDE OF BUILDING: R-8

1.4 ITEMS NOT INSULATED:
1. FIBROUS-GLASS DUCTS.
2. METAL DUCTS WITH DUCT LINER OR SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE/IESNA 90.1.
3. FACTORY-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.

1.7 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.

END OF SECTION 230713

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

HOUSTON BUILDING DEPARTMENT NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF 2015-IBC HOUSTON TX AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

1. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS.

2. TESTS WILL BE CONDUCTED UNDER DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS. THE TESTS WILL SHOW COMPLIANCE WITH 2015 INTERNATIONAL BUILDING CODE REQUIREMENTS AS OUTLINES IN SECTION [BC 1704].

3. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 2015 IMC 107 AND THE FOLLOWING SECTIONS OF THE 2015 IMC:

A. VENTILATION SYSTEM SERVING COMMERCIAL COOKING APPLIANCES – 2015 IMC 506, 507
B. REFRIGERATION SYSTEMS –2015 IMC 1108

4. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:

A. STANDARDS OF HEATING – 2015 IMC 309.1
B. DUCT CONSTRUCTION AND INSTALLATION– 2015 IMC 603
C. AIR INTAKES, EXHAUSTS AND RELIEFS – 2015 IMC 401.5
D. AIR FILTERS – 2015 IMC 605
E. GAS FIRED EQUIPMENT – FUEL GAS CODE

5. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.

6. VENTILATION FOR ALL AREA SHALL COMPLY WITH 2015 IMC 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 2015 IMC 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 ACCORDANCE WITH APPLICABLE CODES.

10. MECHANICAL SYSTEMS SHALL BE COMMISSIONED PER IECC 2015 C403.2.2, C408.2.1, C408.2.5 FINAL COMMISSIONING REPORT SHALL BE DUE WITHIN 90 DAYS OF RECEIPT OF CERTIFICATE OF OCCUPANCY.

11. A COMMISSIONING PLAN SHALL BE DEVELOPED BY A LICENSED DESIGN PROFESSIONAL, MECHANICAL ENGINEER OR APPROVED AGENCY.

12. A PRELIMINARY REPORT OF COMMISSIONING TEST PROCEDURES AND RESULTS SHALL BE COMPLETED AND CERTIFIED BY THE LICENSED DESIGN PROFESSIONAL, ELECTRICAL ENGINEER, MECHANICAL ENGINEER OR APPROVED AGENCY AND PROVIDED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT AS PER IECC 2015, C408.2.4.

13. A WRITTEN REPORT DESCRIBING THE ACTIVITIES AND MEASUREMENTS COMPLETED IN ACCORDANCE WITH SECTION IECC 2015, C408.2.2.

14. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.

15. SMOKE DETECTOR SHALL MEET UL268A.

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	TURNING VANE
	AIR EXTRACTOR
	OPPOSED BLADE VOLUME DAMPER
	SUPPLY DUCT
	RETURN DUCT
	EXHAUST DUCT
	FLEXIBLE DUCT CONNECTION
	LINED DUCTWORK
T	THERMOSTAT
R	SMOKE DETECTOR TEST STATION
S	DUCT SMOKE DETECTOR TO SHUT DOWN UNIT UNDER ALARM
UCD	UNDERCUT DOOR (BY G.C.)
	CONNECT TO EXISTING
	MOTORIZED DAMPER
G	GAS
	SHUT-OFF VALVE

ABBREVIATIONS

SR	SUPPLY REGISTER	G.C.	GENERAL CONTRACTOR
RG	RETURN GRILLE	M.C.	MECHANICAL CONTRACTOR
SA	SUPPLY AIR	P.C.	PLUMBING CONTRACTOR
RA	RETURN AIR	E.C.	ELECTRICAL CONTRACTOR
VD	VOLUME DAMPER	CLG.,CEIL.	CEILING
FD	FIRE DAMPER	A.F.F.	ABOVE FINISHED FLOOR
UCD	UNDERCUT DOOR	ETR	EXISTING TO REMAIN
MD	MOTORIZED DAMPER	FSD	FIRE & SMOKE DAMPER
RTU	ROOFTOP UNIT	WMS	WIRE MESH SCREEN
NIC	NOT IN CONTRACT	BDD	BACK DRAFT DAMPER
OSA	OUT SIDE AIR	SAE	SAME AS EXISITNG

GENERAL MECHANICAL NOTES

1. PROVIDE ALL LOW PRESSURE DUCTWORK SIZED EQUAL TO OR LESS THAN 0.1" W.G./100' (TYP.) UNLESS SCHEDULED OTHERWISE. INDICATE ALL DUCT SIZES ON SHOP DRAWINGS.

2. PROVIDE MINIMUM DUCT RADIUS ON ELBOWS AT 1-1/2 TIMES DUCT SIZE.

3. PROVIDE 14' 0" MAX. FLEX DUCT CONNECTION TO DIFFUSERS, TYPICAL.

4. ALL CONCEALED SUPPLY DUCTWORK NOT LOCATED IN RETURN AIR PLENUM SHALL BE INSULATED.

5. ALL DUCTS SHALL BE FREE FROM CONTACT WITH ALL: PIPING, WALLS, ELECTRICAL CONDUITS, CEILING SUSPENSION SYSTEMS, ETC.

6. PROVIDE THROAT WITH PROPORTIONAL SPLIT AND TURNING VANES ON TEE TRANSITIONS. (BULLHEAD TEE'S WILL NOT BE PERMITTED.

7. CEILING DIFFUSER CORES AND BACK-PANS SHALL HAVE A FLAT BLACK ENAMEL FINISH. FACE TO BE OFF-WHITE BAKED ENAMEL ON PERFORATED PLATE AND MARGIN UNLESS SPECIFIED OTHERWISE BY ARCHITECT AND APPROVED BY MECHANICAL ENGINEER. NECK VELOCITIES NOT TO EXCEED 500 FPM MAXIMUM.

8. PROVIDE GALVANIZED SHEET METAL DUCTWORK. ALUMINUM OR ALUMINUM FLEX IS NOT PERMITTED.

9. ALL PIPING AND DUCTWORK SHALL FREELY PASS THROUGH ALL WALLS AND FLOORS WITHOUT RIGID CONNECTIONS. PENETRATION POINTS SHALL BE SLEEVED TO ALLOW PASSAGE OF PIPING OR DUCTWORK AND MAINTAIN 3/4" TO 1-1/4" CLEARANCE AROUND THE OUTSIDE SURFACES. THIS CLEARANCE SHALL BE TIGHTLY PACKED WITH ONE POUND DENSITY GLASS FIBER, AND CAULKED AIR TIGHT WITH NON-HARDENING SEALANT AFTER INSTALLATION OF PIPING OR DUCTWORK.

10. FABRICATE, INSTALL, SEAL, AND INSULATE ALL DUCTWORK IN STRICT CONFORMANCE WITH THE REQUIREMENTS OF THE INTERNATIONAL MECHANICAL CODE

11. ALL EQUIPMENT, MATERIALS AND WORK SHALL CONFORM TO THE APPLICABLE CODES OF THE INTERNATIONAL BUILDING, FIRE, MECHANICAL, AND ELECTRICAL CODES AS ADOPTED BY THE CITY OF SHIRLEY AND ALL OTHER CODES, SAFETY ORDERS AND REGULATIONS AS ENFORCED BY THE STATE AND CITY FIRE MARSHALL'S PERTAINING TO THIS PROJECT.

12. PROTECTIVE BARRIERS SHALL BE INSTALLED IN FRONT OF EQUIPMENT WHERE EQUIPMENT IS SUBJECT TO MECHANICAL DAMAGE.

13. CONDENSATE DRAIN LINES SHALL BE PROVIDED FOR ALL MECHANICAL EQUIPMENT WHICH PRODUCES CONDENSATE.

FIELD VERIFY ALL CONDITIONS

- DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.

- THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.

- BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

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Architect

CIVIL ENGINEER

STRUCTURAL ENGINEER

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MEP ENGINEER

DEVELOPER

PROJECT: EGGHOLIC

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MECHANICAL SPECIFICATIONS

Sheet No.

M-0.1

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VENTILATION CALCULATION FOR RTU-1(N)

ROOM NAME	AREA (SQ.FT.)	NUMBER OF PEOPLE/1000sq.ft AS PER 2015 IMC	NUMBER OF PEOPLE AS PER 2015 IMC	NUMBER OF CHAIR	FINAL PEOPLE NO.	MIN OUTSIDE AIR AS PER 2015 IMC		REQ. OA (CFM)	Provided OA (CFM)	EXHAUST AIRFLOW RATE (CFM/FIXT.)	TOTAL EXHAUST (CFM)
						CFM/PEOPLE	CFM/SQ.FT				
DINING	814	70	57	41	43	7.5	0.18	469	600	0	0
CASHIER	227	15	4	1	2	7.5	0.12	42		0	0
TOILET-1	57	0	0	0	0	0	0	0		70	70
TOILET-2	60	0	0	0	0	0	0	0		70	70
Total								**511**		**140**	**140**

VENTILATION CALCULATION FOR RTU-2(N)

ROOM NAME	AREA (SQ.FT.)	NUMBER OF PEOPLE/1000sq.ft AS PER 2015 IMC	NUMBER OF PEOPLE AS PER 2015 IMC	NUMBER OF CHAIR	FINAL PEOPLE NO.	MIN OUTSIDE AIR AS PER 2015 IMC		REQ. OA (CFM)	Provided OA (CFM)	EXHAUST AIRFLOW RATE (CFM/SQ.FT)	TOTAL EXHAUST (CFM)
						CFM/PEOPLE	CFM/SQ.FT				
FOOD PREP	446	20	9	0	4	7.5	0.12	84	230	0.7	3431
BACK OF HOUSE	72	20	2	0	2	7.5	0.12	24		0.7	
Total								**107**		-	**3431**

ROOF TOP UNIT SCHEDULE

UNIT TAG	TR	SUPPLY AIRFLOW (CFM)	OUTSIDE AIR (CFM)	ESP (IN. OF W.C.)	SUPPLY MOTOR BHP	MCA/MOP (A)	V/PH/HZ	COOLING CAPACITY		HEATING CAPACITY		GAS PRESS. INCH OF WC	MANUFACTURER & MODEL NO.	STEADY STATE EFFICIENCY	EER	WEIGHT (LBS.)	REMARKS
								TOTAL (MBH)	SENSIBLE (MBH)	MBH INPUT	MBH OUTPUT						
RTU–1(N)	7.5	3000	600	0.8	2.9	43/50	208/3/60	90.1	68.9	125	103	4–13	CARRIER 48TCDE08B (OR EQUIVALENT)	82%	11	1130	NEW
RTU–2(N)	4.0	1,600	230	0.8	1	24/40	208/3/60	50.6	38.1	50	41	4–13	CARRIER 48HCDB05B (OR EQUIVALENT)	82%	13 (SEER)	850	NEW

REMARKS
1. UNIT MOUNTED NON FUSED DISCONNECT SWITCH.
2. NON POWERED CONVENIENCE OUTLET.
3. HINGED ACCESS PANELS AND EXTERNAL GAUGE PORTS/PRESSURE RESETS.
4. MERV 13 PLEATED FILTER.
5. BOTTOM SUPPLY AND RETURN DUCTS.
6. ALL T–STAT PROVIDED WITH LOCKING COVERS.
7. 7 DAYS PROGRAMMABLE THERMOSTAT.
8. PROVIDE HOT GAS BYPASS SYSTEM. THE CAPACITY OF HOT GAS BYPASS SHALL BE LIMITED TO 50% OF TOTAL UNIT CAPACITY.
9. DRY BULB ECONOMIZER WITH BAROMETRIC RELIEF. PROVIDE FDD FOR RTU–1(N) ONLY.
10. SMOKE DETECTOR WITH REMOTE ANNUNCIATOR (BY EC).
11. 14" ROOF CURB–CONTRACTOR SHALL FIELD INSUALTE . SHIP ASAP AHEAD OF THE UNIT.
12. VFD SUPPLY FAN.
13. PROVIDE :CARRIER–UNIT INSTALLED WITH "HUMIDIMIZER" DEHUMIDIFICATION SYSTEM.PROVIDE HUMIDITY SENSOR NEXT TO THERMOSTAT.
14. ANTI SHORT CYCLE TIMER
15. ELECTRICAL CONNECTION TO BE SINGLE POINT AND THROUGH THE BOTTOM OF THE UNIT.
16. ALL EQUIPMENT MUST BE STANDARD / HIGH EFFICIENT, MEETING THE BRAND MINIMUM REQUIREMENT.
17. CABINET WITH 1/2" FIBERGLASS INSULATION.
18. WHERE REQUIRED PROVIDE LOW AMBIENT COOLING CAPABILITY DOWN TO 0 DEGREES F.
19. PROVIDE TEMPERATURE SENSORS AS PER REQUIREMENT FROM ARCHITECT/OWNER.
20. ALL HVAC EQUIPMENT TO BE FIELD LABELED TO IDENTIFY WHICH AREAS OF THE BUILDING THEY SERVE.

KITCHEN EXHAUST FAN SCHEDULE

UNIT TAG	SERVICE	EXH.AIR FLOW (CFM)	E.S.P. (IN. OF WG)	HP	ELECT. (V/PH)	MANUF. & MODEL NO.	WEIGHT (LBS)	REMARK
KEF–1(N)	HOOD–1(N)	3431	1.25	3.0	208/3	DU180HFA	218	1–2

REMARKS
1. SEE CAPTIVE AIRE HOOD DRAWING FOR ADDITIONAL INFORMATION.
2. PROVIDED WEIGHT IS INCLUDING ROOF CURB.

KITCHEN MAKE UP AIR UNIT SCHEDULE

UNIT TAG	SERVICE	MUA CFM	E.S.P. (IN. OF WG)	EFFICIENCY	PRESS RANGE IN WC	HP	ELECT. (V/PH)	MANUF. & MODEL NO.	WEIGHT (LBS)	DX COIL COOLING CAPACITY		GAS HEATING CAPACITY		REMARK
										TOTAL (MBH)	SENSIBLE (MBH)	MBH INPUT	MBH OUTPUT	
MUA–1(N)	HOOD–(N)	2745	0.375	92%	7–14	3.00	208/3	CAPTIVEAIRE A2–D.250–20D–MPU	1635	90.0	38.2	155.7	143.3	1–2

REMARKS
1. SEE CAPTIVE AIRE HOOD DRAWING FOR ADDITIONAL INFORMATION.
2. PROVIDED WEIGHT IS INCLUDING ROOF CURB.

KITCHEN MAKE UP AIR UNIT CONDENSER SCHEDULE

UNIT TAG	MODEL NO.	CONDENSER NO	TONNAGE	MCA(A)	RLA(A)	MOCP(AMP)	SEER
MUA–1(N)	A2–D.250–20D–MPU	01	2.5	11.2	9.07	20	14
		02	5.0	21.4	17.5	30	14

EXHAUST FAN SCHEDULE

UNIT TAG	SERVICE	CFM	E.S.P.(IN. OF WG)	RPM/HP	ELECT. (V/PH)	MANUF. & MODEL NO.	REMARK
EF–1&2(N)	TOILET	70	0.3	929/38W	115/1	COOK GC–148	1–2

REMARKS
1. DISCONNECT SWITCH GRAVITY BACKDRAFT DAMPER, FLEXIBLE DUCT COLLAR CONNECTION.
2. ELECTRICAL CONTRACTOR SHALL INTERLOCK TOILET EXHAUST FANS WITH ROOM LIGHT CONTROLLED VIA OCCUPANCY SENSOR.

GRILLE AND DIFFUSER

UNIT TAG	MANUF. & MODEL NO	DAMPER NO	FRAME/ BORDER	CFM	MODULE SIZE	PATTERN	REMARK	NOTE
A	TITUS TMS	OBD	LAY–IN	AS NOTED	24"X24"	4–WAY	SUPPLY	1
B	TITUS TMS	OBD	LAY–IN	AS NOTED	12"X12"	4–WAY	SUPPLY	1
C	TITUS PAR OR EQUIVALENT	OBD	LAY–IN	AS NOTED	24"X24"	PERFORATED	SUPPLY	1
D	TITUS 50F	––	LAY–IN	AS NOTED	AS NOTED	4–WAY	RETURN	1
E	TITUS TMR–AA	OBD	FLANGED	AS NOTED	22"	ROUND FLOW	SUPPLY	1

REMARKS
1. COORDINATE COLOR CODE WITH ARCHITECT.

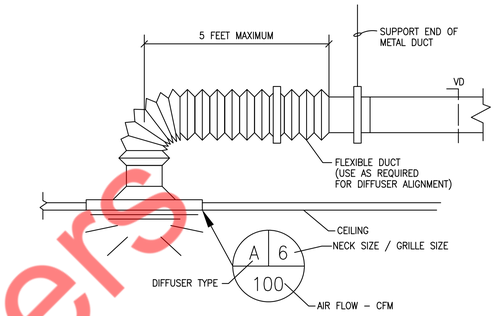
TABLE- DUCT CONSTRUCTION MIN. SHEET METAL THICKNESS

ROUND DUCT DIAMETER (inches)	STATIC PRESSURE			
	1/2–inch water gage		1–inch water gage	
	Thickness (inches)		Thickness (inches)	
	Galvanized	Aluminum	Galvanized	Aluminum
<12	0.013	0.018	0.013	0.018
12 to 14	0.013	0.018	0.016	0.023
15 to 17	0.016	0.023	0.019	0.027
18	0.016	0.023	0.024	0.034
19 to 20	0.019	0.027	0.024	0.034
RECTANGULAR DUCT DIMENSION (inches)	**STATIC PRESSURE**			
	1/2–inch water gage		1–inch water gage	
	Thickness (inches)		Thickness (inches)	
	Galvanized	Aluminum	Galvanized	Aluminum
≤ 8	0.013	0.018	0.013	0.018
9 to 10	0.013	0.018	0.016	0.023
11 to 12	0.016	0.023	0.019	0.027
13 to 16	0.019	0.027	0.019	0.027
17 to 18	0.019	0.027	0.024	0.034
19 to 20	0.024	0.034	0.024	0.034

AIR BALANCE

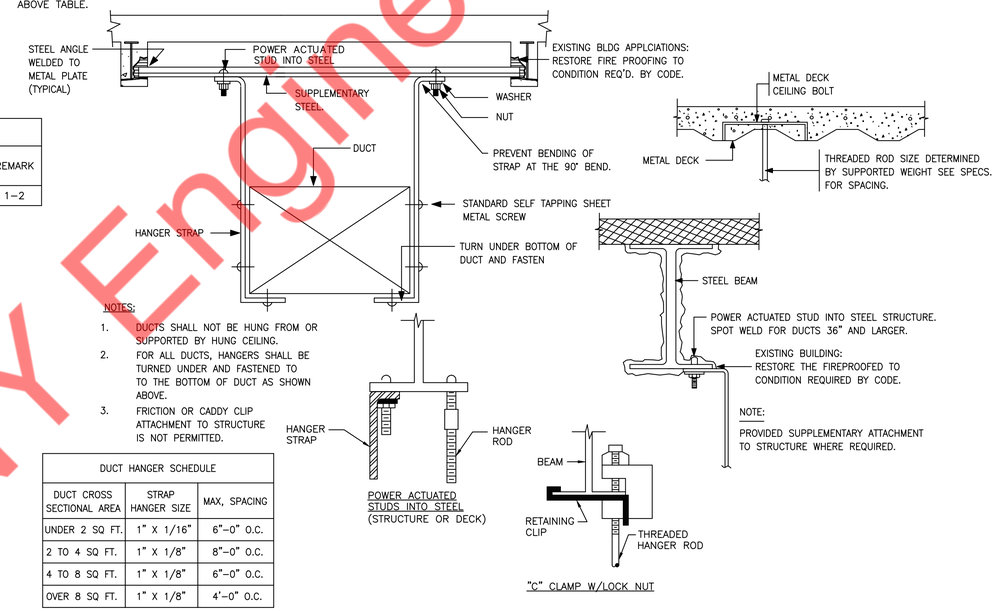
UNIT	SUPPLY AIR (CFM)	OUTSIDE AIR		RETURN AIR (CFM)	EXHUAST AIR (CFM)
		SUPPLY (CFM)	%OA		
RTU–1(N)	3000	600	20%	2400	–
RTU–2(N)	1600	230	14.37%	1370	–
EF–1(N)	–	–	–	–	70
EF–2(N)	–	–	–	–	70
MUA–1(N)	2745	2745		–	–
KEF–1(N)	–	–	–	–	3431
TOTAL	7345	3575		3770	3571
BUILDING PRESSURE:				4 CFM	POSITIVE

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



CEILING DIFFUSER BRANCH DUCTS W/ FLEX CONNECTION

NO SCALE



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.

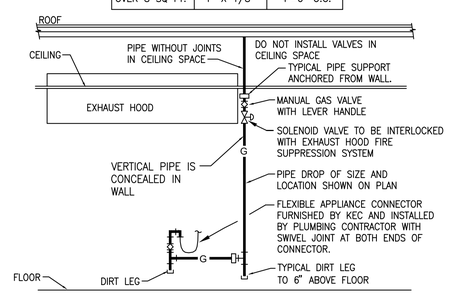
NOTE:
PROVIDED SUPPLEMENTARY ATTACHMENT TO STRUCTURE WHERE REQUIRED.

DUCT HANGER SCHEDULE

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

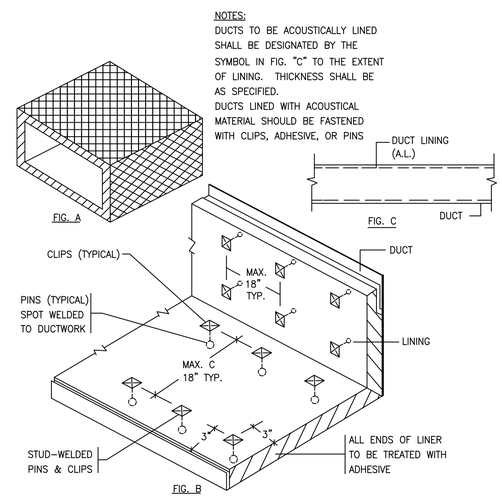
DUCT HANGING & SUPPORT DETAILS

NO SCALE



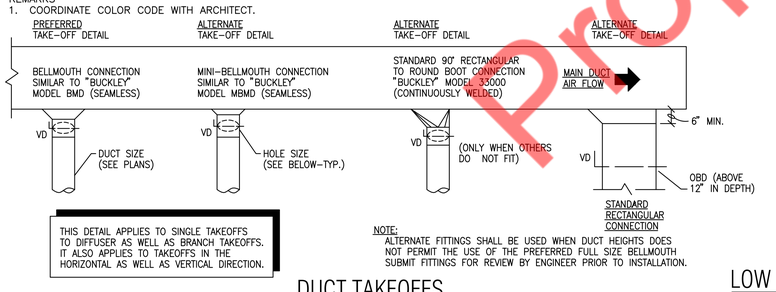
COOKING APPLIANCE GAS PIPE DETAIL

NOT TO SCALE



ACOUSTICAL DUCT LINING DETAILS

NO SCALE

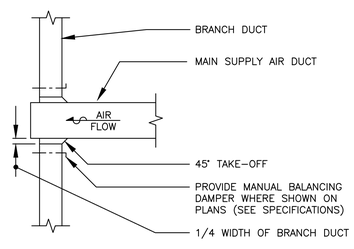


THIS DETAIL APPLIES TO SINGLE TAKEOFFS TO DIFFUSER AS WELL AS BRANCH TAKEOFFS. IT ALSO APPLIES TO TAKEOFFS IN THE HORIZONTAL AS WELL AS VERTICAL DIRECTION.

NOTE:
ALTERNATE FITTINGS SHALL BE USED WHEN DUCT HEIGHTS DOES NOT PERMIT THE USE OF THE PREFERRED FULL SIZE BELLMOUTH SUBMIT FITTINGS FOR REVIEW BY ENGINEER PRIOR TO INSTALLATION.

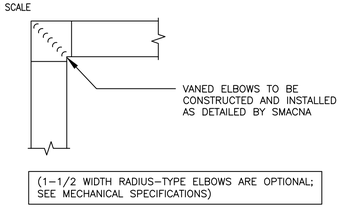
DUCT TAKEOFFS

NO SCALE



LOW PRESSURE END OF SUPPLY AIR DUCT DETAIL

N.T.S.



LOW PRESSURE DUCT ELBOW DETAIL

N.T.S.

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MECHANICAL SCHEDULES

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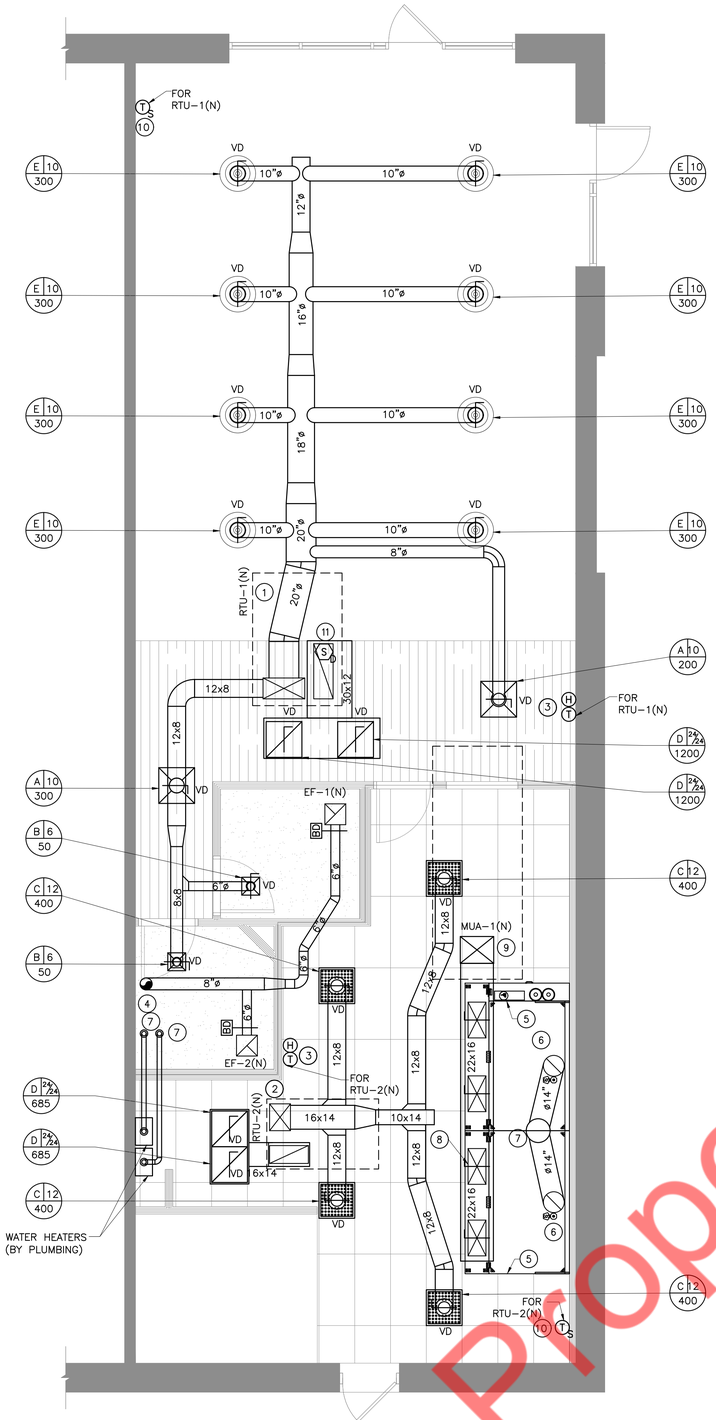


1 MECHANICAL FLOOR PLAN

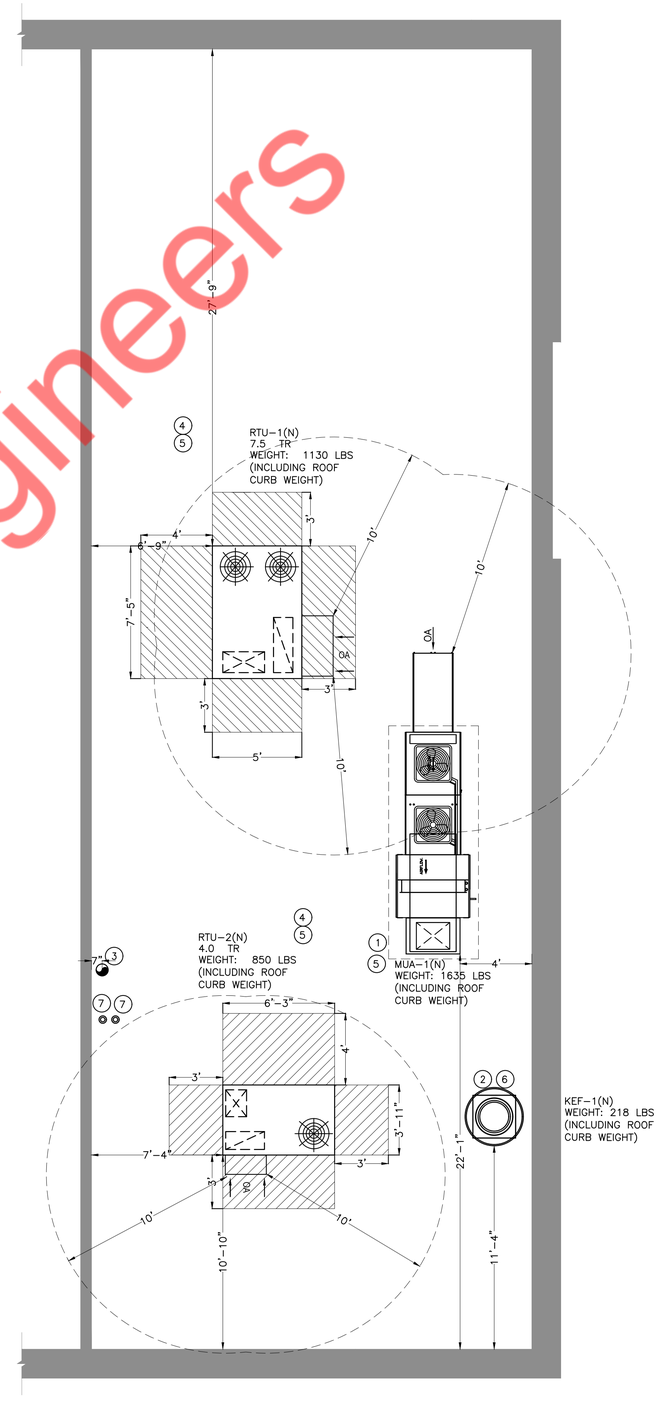
SCALE: 1/4" = 1'-0"

MECHANICAL FLOOR PLAN NOTES

1. EXTEND FULL SIZE SUPPLY & RETURN DUCTWORK FROM NEW 6-TON ROOF TOP UNIT TO SPACE. EXTEND AS SHOWN. ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS.
2. EXTEND FULL SIZE SUPPLY & RETURN DUCTWORK FROM NEW 4-TON ROOF TOP UNIT TO SPACE. EXTEND AS SHOWN. ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS.
3. INSTALL AND WIRE NEW 7-DAY PROGRAMMABLE THERMOSTAT & HUMIDISTAT . COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.
4. ROUTE 8"ø EXHAUST DUCT UP THROUGH ROOF WITH TALL CONE FLASHING, WEATHER SKIRT, AND VENT CAP. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES.
5. INSTALL TYPE 1 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.
6. GREASE DUCT TO BE PROVIDED WITH KITCHEN EQUIPMENT AND INSTALLED BY MECHANICAL CONTRACTOR. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
7. 16"ø GREASE EXHAUST DUCT FROM HOOD UP THRU ROOF TO KEF-1(N).
8. EXTEND MAKE-UP AIR DUCT FROM HOOD COLLAR UP TO MOUNTED
9. MAKE-UP AIR UNIT ON ROOF MUA-1(N). MAKEUP DUCT UP THRU ROOF TO MUA-1(N).
10. TEMPERATURE AND HUMIDITY SENSOR FOR THERMOSTAT SERVING DESIGNATED RTU.
11. A SMOKE DETECTOR SHALL BE FURNISHED/INSTALLED BY MECHANICAL CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR TO SHUT DOWN CORRESPONDING AIR CONDITIONING UNIT UNDER ALARM CONDITIONS. ALL WIRING SHALL BE IN CONDUIT PER N E C SMOKE DETECTOR SHALL BE SYSTEM SENSOR MODEL DH100ACDCLP OR EQUAL.

MECHANICAL ROOF PLAN NOTES

1. MAKE-UP AIR UNIT AND ROOF CURB ARE OWNER PROVIDED. COORDINATE LOCATION OF UNIT WITH LANDLORD AND EXISTING CONDITIONS. ADJUST DUCTWORK ROUTING ACCORDINGLY. PROVIDE FLEXIBLE CONNECTION ON THE SUPPLY DUCT CONNECTION TRANSITION TO DUCT SIZE INDICATED. FIELD VERIFY EXISTING CONDITIONS PRIOR TO BID.
2. ROOF MOUNTED GREASE EXHAUST FAN AND FAN CURB ARE OWNER PROVIDED. COORDINATE INSTALLATION OF FAN WITH LANDLORD AND EXISTING CONDITIONS TO ENSURE THAT FAN IS NOT INSTALLED WITHIN 10 FEET OF ANY OUTSIDE AIR INTAKE.
3. 8"ø EXHAUST DUCT UP THROUGH ROOF WITH TALL CONE FLASHING, WEATHER SKIRT, AND VENT CAP. MAINTAIN A MINIMUM OF 10' FROM ALL OUTSIDE AIR INTAKES.
4. CONNECT CONDENSATE DRAIN FROM RTU-1(N) & RTU-2(N) TO NEAREST ROOF DRAIN OR DOWN SPOUT.
5. CONTRACTOR TO FIELD VERIFY THAT THE LOCATION OF ANY INTAKE SOURCE FROM ADJACENT TENANTS SHOULD BE AT LEAST 10' AWAY FROM THE KEF-1(N) AND OTHER EXHAUST DUCT TERMINATING ON ROOF.
6. CONTRACTOR TO FIELD VERIFY THAT THE LOCATION OF ANY EXHAUST SOURCE FROM ADJACENT TENANTS SHOULD BE AT LEAST 10' AWAY FROM RTU-1(N), RTU-2(N) & MUA-1(N).
7. ø3"/ø5" CONCENTRIC VENT FOR COMBUSTION AIR INTAKE/EXHAUST FROM GAS FIRED EQUIPMENT TO ROOF TERMINATION KIT.ROUTE PIPING WITH MINIMAL AMOUNT OF BEND AND LENGTH AS REQUIRED BY RESPECTIVE UNIT MANUFACTURERS'S REQUIREMENT.



2 MECHANICAL ROOF PLAN

SCALE: 1/4" = 1'-0"

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STRUCTURAL ENGINEER

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DEVELOPER

PROJECT: **EGGHOLIC**

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MECHANICAL FLOOR & ROOF PLAN

Sheet No.

M-1.1

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EMAIL: reg55@captiveaire.com

PATENT NUMBERS
AC-PSP (UNITED STATES) - US PATENT 7963830 B2.
AC-PSP WALL (CANADA) - CA PATENT 2820509.
AC-PSP ISLAND (CANADA) - CA PATENT 2520330.

HOOD INFORMATION – JOB#5597633

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG END TO END	ROW
1	H-1L	5424 ND-2-PSP-F	CAPTIVEAIRE	7' 3"	600 DEG	I	HEAVY	225	1631			4"	14"	1631	1526	-0.848"	1350	430 SS WHERE EXPOSED	LEFT	ALONE
2	H-2R	5424 ND-2-PSP-F	CAPTIVEAIRE	8' 0"	600 DEG	I	HEAVY	225	1800			4"	14"	1800	1684	-0.930"	1455	430 SS WHERE EXPOSED	RIGHT	ALONE

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	SIZE	FIRE SYSTEM TYPE	FIRE SYSTEM SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1	H-1L	CAPTRATE SOLO FILTER	5	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO	LEFT	12"x54"x24"	TANK FS	4.0/4.0	DCV-1111	1 LIGHT 1 FAN	YES	758 LBS
2	H-2R	CAPTRATE SOLO FILTER	5	16"	16"	85% SEE FILTER SPEC	3	RECESSED ROUND	NO							YES	462 LBS

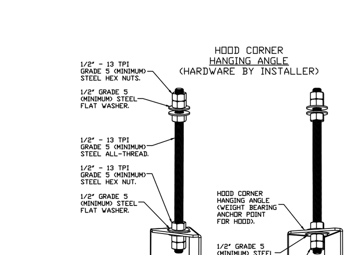
HOOD OPTIONS

HOOD NO	TAG	OPTION
1	H-1L	FIELD WRAPPER 18.00" HIGH FRONT, LEFT.
		BACKSPLASH 80.00" HIGH X 195.00" LONG 430 SS VERTICAL.
		LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		BALANCE DAMPERS.
		RISER SENSOR INSTALL 6IN PLEN.
2	H-2R	FIELD WRAPPER 18.00" HIGH FRONT, RIGHT.
		RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		BALANCE DAMPERS.
		RISER SENSOR INSTALL 6IN PLEN.

PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S) WIDTH	LENG	DIA	CFM	SP
1	H-1L	Front	99"	16"	6"	MUA	12"	24"		673	0.201"
						MUA	12"	24"		673	0.201"
2	H-2R	Front	96"	16"	6"	MUA	12"	24"		727	0.232"
						MUA	12"	24"		727	0.232"

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH
NFPA #96
NSF
E.T.L. LISTED 3054804-001 TO UL 710 & ULC710 STANDARDS



ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

DUCT TEMPERATURE SENSOR (TYPICAL)

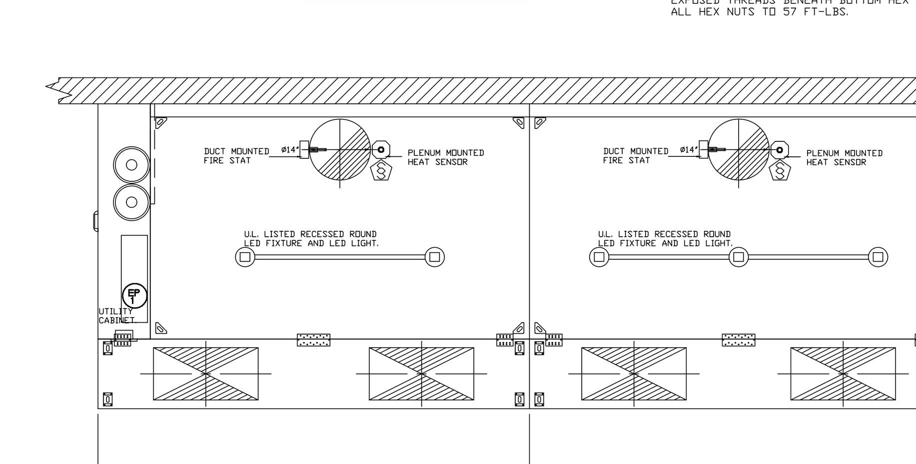
Provides exhaust air temperature for proper hood control operation. For all installations excluding a single hood with factory risers and a hood mounted panel, duct mounted temperature sensors will need to be field wired. 2-wire 18 AWG plenum rated thermistor cable must be used.

ROOM TEMPERATURE SENSOR

Provides room override based on temperature differential between the room and duct. Installed by electrician on a wall, 5'-6' off the finished floor, in the space but not directly under the hood or close to an appliance (including the electrical control box) or near HVAC register so that the reading is accurate for space.

HOOD CONTROL INTERFACE

The LCD interface provides user control and hood status. The faceplate is connected to the hood control panel through CAT-5 cable. A faceplate has 2 RJ-45 connectors. One connects to port J4 or J5 in the hood control panel and the other will typically be occupied by a RJ-45 end-of-line terminator.



PLAN VIEW – HOOD #1 (H-1L)
7' 3.00" LONG 5424ND-2-PSP-F

PLAN VIEW – HOOD #2 (H-2R)
8' 0.00" LONG 5424ND-2-PSP-F

SPECIFICATION: CAPTRATE® GREASE-STOP® SOLO FILTER

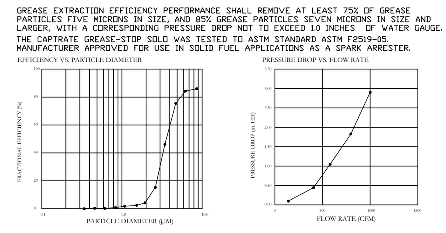
THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.

THE CAPTRATE GREASE-STOP SOLO WAS TESTED TO ASTM STANDARD ASTM F2519-05. MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.



CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH:
NFPA #96.
NSF STANDARD #2.
UL STANDARD #1046.
INT. MECH. CODE (IMC).
ULC-S649.

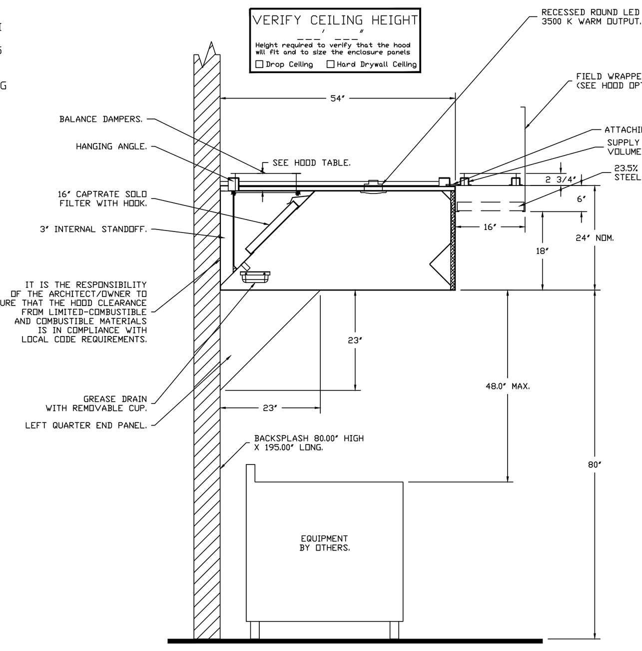
CUSTOMER APPROVAL TO MANUFACTURE:

- APPROVED AS NOTED ☐
- APPROVED WITH NO EXCEPTIONS ☐
- REVISW AS NOTED AND RESUBMITT ☐

SIGNATURE: ______

YOUR TITLE: ______ DATE: ______

VERIFY CEILING HEIGHT
___' ___"
Height required to verify that the hood will fit and to size the enclosure panels
☐ Drop Ceiling ☐ Hard Drywall Ceiling



SECTION VIEW – MODEL 5424ND-2-PSP-F
HOOD – #1 (H-1L)

REVISIONS
DESCRIPTION | DATE:

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Eggholic

DATE: 8/15/2022
DWG.#: 5597633
DRAWN BY: WEM
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 1

FIRE SYSTEM INFORMATION – JOB#5597633

FIRE SYSTEM NO	TAG	TYPE	SIZE	FLOW POINTS	INSTALLATION SYSTEM	LOCATION ON HOOD
1	FS-1	TANK FS	4.0/4.0	40	FIRE CABINET LEFT	LEFT, HOOD 1

GAS VALVE(S)

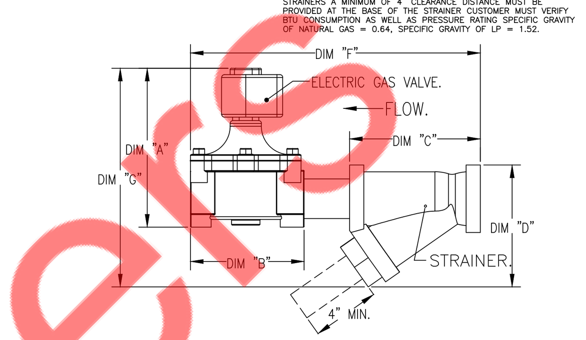
FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1	FS-1	SC ELECTRICAL	2.000	CAPTIVEAIRE SYSTEMS

GAS VALVES AND STRAINERS

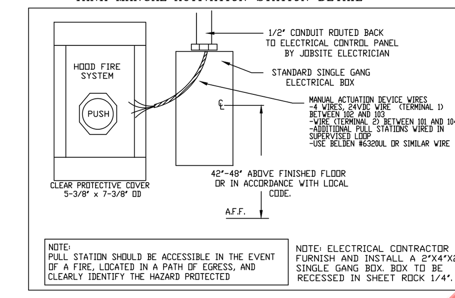
	GAS VALVE SIZING TYPE	SIZE	VOLTAGE	MIN. INLET PRESSURE	MAX. INLET PRESSURE	FLOW AT 1 IN.W.C. DROP NATURAL GAS	FLOW AT 1 IN.W.C. DROP PROPANE	GAS VALVE DIMENSIONS DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "F"	DIM "G"	INSTALLATION MOUNTING ORIENTATION	PART NUMBERS GAS VALVE PART NUMBER	STRAINER PART NUMBER	GAS VALVE/STRAINER KIT
GAS VALVE FOR FS#1 →	ELECTRICAL	2"	120 VAC	0 PSI (0 IN.W.C.)	5 PSI (138 IN.W.C.)	2,940,500 BTU/HR	1,908,048 BTU/HR	7-5/8"	6-3/8"	7-1/4"	7-13-16"	15-5/8"	13-15/16"	HORIZONTAL/ VERTICAL	8214280	4417K68	(SC)EGVA2

ALL GAS VALVES/STRAINERS
PROPER CLEARANCE MUST BE PROVIDED IN ORDER TO SERVICE THE STRAINERS A MINIMUM OF 4" CLEARANCE DISTANCE MUST BE PROVIDED AT THE BASE OF THE STRAINER CUSTOMER MUST VERIFY BTU CONSUMPTION AS WELL AS PRESSURE RATING SPECIFIC GRAVITY OF NATURAL GAS = 0.64, SPECIFIC GRAVITY OF LP = 1.52.

CALCULATIONS
TO CALCULATE GAS FLOW FOR OTHER THAN 1 IN.W.C. PRESSURE DROP NEW BTU/HR = (BTU/HR AT 1 IN.W.C. PRESSURE DROP) X NEW PRESSURE $DROP^{0.5}$
TO CALCULATE GAS FLOW FOR OTHER THAN 0.64 SPECIFIC GRAVITY NEW BTU/HR = (BTU/HR AT 0.64) X (0.64 / NEW SPECIFIC $GRAVITY)^{0.5}$.

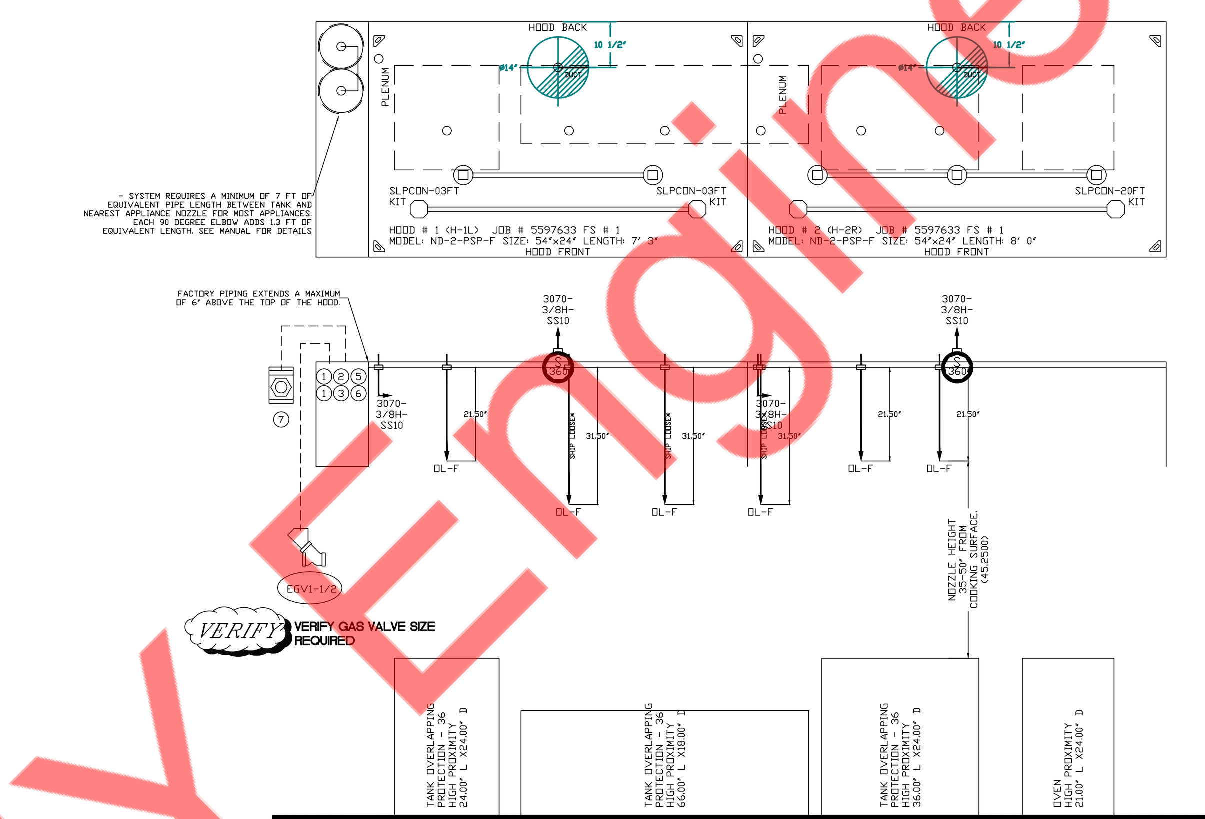


TANK MANUAL ACTIVATION STATION DETAIL



NOTE: PULL STATION SHOULD BE ACCESSIBLE IN THE EVENT OF A FIRE, LOCATED IN A PATH OF EGRESS, AND CLEARLY IDENTIFY THE HAZARD PROTECTED

NOTE: ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL A 2"X4"X2" SINGLE GANG BOX. BOX TO BE RECESSED IN SHEET ROCK 1/4".



JOB #: 5597633.
JOB NAME: EGGHOLIC - SUGARLAND.

SYSTEM SIZE: TANK-SP-2 TOTAL FP REQUIRED: 40.
HOOD # 1 7' 3.00" LONG x 54" WIDE x 24" HIGH.
RISER # 1 SIZE: 14" DIA.
HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.
HOOD # 2 8' 0.00" LONG x 54" WIDE x 24" HIGH.
RISER # 1 SIZE: 14" DIA.
HOOD # 2 METAL BLOW-OFF CAPS INCLUDED.

- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

NOTES
- FIELD PIPE DROPS AS SHOWN
  PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
- FIELD INSTALLED DROP: FACTORY WILL PROVIDE QTY 2 60IN LONG PIECES OF CHROME PLATED PIPING SHIPPED LOOSE TO BE FIELD-INSTALLED.
- SHIP LOOSE DROP: FACTORY WILL PROVIDE THE EXACT CHROME PIPE LENGTH NEEDED SHIPPED LOOSE TO BE FIELD-INSTALLED.
- RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
- OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH AN OBSTRUCTION.
- IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE.
- FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.

- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.

- THIS FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.

- DL-F NOZZLE PART NUMBER REPLACES 3070-3/8H-10-SS

LEGEND – FIRE CABINET TANK SYSTEM

1 4 GALLON TANK.
2 PRIMARY ACTUATOR RELEASE.
3 SECONDARY ACTUATOR RELEASE.
4 PRESSURE SUPERVISION SWITCH.
5 PRIMARY HOSE ASSEMBLY.
6 SECONDARY HOSE ASSEMBLY.
7 REMOTE MANUAL ACTUATION DEVICE.

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SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 2

EXHAUST FAN INFORMATION – JOB#5597633

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	EF-1	1	DU180HFA	CAPTIVEAIRE	3431	1.250	1323	TEFC,PREMIUM	3.000	1.6640	3	208	9.4	792 FPM	180	21.296746087746

CONDENSER DETAILS

FAN UNIT NO	TAG	FAN UNIT MODEL #	CONDENSER NO	TONNAGE	VOLTAGE	PHASE	FREQUENCY	MCA	RLA	MAX FUSE SIZE	MIN WIRE SIZE	SEER
2	MPU-1	A2-D.250-20D-MPU	1	2.5	208-230	3 PHASE	60 HZ	11.2 AMPS	9.07 AMPS	20 AMPS	14 AWG	14
			2	5	208-230	3 PHASE	60 HZ	21.4 AMPS	17.4 AMPS	30 AMPS	10 AWG	14

MUA FAN INFORMATION – JOB#5597633

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCP	WEIGHT (LBS)	SONES
2	MPU-1	1	A2-D.250-20D-MPU	20MF-2-MOD	A2-D.250	2000	2745	0.375	1368	ODP,PREMIUM	3.000	1.3540	3	208	9.5	11.9A	20A	1528	11.9760404172255

COILS – JOB#5597633

FAN UNIT NO	TAG	COIL TYPE	DESIGN CFM	COOLING ENTERING DB TEMP	ENTERING WB TEMP	LEAVING DB TEMP	LEAVING WB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY
2	MPU-1	DX	2745	93.0°F	78.0°F	79.8°F	69.6°F	---	---	---	---	90.0 MBH	38.2 MBH	51.8 MBH

FAN UNIT NO	TAG	HEATING ENTERING DB TEMP	LEAVING DB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	STEAM PRESSURE	TOTAL CAPACITY	SENSIBLE CAPACITY
2	MPU-1	---	---	---	---	---	---	---	---	---

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
2	MPU-1	155773	143311	50°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	92

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	EF-1	1	GREASE BOX
		1	FAN BASE CERAMIC SEAL - SHIP LOOSE - FOR GREASE DUCTS
		1	2 YEAR PARTS WARRANTY
2	MPU-1	1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC
		1	LOW FIRE START
		1	SHIP LOOSE GAS STRAINER 1"
		1	AC INTERLOCK RELAY - 24VAC COIL
		1	MOTORIZED BACKDRAFT DAMPER FOR A2-D HOUSING - MEETS AMCA CLASS 1A RATING
		1	COOLING THERMOSTAT AND RELAY (NOT REQUIRED FOR EVAP)
		1	7.5 TON 2 CIRCUIT (2.5/5) MODULAR PACKAGED AC COOLING OPTION FOR SIZE 2 DF/EH MUA (1125 TO 3000 CFM), 208V/230V, 3 PHASE. COOLING THERMOSTAT OR PROGRAMMABLE STAT REQUIRED FOR PROPER OPERATION
		1	DOWNTURN PLENUM FOR SIZE 2 DX COIL MODULE
		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY
		1	SIZE 2 DIRECT FIRED HEATER LOW CFM PROFILE PACKAGE - USED ON HEATERS UNDER 2500 CFM
		1	2 YEAR PARTS WARRANTY

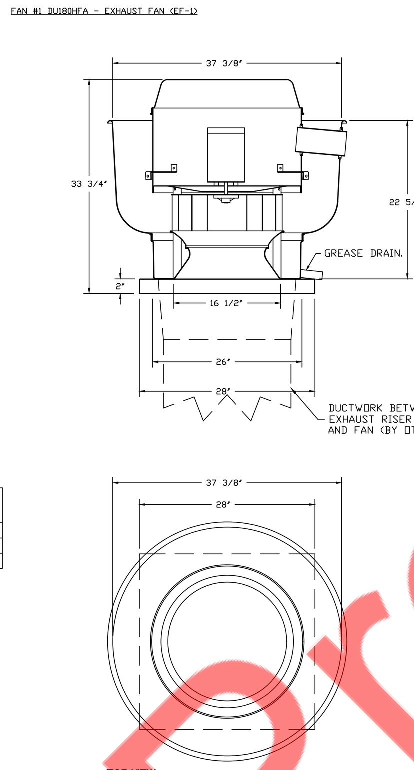
FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SUPPLY SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	EF-1	YES						
2	MPU-1						YES	

CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	EF-1	38 LBS	CURB	26.500"W X 26.500"L X 24.000"H ALONG LENGTH, RIGHT VENTED HINGED.
2	# 2	MPU-1	107 LBS	CURB	31.000"W X 79.000"L X 20.000"H ALONG WIDTH, RIGHT INSULATED.
	# 2			RAIL	6.000"W X 31.000"L X 20.000"H RIGHT.

FAN #1 DU180HFA – EXHAUST FAN (EF-1)

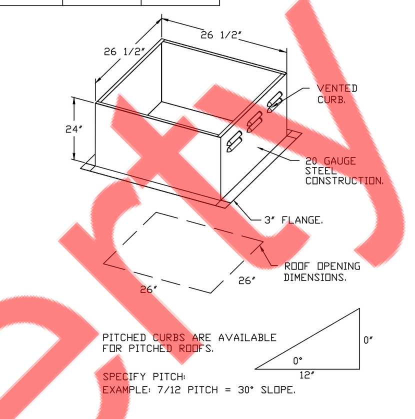


FEATURES:
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

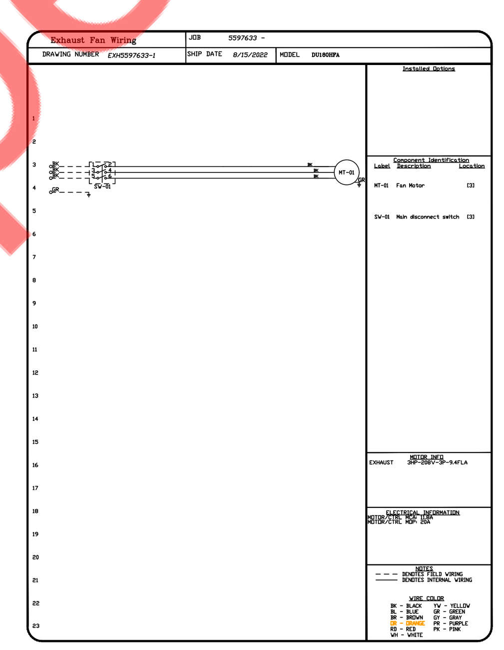
ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS
GREASE BOX.
FAN BASE CERAMIC SEAL - SHIP LOOSE - FOR GREASE DUCTS.
2 YEAR PARTS WARRANTY.



PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.

SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE.



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DESCRIPTION | DATE:

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DATE: 8/15/2022
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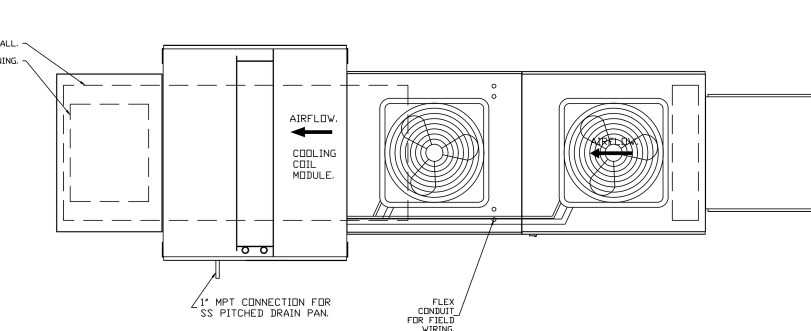
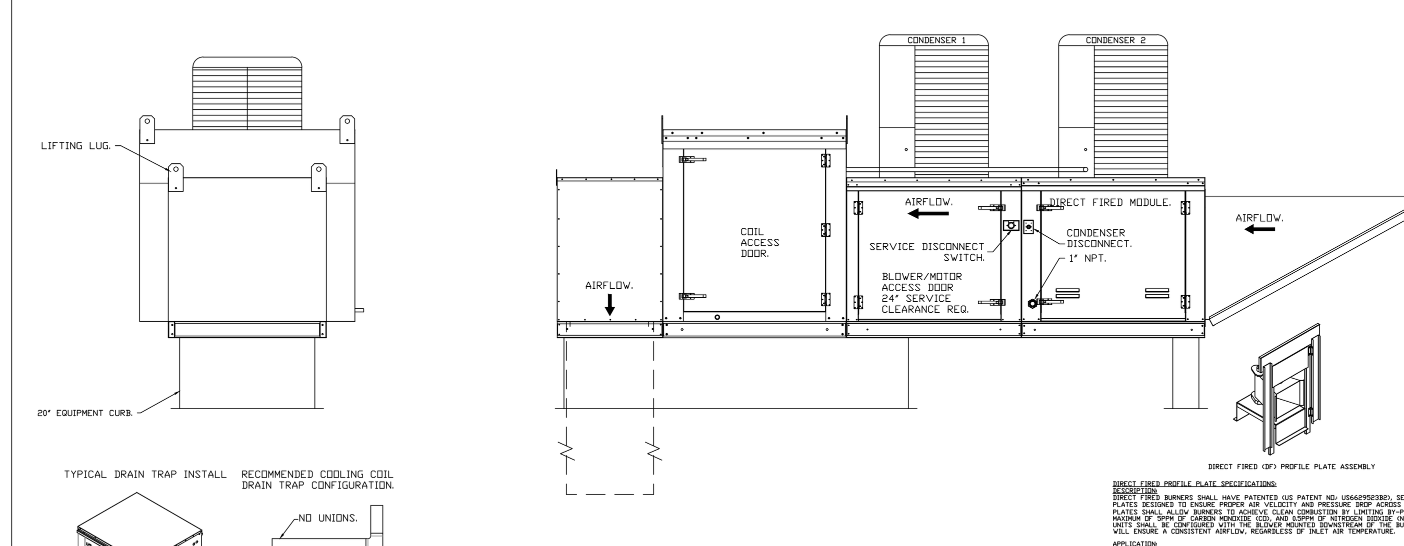
DRAWN BY: WEM
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 3

FAN #2 A2-D.250-20D-MPU - HEATER (MPU-1)
1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 20" MIXED FLOW DIRECT DRIVE FAN.
2. INTAKE HOOD WITH EZ FILTERS.
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT.
4. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE.
5. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC., 2.5" DIAMETER, 1/4" THREAD SIZE.
6. LOW FIRE START. ALLOWS THE BURNER CIRCUIT TO ENERGIZE WHEN THE MODULATION CONTROL IS IN A LOW FIRE POSITION.
7. SHIP LOOSE GAS STRAINER. TO BE INSTALLED UPSTREAM OF UNIT CONNECTION. 1" CONNECTION.
8. COOLING INTERLOCK RELAY. 24VAC COIL. 120V CONTACTS. LOCKS OUT BURNER CIRCUIT WHEN AC IS ENERGIZED.
9. MOTORIZED BACK DRAFT DAMPER 22.75" X 24" FOR SIZE 2 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, LF120S ACTUATOR INCLUDED.
10. DX COOLING INTAKE AIR THERMOSTAT AND RELAYS MOUNTED IN UNIT - SET POINT FOR THERMOSTAT SHOULD BE 85°F.
11. 7.5 TON, DUAL CIRCUIT (2.5/5) MODULAR PACKAGED AC COOLING OPTION FOR SIZE 2 DF/EH MODULAR PACKAGED UNIT. INCLUDES CONDENSER, DX COIL, FILTER/DRYER KIT, THERMAL EXPANSION VALVE, R410A REFRIGERANT, AND REFRIGERANT PIPING. (1125 TO 3000 CFM) WHEN ORDERED WITH OPPOSITE AIRFLOW CONDENSERS ACCESS AND COIL PIPING WILL REMAIN IN STANDARD POSITION. DRAIN AND SLEDS WILL MOVE TO THE OPPOSITE SIDE. ANY OTHER CHANGE WILL REQUIRE CLI. CONDENSERS REQUIRE SEPARATE 208V, 3 PHASE POWER SUPPLY UNLESS ORDERED WITH SINGLE POINT CONNECTION. COIL = 3EY1402.
12. DOWNTURN PLENUM FOR SIZE 2 COOLING COIL MODULE - REQUIRED FOR DOWN DISCHARGE COOLING COIL APPLICATIONS.
13. SEPARATE 120VAC WIRING PACKAGE FOR MAKE-UP AIR UNITS. OPTION MUST BE SELECTED WHEN MOUNTING VFD IN PREWIRE PANEL OR WITH DCV PACKAGE. PROVIDES SEPARATE 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO MUA SWITCH.
14. PROFILE PLATE CONFIGURATION FOR SIZE 2 DIRECT FIRED UNIT FOR LOW CFM APPLICATIONS.
15. HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER/MPU SECTION).
16. 2 YEAR PARTS WARRANTY

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 20" x 20".

SUPPLY SIDE HEATER INFORMATION:
WINTER TEMPERATURE = 36°F. TEMP. RISE = 50°F.
BTUs CALCULATED OFF ACTUAL AIR DENSITY.
OUTPUT BTUs AT ALTITUDE OF 0.0 FT. = 143674.
INPUT BTUs AT ALTITUDE OF 0.0 FT. = 156167.
OUTPUT BTUs AT ALTITUDE OF 70 FT. = 143311.
INPUT BTUs AT ALTITUDE OF 70 FT. = 155773.





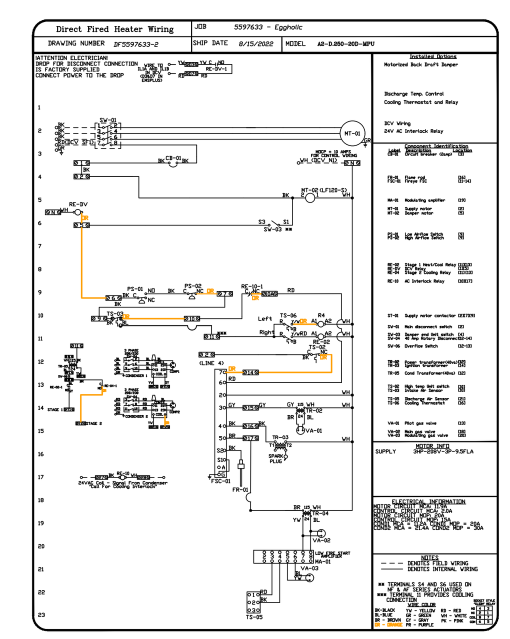
NOTES:
1) 1" DIAMETER PVC PIPE ONLY.
2) USE ONLY LOW PROFILE COUPLINGS.
3) ADD CLEAN OUT AS SHOWN.

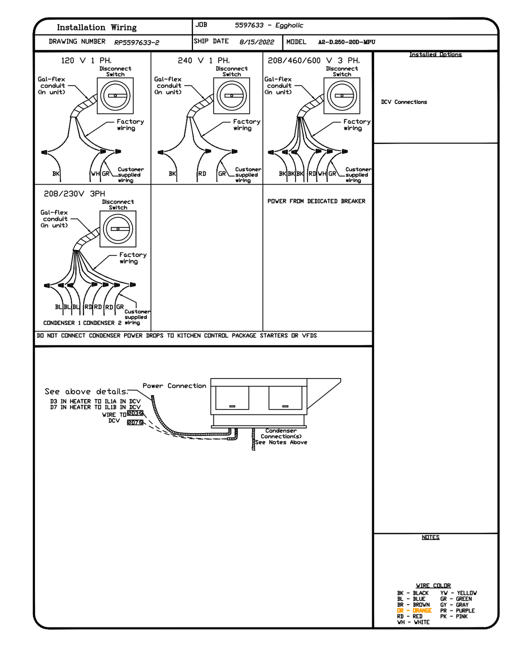
DIRECT FIRED PROFILE PLATE SPECIFICATIONS:
DESCRIPTION:
DIRECT FIRED BURNERS SHALL HAVE PATENTED (US PATENT NO.: US6629523B2), SELF-ADJUSTING PROFILE PLATES DESIGNED TO ENSURE PROPER AIR VELOCITY AND PRESSURE DROP ACROSS THE BURNER. PROFILE PLATES SHALL ALLOW BURNERS TO ACHIEVE CLEAN COMBUSTION BY LIMITING BY-PRODUCT LEVELS TO A MAXIMUM OF 5PPM OF CARBON MONOXIDE (CO), AND 0.5PPM OF NITROGEN DIOXIDE (NO2)DIRECT FIRED UNITS SHALL BE CONFIGURED WITH THE BLOWER MOUNTED DOWNSTREAM OF THE BURNER. THIS ARRANGEMENT WILL ENSURE A CONSISTENT AIRFLOW, REGARDLESS OF INLET AIR TEMPERATURE.

APPLICATION:
SPRING-LOADED BURNER PROFILE PLATES ARE ENGINEERED TO AUTOMATICALLY REACT TO THE MOMENTUM OF A FRESH AIR STREAM, WITHOUT THE NEED FOR ANY MOTORS OR ACTUATORS TO MECHANICALLY ADJUST THEM. WITH THIS FEATURE, ALL DF UNITS ARE DESIGNED FOR DEMAND CONTROL VENTILATION (DCV) REQUIREMENTS.

CERTIFICATIONS:
ALL PROFILE PLATE ASSEMBLIES SHALL BE INCLUDED IN THE DF UNIT'S ETL LISTING AND COMPLY WITH COMBINED SAFETY STANDARDS ANSI Z83.4 AND CSA 3.7 (NON-RECIRCULATING DF HEATERS) AND ANSI Z83.18 (RECIRCULATING DF HEATERS).

GENERAL CONSTRUCTION:
-PROFILE PLATES SHALL BE FORMED FROM G90 GALVANIZED STEEL.
-PROFILE PLATES SHALL VARY IN SIZE PER UNIT.
-PROFILE PLATES SHALL BE MOUNTED ALONG THE SAME PLANE AS THE DISCHARGE OF THE BURNER.
-DESIGN SHALL INCORPORATE PROPERLY TORQUED, PERMANENTLY MOUNTED SPRING HINGES.
-SPRING HINGES SHALL BE MADE FROM PLATED STEEL.





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Chicago Foodservice Division
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Eggholic

DATE: 8/15/2022
DWG.#: 5597633
DRAWN BY: WEM
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 4

Property of NY Engineers

Architect

CIVIL ENGINEER

STRUCTURAL ENGINEER

LANDSCAPE COMPANY

MEP ENGINEER

DEVELOPER

PROJECT: **EGGHOLIC**

Drawing Issue

Description	Date
FOR PERMIT	10/04/2022

Drawn By: NYE
Checked By: NYE

Sheet Title
HOOD DRAWINGS
(1 OF 2)

Sheet No.
M-2.1

Kolbrook Job No.	1690.003	Consultant Job No.	-

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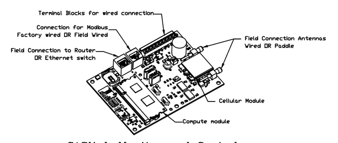
ELECTRICAL PACKAGE - JOB#5597633

NO	TAG	PACKAGE #	LOCATION	SWITCHES: LOCATION	SWITCHES: QUANTITY	OPTION	FANS CONTROLLED: FAN TAG	TYPE	Φ	HP	VOLT	FLA
1	ECP-1	DCV-1111	UTILITY CABINET LEFT	03 - UTILITY CABINET LEFT	1 LIGHT	SMART CONTROLS DCV	EF-1	EXHAUST	3	3.000	208	9.4
				HOOD # 1	1 FAN		MPU-1	SUPPLY	3	3.000	208	9.5



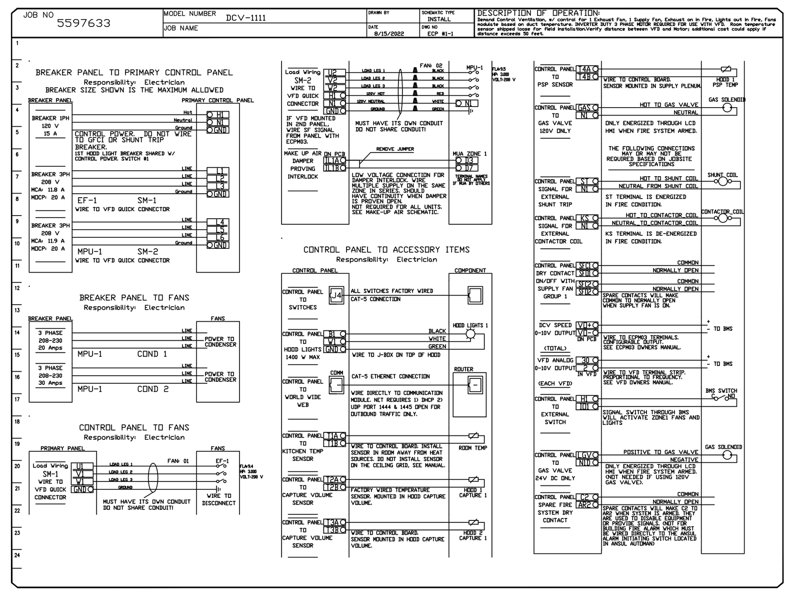
CASlink Monitor and Control

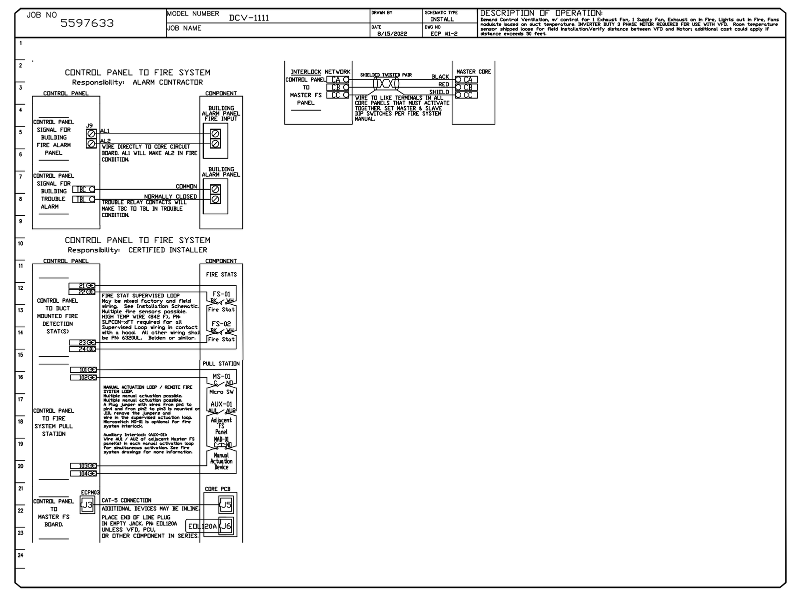
- Hood control panel to support communications to cloud-based Building Management System.
- Hood Control Panel to allow cloud-based Building Management System to monitor real time parameters outlined as MONITOR in the points list.
- Hood Control Panel to allow cloud-based Building Management System to control parameters outlined as CONTROL in the points list.
- Hood Control Panel to allow cloud-based Building Management System to implement SYSTEM ECONOMIZER control strategies for fully integrated Building Management.

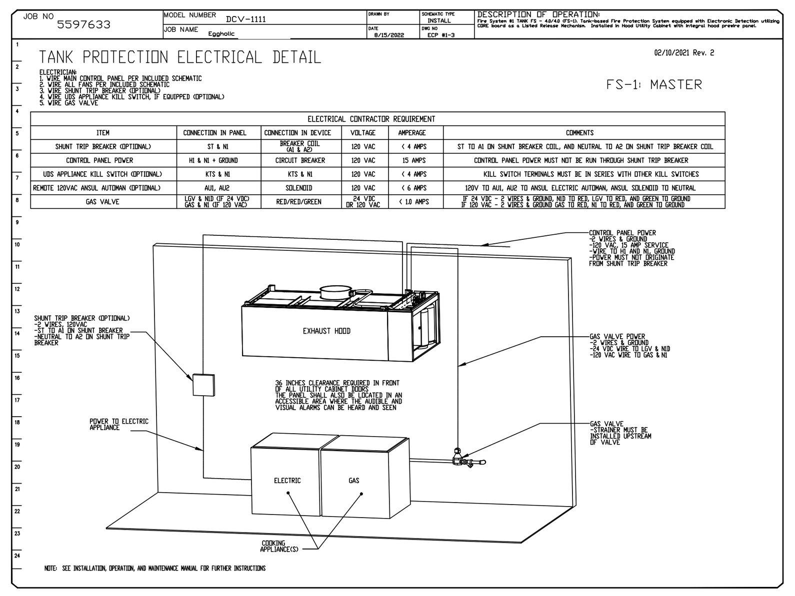
MONITORING AND CONTROL POINTS LIST

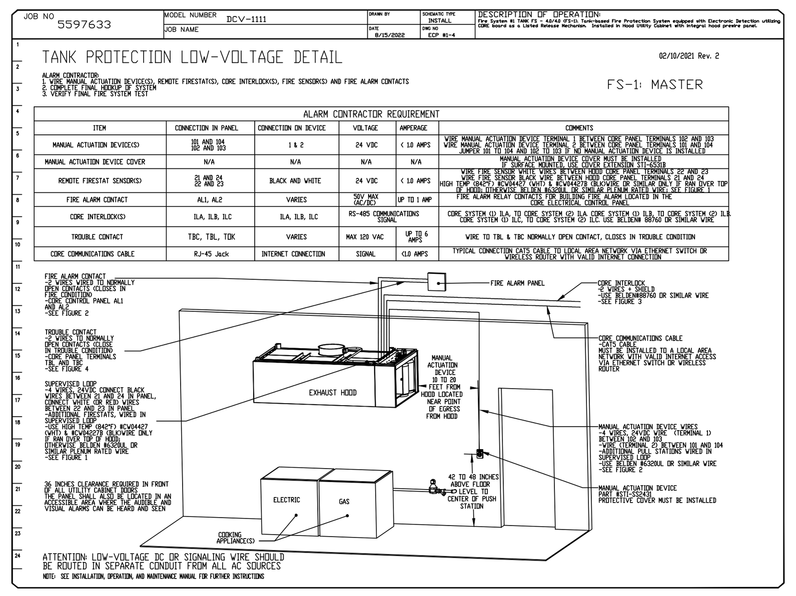
DCV Packages	Function
Room Temperature	MONITOR
Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR
Fan Speed	MONITOR
Fan Amperage	MONITOR
Fan Power	MONITOR
VFD Faults	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
PCU Faults	MONITOR
PCU Filter Clog Percentages	MONITOR
Fire Condition	MONITOR
CORE Fire System	MONITOR
Building Pressures	MONITOR
Prep Time Button	MONITOR & CONTROL
Fans Button	MONITOR & CONTROL
Lights Button	MONITOR & CONTROL
Wash Button	MONITOR & CONTROL

SC Packages	Function
Room Temperature(s)	MONITOR
Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
PCU Faults	MONITOR
PCU Filter Clog Percentages	MONITOR
Fire Condition	MONITOR
CORE Fire System	MONITOR
Building Pressures	MONITOR
Fans Button(s)	MONITOR & CONTROL
Lights Button(s)	MONITOR & CONTROL
Wash Button	MONITOR & CONTROL









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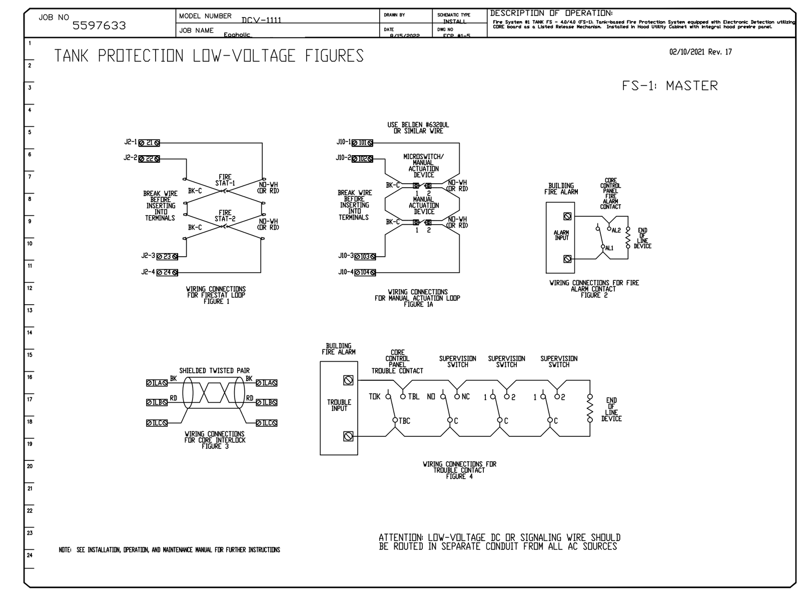
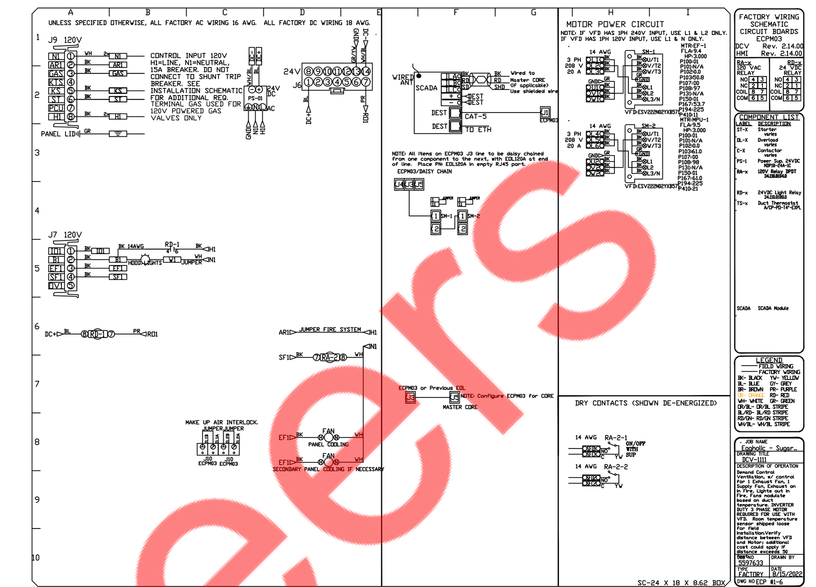
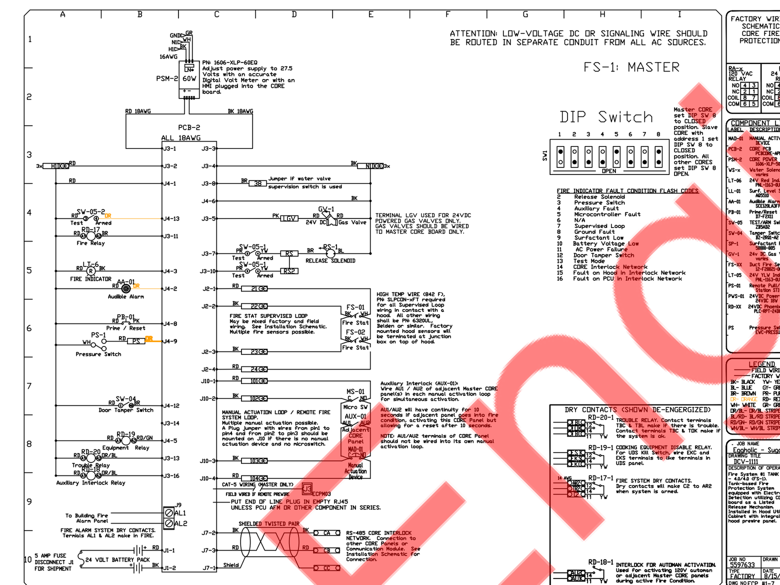
MASTER DRAWING

SHEET NO. 5

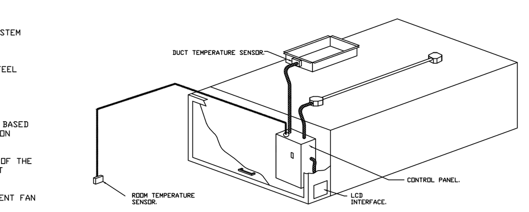






DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:

- CONTROLS SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.2.8 (2015).
- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
- TEMPERATURE PROBE(S) LOCATED IN THE EXHAUST DUCT RISER(S) SHALL BE CONSTRUCTED OF STAINLESS STEEL.
- A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND DUCT TEMPERATURES SENSORS. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IMC 507.1.1.
- A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.
- A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.
- VARIABLE FREQUENCY DRIVES (VFDS) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFDS BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT(S) TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.
- AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.
- THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.
- A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.
- A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA DRY CONTACT (EXTERNAL CONTROL SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE).
- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
  A. ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
  B. INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (NO RESET RELAY REQUIRED).
  C. VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  D. DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  E. MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  F. A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
  G. AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFDS.



TYPICAL HOOD CONTROL PANEL INSTALLATION

SEQUENCE OF OPERATIONS:

THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:

- AUTOMATIC: THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL THRESHOLD. DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED AS STATIC OR DYNAMIC. THESE TERMS REFER TO WHETHER A VARIABLE MOTOR (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS EQUIPPED WITH VARIABLE SPEED FANS AND THE ZONE IS DEFINED AS "DYNAMIC", THESE WILL MODULATE WITHIN A USER-DEFINED RANGE BASED ON THE TEMPERATURE DIFFERENTIAL. PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS "STATIC", FANS WILL RUN AT A SET SPEED CALCULATED FOR THE DRIVE. DEMAND CONTROL VENTILATION SYSTEMS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN IECC 403.2.8.
- MANUAL: THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
- SCHEDULE: A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE DURING THIS TIME. DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
- OTHER: THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).
- FIRE: UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.

SYSTEM DESIGN VERIFICATION (SDV)

IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

ANY FIELD RELATED DISCREPANCIES THAT ARE DISCOVERED DURING THE SDV WILL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND CORRESPONDING TRADES ON SITE. THESE ISSUES WILL BE DOCUMENTED AND FORWARDED TO THE APPROPRIATE SALES OFFICE. IF CAS SERVICE HAS TO RESOLVE A DISCREPANCY THAT IS A FIELD ISSUE, THE GENERAL CONTRACTOR WILL BE NOTIFIED AND BILLED FOR THE WORK. SHOULD A RETURN TRIP BE REQUIRED DUE TO ANY FIELD RELATED DISCREPANCY THAT CANNOT BE RESOLVED DURING THE SDV, THERE WILL BE ADDITIONAL TRIP CHARGES.

DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

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Architect

CIVIL ENGINEER

STRUCTURAL ENGINEER

LANDSCAPE COMPANY

MEP ENGINEER

DEVELOPER

PROJECT: EGGHOLIC

Drawing Issue

Description	Date
FOR PERMIT	10/04/2022

Drawn By: NYE

Checked By: NYE

Sheet Title

HOOD DRAWINGS (2 OF 2)

Sheet No.

M-2.2

Kolbrook Job No.	1690.003	Consultant Job No.	-

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ELECTRICAL SYMBOLS LIST

LIGHTING

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

SWITCHES AND CONTROLS

$a	20A SPST TOGGLE SWITCH U.O.N. "a" DENOTES LIGHTING FIXTURE/SWITCHED RECEPTACLE CONTROLLED.
$a3	20A 3-WAY TOGGLE SWITCH U.O.N. "a" DENOTES LIGHTING FIXTURE CONTROLLED
OS A	CEILING OCCUPANCY SENSOR, NUMBER INDICATES TYPE; SEE OCCUPANCY SENSOR SCHEDULE. 'A' LETTER REFERES TO WIRING DIAGRAM.
PC	WALL MOUNTED PHOTOCELL MOUNTED IN NEMA 3R ENCLOSURE.
$a OS	WALL OCCUPANCY SENSOR, NUMBER INDICATES TYPE.

ELECTRICAL DRAWING LIST

E-1	ELECTRICAL SYMBOLS LIST, ABBREVIATIONS & GENERAL NOTES
E-2	ELECTRICAL SPECIFICATIONS SHEET 1 OF 2
E-3	ELECTRICAL SPECIFICATIONS SHEET 2 OF 2
E-4	LIGHTING FIXTURE SCHEDULE AND CONTROL
E-5	LIGHTING AND POWER PLAN
E-6	ELECTRICAL DETAILS
E-7	ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULES

POWER AND TELECOMMUNICATION

J	JUNCTION BOX WITH BLANK COVER PLATE, CEILING MOUNTED..
	DUPLEX CONVENIENCE RECEPTACLE, +12" AFF OR AS NOTED.
	DOUBLE DUPLEX RECEPTACLE – 20A-1P, 125V, NEMA 5-20R.
	TELEPHONE/DATA OUTLET, 4"SQUARE OUTLET BOX WITH SINGLE GANG COLLAR AND BLANK PLATE. RUN (2) COMPOSITE CABLES FROM EACH OUTLET TO NID BOX.
	DATA OUTLET – (1) PORT UNO, +18" AFF, UNO TEL / DATA OUTLET TO BE RUN (2) COMPOSITE CABLES FROM EACH OUTLET TO NID BOX

MOTORS AND CONTROLS

M SW	AC INDOOR UNIT MOTOR AS NOTED WITH LIQUID TIGHT FLEXIBLE CONNECTION WITH JUNCTION BOX AND MOTOR SWITCH.
M WP	AC OUTDOOR UNIT MOTOR AS NOTED WITH CONTROLLER AND DISCONNECT SWITCH WITH WEATHER PROOF.
	NON FUSED DISCONNECT SWITCH AMPERAGE, AND NUMBER OF POLES AS NOTED.
A	30A/240V NON FUSED DISCONNECT SWITCH
B	60A/240V NON FUSED DISCONNECT SWITCH
C	100A/240V NON FUSED DISCONNECT SWITCH
D	200A/240V NON FUSED DISCONNECT SWITCH
E	400A/240V NON FUSED DISCONNECT SWITCH
MD	MOTORIZED DAMPER.
FSD	FIRE SMOKE DAMPER
S_T	THERMAL OVERLOAD SWITCH AT MOTOR. PROVIDE THERMAL ELEMENTS AS PER MOTOR RATING.
S_M	MANUAL MOTOR SWITCH
1.5 kW	ELECTRICAL HEATER, NUMBER DENOTES HEATER RATING
M M	DUPLEX PUMP. NUMBER INDICATES HP RATING OF PUMP.

ANNOTATION

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

POWER DISTRIBUTION

	POWER PANELBOARD, 208Y/120V-SURFACE MOUNTED.

ELECTRICAL ABBREVIATIONS

A	AMPERES	EA	EACH
A/C, AC	AIR CONDITIONING UNIT	EM	EMERGENCY
AF	AMPERE FRAME/AMP FUSE	EMT	ELECTRICAL METALLIC TUBING
AFF	ABOVE FINISHED FLOOR	EQUIP	EQUIPMENT
AS	AMP SWITCH	ER	EXISTING TO BE RELOCATED
AIC	AMPS INTERRUPTING CAPACITY	FA	FIRE ALARM
AT	AMP TRIP	E	EXISTING
ATS	AUTOMATIC TRANSFER SWITCH	FL	FLOOR
AUTO	AUTOMATIC	G	GROUND
AWG	AMERICAN WIRE GAUGE	GFI	GROUND FAULT INTERRUPTER
C	CONDUIT	GP	GENERAL PURPOSE
C/B,CB	CIRCUIT BREAKER	HP	HORSEPOWER
CKT	CIRCUIT	HWH	HOW WATER HEATER
CLG	CEILING	HZ	HERTZ
COMM	COMMUNICATION	IC	INTERRUPTING CAPACITY
CT	CURRENT TRANSFORMER	PP	POWER PANEL
CU	COPPER	PWR	POWER
DIA	DIAMETER	R	REMOVE
DISC	DISCONNECT	RE	RELOCATED EXISTING
DN	DOWN	REC	RECEPTACLE
DP	DISTRIBUTION PANEL	RGS	RIGID GALVANIZED STEEL
DWG	DRAWING	RR	REMOVE & RELOCATE
JB	JUNCTION BOX	SECT	SECTION
KCMIL	ONE THOUSAND CIRCULAR MILS	SPDT	SINGLE POLE DOUBLE THROW
KV	KILOVOLT	SPST	SINGLE POLE SINGLE THROW
KVA	KILOVOLT-AMPERES	SPEC	SPECIFICATION
KW	KILOWATTS	SW	SWITCH
LTG	LIGHTING	SWBD	SWITCHBOARD
MAX	MAXIMUM	SYM	SYMMETRICAL
MC	MOTOR CONTROLLER	SYS	SYSTEMS
MCB	MAIN CIRCUIT BREAKER	TELE	TELEPHONE
MLO	MAIN LUGS ONLY	TEMP	TEMPERATURE
MTD	MOUNTED	TXF	TOILET EXHAUST FAN
MTS	MANUAL TRANSFER SWITCH	TYP	TYPICAL
N	NEUTRAL	UON	UNLESS OTHERWISE NOTED
NIC	NOT IN CONTRACT	V	VOLT/VOLTAGE
NTS	NOT TO SCALE	VA	VOLT AMPERE
PNL	PANEL	WP	WEATHER PROOF
W	WATT	ø	PHASE
RH	RANGE HOOD	DW	DISHWASHER
WA	WASHER	REF	REFRIGERATOR
DR	DRYER	MW	MICROWAVE

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CURRENT VERSION OF THE LOCAL ELECTRICAL CODE, 2017 NEC, LOCAL JURISDICTION REQUIREMENTS, AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
2. CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED FOR FAILURE TO DO SO.
3. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
4. FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. ALL PENETRATIONS SHALL BE SLEEVED AND SEALED WATERTIGHT.
5. SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK). NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
6. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.
7. VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
8. CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
9. ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
10. CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE-EXISTING CONDITIONS OR BETTER.
11. MINIMUM SIZE OF CONDUIT SHALL BE ¾", AND TYPE SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED. PROVIDE NYLON DRAG LINE AND CONDUIT CAP FOR ALL EMPTY CONDUITS.
12. CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
13. PULL AND JUNCTION BOXES WHERE INDICATED ON THE DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THEM AS FIELD CONDITIONS DICTATE. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVDED WHERE REQUIRED BY APPLICABLE CODE PROVISIONS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND INSTALLED CONCEALED IN FINISHED AREAS, AND ALL COVERS TO PULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.
14. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
15. FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
16. ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAINTIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
17. ALL ACCESS PANEL LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
18. ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF NEW WORK WITH THE GENERAL CONTRACTOR AND OTHER ASSOCIATED TRADES IN A TIMELY MANNER. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL, DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
19. ALL CONDUITS AND EQUIPMENT TO BE CONCEALED IN FINISHED SPACES UNLESS OTHERWISE NOTED. CONDUITS SHALL BE ENCASED IN THE CONCRETE FLOOR SLAB.
20. ALL EQUIPMENT AND MATERIALS INSTALLED IN PLENUM CEILINGS SHALL BE APPROVED FOR THAT APPLICATION.
21. OUTLET BOXES AND JUNCTION BOXES ON OPPOSITE SIDES OF FIRE-RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, UNLESS FIRE-RATED BOXES OR PUTTY PADS ARE UTILIZED.
22. COORDINATE ALL FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITH THE ENGINEER AND OWNER BEFORE INSTALLATION.
23. COORDINATE THE MOUNTING HEIGHT AND LOCATION OF RACEWAYS, COMMUNICATIONS OUTLETS, AND RECEPTACLES WITH THE ARCHITECTURAL CASEWORK DRAWINGS AND DETAILS. COORDINATE LOCATIONS OF LIGHT FIXTURES, SWITCHES, AND RELATED DEVICES WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.
24. REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL LUMINARIES AND SWITCHES, AND FOR ALL FINISHED CEILING HEIGHTS.
25. REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL ELECTRICAL DEVICES, AND FOR FINAL CEILING AND WALL HEIGHTS AND LAYOUTS.
26. LIGHTING FIXTURES PROVIDED WITH EMERGENCY BATTERY PACKS AND INDICATED WITH SWITCH CONTROL SHALL BE WIRED WITH BATTERY CHARGING/SENSING CIRCUIT WIRED AHEAD OF SWITCH CONTROL.
27. NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD. PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANELBOARD.

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Architect

CIVIL ENGINEER

STRUCTURAL ENGINEER

LANDSCAPE COMPANY

MEP ENGINEER

DEVELOPER

PROJECT: EGGHOLIC

Drawing Issue

Description	Date
FOR PERMIT	10/04/2022

Drawn By: NYE
Checked By: NYE

Sheet Title
ELECTRICAL SYMBOLS LIST, ABBREVIATIONS & GENERAL NOTES

Sheet No.
E-1

Kolbrook Job No. 1690.003 | Consultant Job No. -

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ELECTRICAL SPECIFICATIONS

1. GENERAL:

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

B. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED, MAINTAIN HEADROOM AND SPACE CONDITIONS.

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

D. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOROPERATION,MAINTANANCE 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 ND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

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

M. UNLESS OTHERWISE SPECIFICALLY NOTED OR SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

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

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

P. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATED OF INSPECTION AND APPROVAL.

2. GENERAL PROVISIONS FOR ELECTRICAL WORK:

A. DEFINITIONS:

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

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

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

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

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

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

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

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

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

C. QUALITY ASSURANCE

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

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

3) CURRENT CHARACTERISTICS:

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

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

4) HEIGHTS OF OUTLETS:

a. FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:

- RECEPTACLES AND TELEPHONES: 1 FT–6 IN.
- WALL SWITCHES: 4 FT–0 IN.
- WALL FIXTURES: 7 FT–0 IN.
- MOTOR CONTROLLERS: 5 FT–0 IN.
- CLOCKS: 7 FT 6 IN

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

D. PRODUCT DELIVERY, STORAGE AND HANDLING

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

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

E. MATERIALS

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

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

3) INSERTS AND SUPPORTS:

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

- SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.
- MULTI–ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.
- CLIP FORM NAILS FLUSH WITH INSERTS.
- MAXIMUM LOADING 75 PERCENT OF RATING.

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

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

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

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

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

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

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

3. SCOPE OF WORK:

A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMING WITH THE 2017 NATIONAL ELECTRICAL CODE (NEC) WITH 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 STATE BUILDING CODE. SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.

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

4. SHOP DRAWINGS

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

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1) PROJECT NAME AND LOCATION

2) NAME OF ARCHITECT AND ENGINEER

3) ITEM IDENTIFICATION

4) APPROVAL STAMP OF PRIME CONTRACTOR

C. SUBMISSIONS:

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

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

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1) SAFETY/DISCONNECT SWITCHES

2) FUSES

3) CIRCUIT BREAKERS

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

5) RACEWAYS

6) WIRE AND CABLE

7) WALL SWITCHES

8) INSERTION RECEPTACLES

9) MOMENTARY CONTACT SWITCHES

10) TIME SWITCHES

11) LIGHTING FIXTURES.

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

5. AS–BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

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

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

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

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

6. LOW–VOLTAGE DISTRIBUTION EQUIPMENT:

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

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

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

7. FUSES:

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

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

C. ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.

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

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

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

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

8. MATERIALS

1) RACEWAYS:

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

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

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

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

e. SURFACE METAL RACEWAY: SIZE AS NOTED. BASE 0.04 IN., COVER 0.25 IN. MATERIAL SHALL BE STEEL. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW–ON.

2) FITTINGS AND ACCESSORIES:

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

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

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

d. BUSHINGS: METALLIC INSULATED TYPE.

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Architect

CIVIL ENGINEER

STRUCTURAL ENGINEER

LANDSCAPE COMPANY

MEP ENGINEER

DEVELOPER

PROJECT: **EGGHOLIC**

Drawing Issue

Description	Date
FOR PERMIT	10/04/2022

Drawn By: NYE
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Sheet Title
ELECTRICAL SPECIFICATIONS SHEET 1 OF 2

Sheet No.
E-2

Kolbrook Job No.	1690.003	Consultant Job No.	-

ELECTRICAL SPECIFICATIONS (CONT.)

3) BOXES:

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

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

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

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

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

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

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

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

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

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

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

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

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

D. PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE-PIECE PLUG WITH POZI-GRIP WEDGING PLUG AS 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 TABLE 300.19(A).

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

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

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

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

9. WIRE AND CABLE:

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

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

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

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

E. ARMORED CABLE (BX) SHALL BE UTILIZED FOR BRANCH CIRCUITS IN DRY HOLLOW LOCATIONS, HUNG CEILINGS, AND BLOCK WALLS.

F. COLOR CODING SHALL BE AS FOLLOWS:

120/208 VOLT SYSTEM:
BLACK FOR A PHASE
RED FOR B PHASE
BLUE FOR C PHASE

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

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

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

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

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

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

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

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

10. WIRING DEVICES:

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

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

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

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

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

1) HEALTH CARE FACILITIES:

a) DUPLEX, 20 AMP, 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT. SIMILAR TO HUBBELL NO. 8300.

b) SINGLE, 20 AMP, 125 VOLT, 2 POLE, 3 WIRE, U GROUND SLOT. SIMILAR TO HUBBELL NO. 8310.

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

F. COLORS: COORDINATE COLORS WITH ARCHITECT.

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

11. LIGHTING FIXTURES:

A. FIXTURES TO BE AS SPECIFIED BY ARCHITECT AND SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.

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

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

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

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

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

G. FLUORESCENT LIGHTING FIXTURES, INCLUDING GENERAL CONSTRUCTION, LAMPS AND BALLASTS SHALL CONFORM TO THE ENERGY EFFICIENCY REQUIREMENTS OF CONSOLIDATED EDISON CO. AND QUALITY FOR A UTILITY REBATE TO OWNER UNDER CON EDISON'S ENLIGHTENED ENERGY LIGHTING REBATE PROGRAM. CONTRACTOR SHALL COORDINATE REBATE PROGRAM WITH CON EDISON AND ARRANGE FOR CON EDISON TO PERFORM A SURVEY TO INVENTORY ALL EXISTING FIXTURES PRIOR TO DEMOLITION.

H. EXIT SIGNS SHALL BE PRECISION DIE-CAST ALUMINUM HOUSING WITH LASER-FORMED ACRYLIC LEGEND. EXIT SIGNS SHALL COMPLY WITH UL 924 AND BE MEA APPROVED FOR USE IN CITY. AC POWERED WITH PREMIUM LONG-LIFE NICKEL CADMIUM BATTERY WITH STANDARD UL LISTED 3-HOUR RUN TIME. PROVIDE WITH INTEGRAL AUTOMATIC CHARGER IN A SELF CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

12. TELEPHONE CONDUIT SYSTEM:

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

B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF TELEPHONE COMPANY.

C. OUTLETS SHALL BE:

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

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

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

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

13. GROUNDING AND BONDING:

A. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH (2017 NATIONAL ELECTRICAL CODE WITH AMENDMENTS), AND THESE SPECIFICATIONS. THE WIRING SYSTEM SHALL BE INSTALLED AS REQUIRED TO PROVIDE A CONTINUOUSLY GROUNDED SYSTEM. WHERE FLEXIBLE CONDUIT IS USED FOR PART OF A CONDUIT RUN, EXCEPT LIGHTING BRANCH CIRCUITS, AN INSULATED GROUNDING CONDUCTOR SHALL BE PROVIDED IN THE CONDUIT AND CONNECTED TO GROUNDING BUSHINGS AT EACH END OF THE RUN.

B. USE EXOTHERMIC WELDING PROCESS FOR INACCESSIBLE CONNECTIONS.

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

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

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

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

3) CIRCUITS SERVING ANY DUPLEX OR SIMPLEX COMPUTER RECEPTACLES

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

14. INTERCOM CONDUIT SYSTEM:

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

B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF INTERCOM MANUFACTURER.

C. OUTLETS SHALL BE:

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

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

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

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Architect

CIVIL ENGINEER

STRUCTURAL ENGINEER

LANDSCAPE COMPANY

MEP ENGINEER

DEVELOPER

PROJECT: **EGGHOLIC**

Drawing Issue

Description	Date
FOR PERMIT	10/04/2022

Drawn By: NYE
Checked By: NYE

Sheet Title
ELECTRICAL SPECIFICATIONS SHEET 2 OF 2

Sheet No.
E-3

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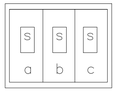
LIGHTING SCHEDULE

CODE	DESCRIPTION	MANUFACTURER	PRODUCT	QUANTITY
INTERIOR				
A	2'X4' METALUX, LENSED LED TROFFER	EATON / COOPER LIGHTING	2GR8-IC	5
B	NODES 14" WIDE SEMI-FLUSH CEILING	GENERATION LIGHTING	KF1011MBK	8
C	NODES 8" WIDE SEMI-FLUSH CEILING	GENERATION LIGHTING	KF1001MBK	4
D	6" RECESSED LED CAN LIGHT FIXTURE	CREE	RC6/CR6T-1600L-35	4
P	KASA MINI PENDANT - BLACK / MEDIUM	MATEO LIGHTING / LUMENS	MT0194955	12
EBU-W	2-HEAD EMERGENCY BATTERY PACK (WHITE)	EXTRONICS	EBU-W-LED-51-52	
EX-1	COMBO LED EXIT SIGN W/LIGHT HEADS (WHITE)	EXTRONICS	VLED-U-WH-EL90	



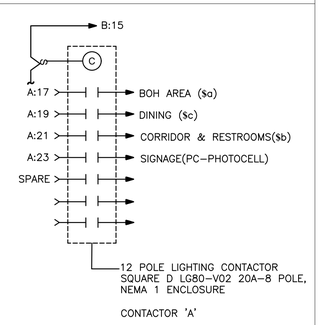
SWITCHBANK DETAIL

N.T.S.

LIGHTING SCHEDULE NOTES

1. PROVIDE ALL FIXTURES COMPLETE WITH LAMPS.
2. ALL BALLASTS SHALL BE HIGH POWER FACTOR.
3. PROVIDE HOLD-DOWN CLIPS FOR EACH CORNER OF LED GRID TROFFERS.
4. COORDINATE AND VARIFY ALL FIXTURE INFORMATION, TYPE AND FINAL LOCATIONS WITH THE REFLECTED CEILING PLAN.
5. PROVIDE ALL REQUIRED MOUNTING OR HANGING HARDWARE.
6. CONFIRM FIXTURE TYPE WITH OWNER PRIOR TO PURCHASE. FIXTURE WATTAGE SHOULD NOT EXCEED WATTAGE OF SELECTED LIGHT FIXTURES IN THE SCHEDULE ABOVE IN ORDER TO COMPLY WITH ENERGY CODE REQUIREMENTS
7. VERIFY FINAL SELECTION OF LIGHT FIXTURES PRIOR TO BID

LIGHTING CONTROL PANEL



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STRUCTURAL ENGINEER

LANDSCAPE COMPANY

MEP ENGINEER

DEVELOPER

PROJECT: **EGGHOLIC**

Drawing Issue

Description	Date
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Drawn By: NYE

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Sheet Title

LIGHTING FIXTURE SCHEDULE & CONTROL

Sheet No.

E-4

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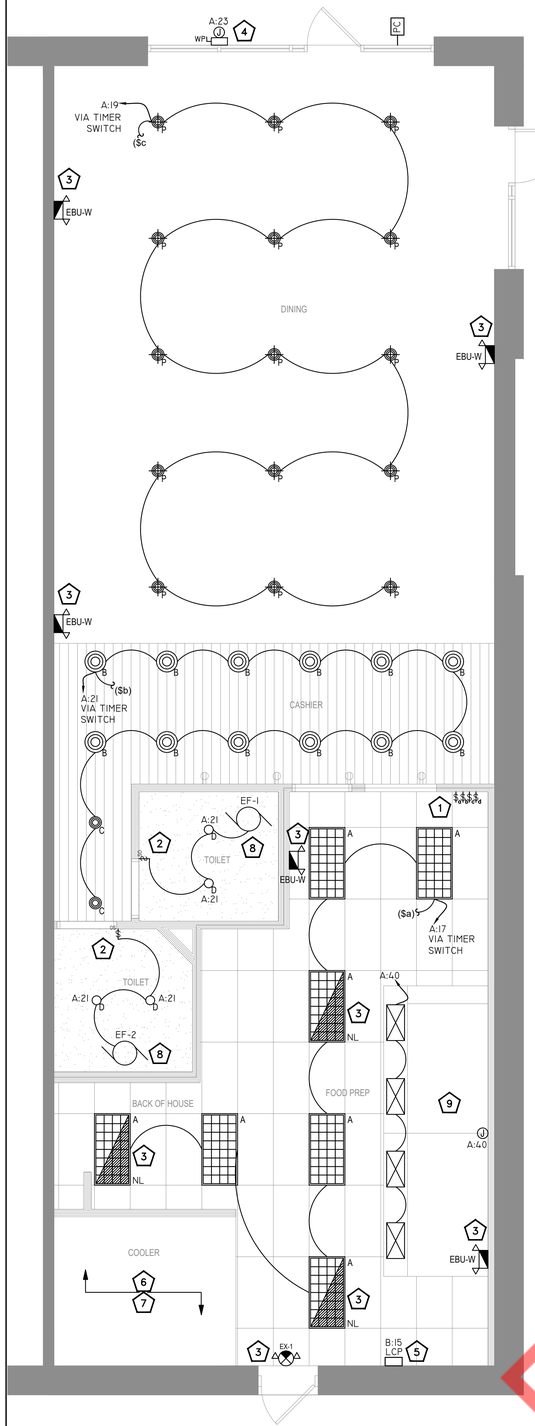
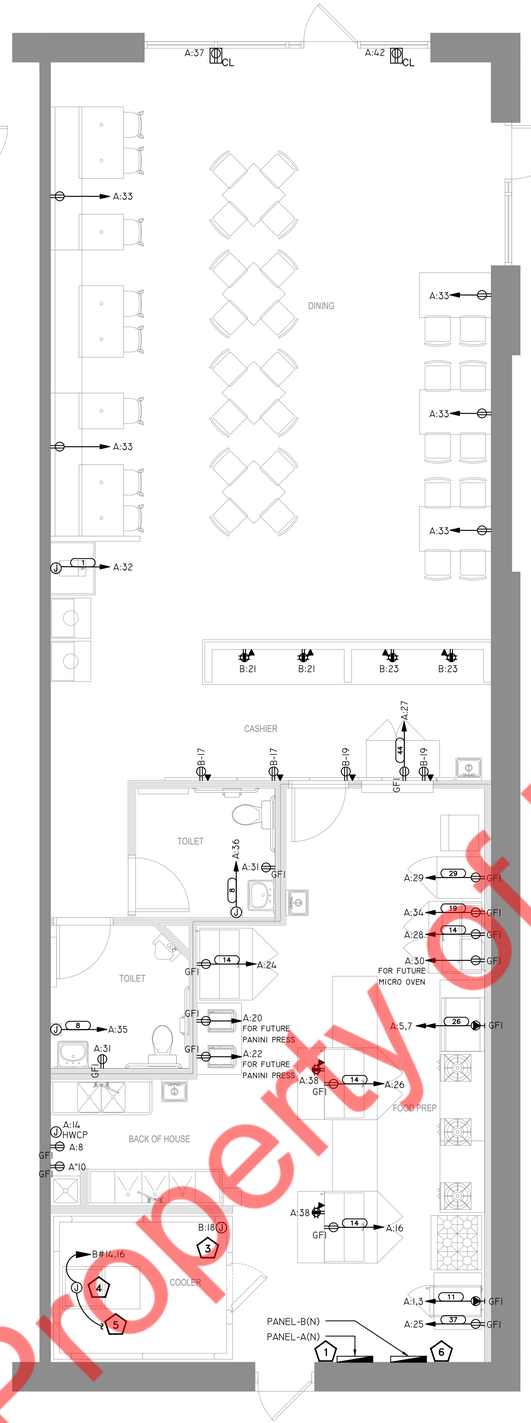
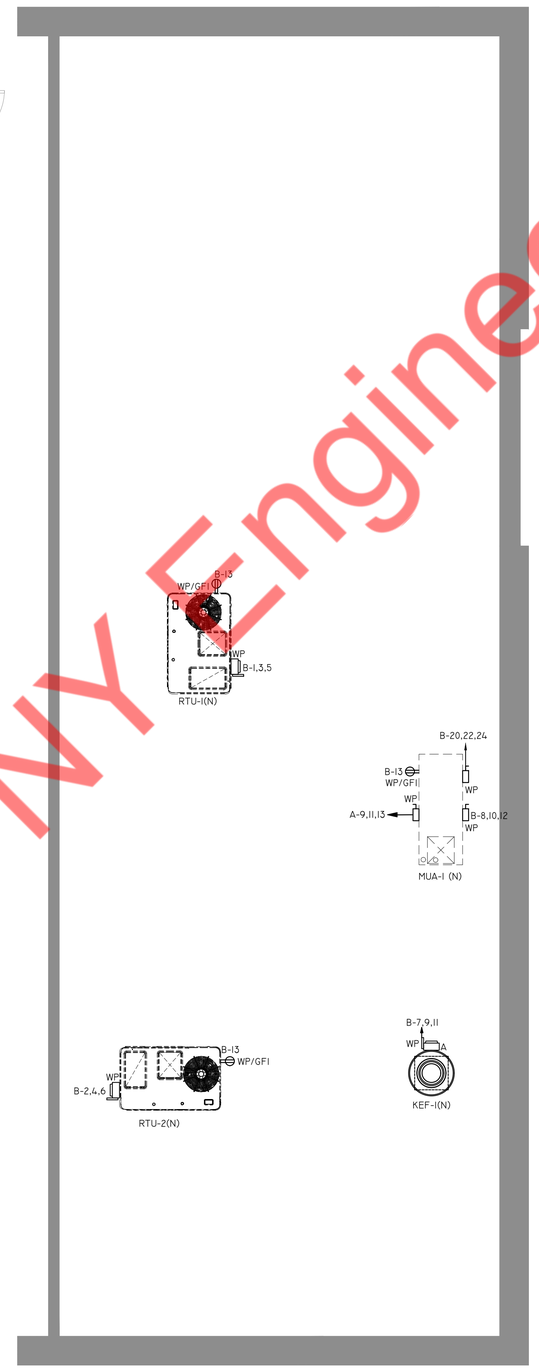


1 LIGHTING PLAN
SCALE: 1/4" = 1'-0"



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



1 ROOF POWER PLAN
SCALE: 1/4" = 1'-0"

LIGHTING PLAN KEYED WORK NOTES:

1. SWITCH BANK FOR LIGHTING CONTROL. CONNECT TO FIXTURES AS INDICATED.
2. WALL MOUNTED OCCUPANCY SENSOR. SET OFF TIME TO 15 MINUTES FOR RESTROOM, SET DIP SWITCH TO AUTOMATIC ON.
3. WIRE ALL EMERGENCY, EXIT AND NIGHT LIGHT AHEAD OF SWITCHING FOR CONTINUOUS OPERATIONS. CONNECT TO ADJACENT CIRCUIT.
4. JUNCTION BOX WITH TOGGLE DISCONNECT PER NEC FOR CONNECTION TO BUILDING MOUNTED SIGNAGE. VERIFY EXACT LOCATION AND CONNECT TO SIGN PER MANUFACTURE'S INSTRUCTION. ROUTE CIRCUIT TO PANEL AS INDICATED VIA EXTERIOR LIGHTING/SIGNAGE CONTROLLER.
5. COORDINATE EXACT LOCATION OF LIGHTING CONTROL PANEL WITH ARCHITECT.
6. LIGHTING FIXTURES FURNISHED BY WALK–IN BOX VENDOR. ELECTRICAL CONTRACTOR TO INSTALL AND CONNECT FIXTURES.
7. PROVIDE OCCUPANCY SENSOR SWITCHES FOR WALK–IN BOX COOLER ENSURE SWITCHES ARE SUITABLE FOR TEMPERATURE OF COOLER.
8. EXHAUST FANS SHALL BE CIRCUITED AND CONTROLLED ALONG WITH THE LIGHT FIXTURES IN THE SAME ROOM.

ELECTRICAL POWER PLAN NOTES:

1. E.C. SHALL COORDINATE LOCATIONS AND HEIGHT OF ALL OUTLETS WITH ARCHITECT/OWNER PRIOR TO ROUGH–IN.
2. ALL ELECTRICAL ROUGH–INS AND CONNECTIONS SHOWN ON THESE PLANS ARE FOR FOOD SERVICE FIXTURES AND EQUIPMENT PROVIDED BY THE EQUIPMENT VENDOR OR BY OUTSIDE PARTIES LISTED AS 'VENDOR' OR 'BY OTHERS'. ALL INFORMATION PROVIDED ON THESE PLANS ARE TO BE VERIFIED BY THE ELECTRICAL CONTRACTOR THRU THE SPECIFICATIONS MANUAL PROVIDED BY THE EQUIPMENT VENDOR OR BY CONSULTING THE APPROPRIATE OUTSIDE PARTIES.
3. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR SUPPLYING / INSTALLING ALL ELECTRICAL COMPONENTS NECESSARY TO PROVIDE POWER TO EQUIPMENT. ELECTRICAL CONTRACTOR SHALL ALSO COMPLETE ALL INTERNAL WIRING AND FINAL CONNECTIONS TO EQUIPMENT PER MANUFACTURERS SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO:
   - –PROVIDING CAPS AND CORDS TO APPLICABLE EQUIPMENT
   - –STAINLESS STEEL COVER PLATES WHERE REQUIRED
   - – MAIN BREAKER PANELS, CONTROL PANELS, DISCONNECT SWITCHES, STARTERS, ETC.
4. REFER TO ARCHITECTURAL PLANS AND / OR CONSTRUCTION DOCUMENTS FOR ANY ADDITIONAL ELECTRICAL CONNECTIONS OR OUTLETS REQUIRED TO MEET LOCAL CODES.
5. ELECTRICAL CONTRACTOR SHALL COORDINATE DISCONNECT AND FUSE REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH–IN AND PROVIDE AS REQUIRED. COORDINATE LOCATION OF DISCONNECT WITH MANUFACTURER AND MECHANICAL CONTRACTOR PRIOR TO ROUGH–IN. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.
6. ALL RECEPTACLES IN KITCHEN AREA SHALL BE "GFCI" IN ACCORDANCE WITH NEC ARTICLE 210.8(B). PROVIDE GFI RATED BREAKER AT PANEL FOR KITCHEN EQUIPMENT.
7. COORDINATE EXACT LOCATION OF HVAC EQUIPMENTS ON ROOF WITH MECHANICAL CONTRACTOR

ELECTRICAL POWER PLAN KEYED WORK NOTES:

1. NEW 200A, 120/208 VOLTS, 3–PHASE ELECTRICAL PANEL.
2. EXISTING MECHANICAL UNIT AND THEIR ELECTRICAL CONNECTIONS SHALL REMAIN. E.C. TO CHECK OPERABLE CONDITIONS OF CIRCUIT CONNECTIONS IN FIELD. REPLACE IF INOPERABLE. BASE BID ACCORDINGLY.
3. JUNCTION BOX FOR WALK–IN MISCELLANEOUS LOAD. E.C. SHALL COORDINATE WITH MANUFACTURER FOR EXACT POWER REQUIREMENTS.
4. ELECTRICAL CONTRACTOR TO COORDINATE EXACT POWER REQUIREMENT WITH WALK IN BOX MANUFACTURER AND MAKE POWER PROVISION ACCORDINGLY.
5. E.C. TO FIELD VERIFY LOCATION OF CONDENSING UNIT AND PROVIDE POWER CONNECTION WITH NECESSARY ELECTRICAL FIXTURES/ DISCONNECTS AS PER MANUFACTURER REQUIREMENTS..
6. NEW 100A, 120/208 VOLTS, 3– PHASE ELECTRICAL PANEL. E.C. SHALL COORDINATE WITH ARCHITECT/OWNER FOR LOCATION.

ELECTRICAL NOTE

1. REUSE EXISTING CONDUITS AND WIRING IN WALLS FOR APPROPRIATE CIRCUITS. CHECK OPERABLE CONDITION OF EXISTING CONDUIT AND WIRING BEFORE USE. PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

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Architect

CIVIL ENGINEER

STRUCTURAL ENGINEER

LANDSCAPE COMPANY

MEP ENGINEER

DEVELOPER

PROJECT: EGGHOLIC

Drawing Issue

Description	Date
FOR PERMIT	10/04/2022

Drawn By: NYE
Checked By: NYE

Sheet Title
LIGHTING AND POWER PLAN

Sheet No.
E-5

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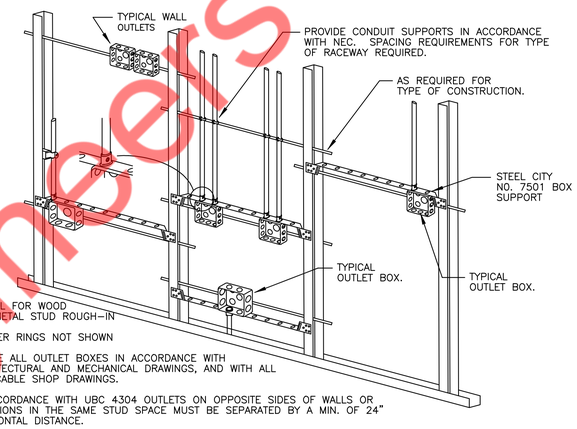


NOTES:

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

2 / E-6 DETAIL TYPICAL ROUGH-IN REQUIREMENTS
N.T.S

MANUAL MODE OPERATION:

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

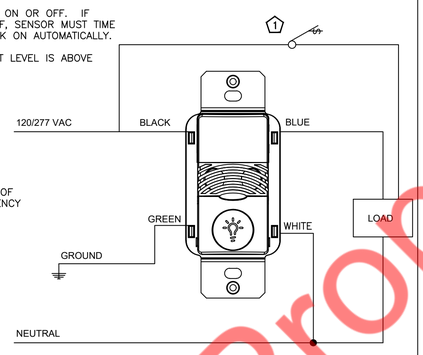
AUTOMATIC MODE OPERATION:

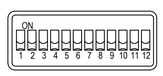
1. WHEN SENSOR ACTIVATES LOAD TURNS ON.
2. PUSHBUTTON CAN BE USED TO TURN LOAD ON OR OFF. IF PUSHBUTTON IS USED TO TURN LOAD OFF, SENSOR MUST TIME OUT FIRST, BEFORE LOAD CAN TURN BACK ON AUTOMATICALLY.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

SENSOR TYPES INCLUDE:

ONW-D-1001-MV-N

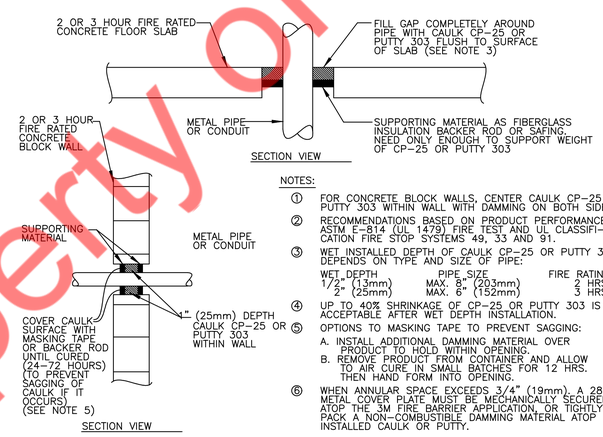
(1) PROVIDE SENSING CONDUCTOR TAPPED AHEAD OF ANY SWITCHES WHERE SWITCH SERVES EMERGENCY FIXTURES.





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

4 / E-6 CONNECTION OCCUPANCY/VACANCY-SINGLE LEVEL WIRING DIAGRAM-LINE VOLTAGE WALL SWITCH SENSOR(NEUTRAL)
N.T.S



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.

3 / E-6 FIRE STOP DETAIL
N.T.S

AUTOMATIC MODE OPERATION

1. WHEN SENSOR ACTIVATES, LOAD TURNS ON.
2. LOAD TURNS OFF, WHEN SENSOR TIMES OUT.

RECOMMENDED WIRE

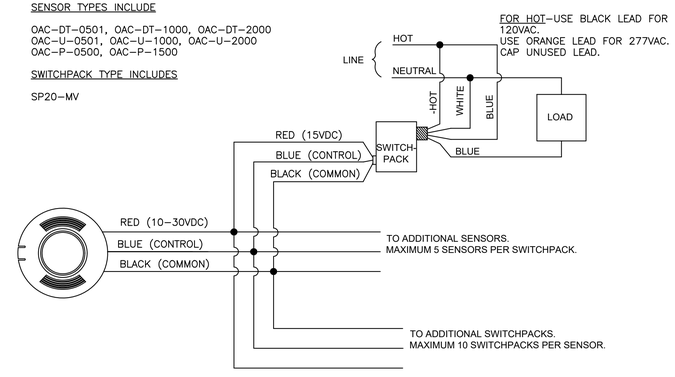
18-3 AWG STRANDED WIRE SHIELDED OR NON-SHIELDED

SENSOR TYPES INCLUDE

OAC-DT-0501, OAC-DT-1000, OAC-DT-2000
OAC-U-0501, OAC-U-1000, OAC-U-2000
OAC-P-0500, OAC-P-1500

SWITCHPACK TYPE INCLUDES

SP20-MV



1 / E-6 OCCUPANCY - AUTO ON/OFF.
WIRING DIAGRAM - LOW VOLTAGE CEILING SENSOR
N.T.S

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STRUCTURAL ENGINEER

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MEP ENGINEER

DEVELOPER

PROJECT: EGGHOLIC

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Sheet Title
ELECTRICAL DETAILS

Sheet No.
E-6

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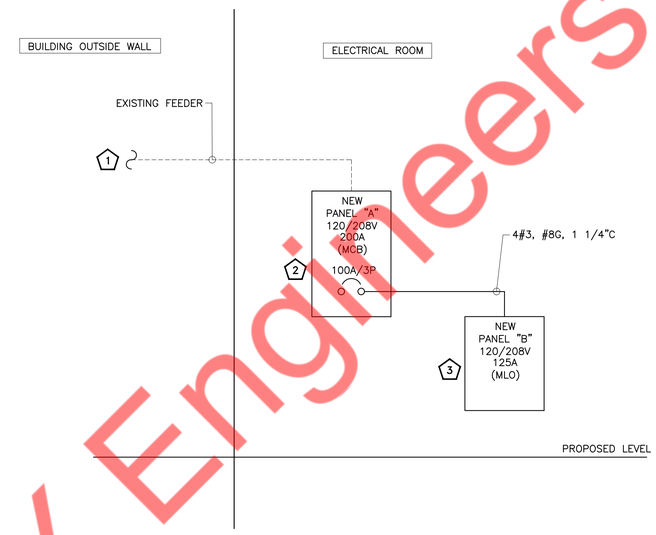
PANEL:	A (NEW)					LOCATION:		BOH								MOUNTING:	SURFACE	
208Y/120	VOLTS,		3	PHASE,		4		WIRE										
MAIN CB	200A			BUS	EX	MIN,										FED FROM	PANEL A	

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA) A	B	C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	2P-50	11 MULTI COOK OVEN	E	3.95	2#8, #10G, 3/4"C	17.12			4#3, #8G, 1 1/4"C	13.17	O	TO PANEL B(NEW)	3P-100	2
3			E	3.95			17.12			13.17	O			4
5	2P-20	26 ELECTRIC GRIDDLE	E	1.20	2#12, #12G, 3/4"C			14.37		13.17	O			6
7			E	1.20		1.30			2#12, #12G, 3/4"C	0.10	E	SPARK PLUG	20	8
9	3P-30	MUA-1 (N) CONDENSER UNIT 2	M	2.05	3#10, #10G, 3/4"C		2.15		2#12, #12G, 3/4"C	0.10	E	SPARK PLUG	20	10
11			M	2.05				2.05				SPARE	20	12
13			M	2.05		2.15			2#12, #12G, 3/4"C	0.10	M	HWCP	20	14
15	20	SPARE					0.18		2#12, #12G, 3/4"C	0.18	E	14 2-SECTION WORK TABLE	20	16
17	20	LIGHTING BOH AND KITCHEN	L	0.20	2#12, #12G, 3/4"C			0.20				SPARE	20	18
19	20	LIGHTING DINING AREA	L	0.20	2#12, #12G, 3/4"C	0.70			2#12, #12G, 3/4"C	0.50	E	FOR FUTURE PANINI PRESS	20	20
21	20	LIGHTING CASHIRE, RESTROOM	L	0.20	2#12, #12G, 3/4"C		0.70		2#12, #12G, 3/4"C	0.50	E	FOR FUTURE PANINI PRESS	20	22
23	20	BUILDING SIGNAGE	L	0.50	2#12, #12G, 3/4"C			0.86	2#12, #12G, 3/4"C	0.36	E	14 2-SECTION WORK TABLE	20	24
25	20	37 REFRIGERATED CHEF BASE	E	0.45	2#12, #12G, 3/4"C	0.80			2#12, #12G, 3/4"C	0.36	E	14 2-SECTION WORK TABLE	20	26
27	20	44 BEVERAGE COOLER	E	0.35	2#12, #12G, 3/4"C		0.71		2#12, #12G, 3/4"C	0.36	E	14 2-SECTION WORK TABLE	20	28
29	20	29 WORKTOP FREEZER	E	1.13	2#12, #12G, 3/4"C			1.63	2#12, #12G, 3/4"C	0.50	E	FOR FUTURE MICROWAVE OVEN	20	30
31	20	RESTROOM RECEPTACLES	R	0.36	2#12, #12G, 3/4"C	0.72			2#12, #12G, 3/4"C	0.36	E	1 WATER DISPENSER SYSTEM	20	32
33	20	CONVENIENCE RECEPTACLE	R	0.90	2#12, #12G, 3/4"C		1.40		2#12, #12G, 3/4"C	0.50	E	FOR FUTURE MICROWAVE OVEN	20	34
35	20	8 HAND DRYER	O	1.70	2#12, #12G, 3/4"C			3.40	2#12, #12G, 3/4"C	1.70	O	8 HAND DRYER	20	36
37	20	SHOW WINDOW	L	1.00	2#12, #12G, 3/4"C	1.72			2#12, #12G, 3/4"C	0.72	R	WORK TABLE RECEPTACLES	20	38
39	2P-20	WALK IN EVAPORATOR	M	1.66	2#12, #12G, 3/4"C		1.76		2#12, #12G, 3/4"C	0.10	L	HOOD LIGHTS	20	40
41			M	1.66				2.66	2#12, #12G, 3/4"C	1.00	L	SHOW WINDOW	20	42
		TOTAL LOAD(KVA)				24.51	24.02	25.17						



PANEL:	B (NEW)					LOCATION:		BOH								MOUNTING:	SURFACE	
208Y/120	VOLTS,		3	PHASE,		4		WIRE										
MLO	100A			BUS	125A	MIN,										FED FROM	PANEL A	

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA) A	B	C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	3P-50	RTU-1 (N)	M	4.10	3#8, #10G, 3/4"C	6.40			3#10, #10G, 3/4"C	2.30	M	RTU-2 (N)	3P-40	2
3			M	4.10			6.40			2.30	M			4
5			M	4.10				6.40		2.30	M			6
7	3P-20	KEF-1 (N)	M	1.27	3#12, #12G, 3/4"C	2.54			3#10, #10G, 3/4"C	1.27	M	MUA-1 (N)	3P-30	8
9			M	1.27			2.54			1.27	M			10
11			M	1.27				2.54		1.27	M			12
13	20	ROOF RECEPTACLE	R	0.54	2#12, #12G, 3/4"C	2.20			2#12, #12G, 3/4"C	1.66	M	WALK IN COOLER CONDENSER	2P-30	14
15	20	LCP	E	0.05	2#12, #12G, 3/4"C		1.71			1.66	M			16
17	20	TV MENUBOARD RECEPTACLES	R	0.36	2#12, #12G, 3/4"C			0.46	2#12, #12G, 3/4"C	0.10	M	JB FOR WALK-IN BOX	20	18
19	20	TV MENUBOARD RECEPTACLES	R	0.36	2#12, #12G, 3/4"C	1.43			3#12, #12G, 3/4"C	1.07	M	MUA-1 (N) CONDENSER UNIT 1	3P-20	20
21	20	OFFICE RECEPTACLES	R	0.72	2#12, #12G, 3/4"C		1.79			1.07	M			22
23	20	OFFICE RECEPTACLES	R	0.72	2#12, #12G, 3/4"C			1.79		1.07	M			24
25	20	SPARE				0.00						SPARE	20	26
27	20	SPARE					0.00					SPARE	20	28
29	20	SPARE						0.00				SPARE	20	30
		TOTAL LOAD(KVA)				12.57	12.44	11.19						

ELECTRICAL RISER SYMBOLS

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

ELECTRICAL RISER KEYED WORK NOTES:

1. EXISTING 200 AMPS, 120/208V, 3-PH, 4-WIRE FEEDER FROM EXISTING METER/DISCONNECT. E.C. TO VERIFY EXACT POWER DISTRIBUTION IN FIELD. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY.
2. NEW 200 AMPS, 120/208V, 3-PH, 4-WIRE ELECTRICAL PANEL TO REMAIN. E.C. TO VERIFY OPERABLE CONDITIONS OF INCOMING FEEDER AND PANEL. REPLACE IF INOPERABLE. BASE BID ACCORDINGLY.
3. NEW 100 AMPS, 120/208V, 3-PH, 4-WIRE ELECTRICAL PANEL. E.C. TO COORDINATE LOCATION OF PANEL WITH ARCHITECT/OWNER.

ELECTRICAL GENERAL NOTES:

1. ELECTRICAL CONTRACTOR TO COORDINATE FAULT CURRENT (Isc) RATING WITH UTILITY COMPANY AND AHJ PRIOR TO COMMENCING ANY WORK.
2. E.C. SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION.
3. ABOVE RISER DIAGRAM IS FOR REFERENCE PURPOSES ONLY. E.C. SHALL VERIFY EXACT POWER DISTRIBUTION IN FIELD AND INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY.

PANEL SCHEDULE GENERAL NOTES

A. ALL CIRCUITING SHOWN IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY CIRCUITING OF THE EXISTING DEVICES IN FIELD AND INFORM ENGINEER IF ANY DISCREPANCIES.

B. E.C.SHALL PROVIDE NEW CIRCUIT BREAKERS IN PLACE OF EXISTING CIRCUIT BREAKERS WHEREVER NECESSARY TO BE IN LINE WITH THE PANEL SCHEDULE.

C. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT CIRCUIT NUMBER & BREAKER SIZE OF EXISTING DEVICES IN FIELD.

PANEL SCHEDULE ABBREVIATIONS:

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

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DEVELOPER

PROJECT: **EGGHOLIC**

Drawing Issue

Description	Date
FOR PERMIT	10/04/2022

Drawn By: NYE
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Sheet Title

ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULES

Sheet No.

E-7

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PLUMBING SPECIFICATIONS

A. GENERAL CONDITIONS OTHER CONTRACT DOCUMENTS

1. THE GENERAL CONDITIONS AND OTHER CONTRACT DOCUMENTS AS SET FORTH HEREBY ARE TO BE INCORPORATED INTO AND BECOME A PART OF THE SPECIFICATIONS FOR THE WORK UNDER THIS DIVISION.

B. CODES AND PERMITS

1. COMPLY WITH RULES, REGULATIONS OF STATE, COUNTY, AND CITY AUTHORITIES HAVING JURISDICTION OVER THE PREMISES, INCLUDING SAFETY REQUIREMENTS OF OSHA. DO NOT CONSTRUE THIS AS RELIEVING CONTRACTOR FROM COMPLYING WITH SPECIFICATIONS WHICH EXCEED CODE REQUIREMENTS AND NOT IN CONFLICT THEREWITH.

2. SECURE AND PAY FOR ALL PERMITS AND CERTIFICATES OF INSPECTION REQUIRED. MAKE PAYMENTS TO ALL PUBLIC UTILITIES FOR WORK PERFORMED BY THEM IN PROVIDING SERVICE CONNECTIONS.

C. LOCAL CONDITIONS

1. VISIT SITE, BECOME FAMILIAR WITH CONDITIONS AFFECTING THIS WORK. NO ADDITIONAL PAYMENT WILL BE MADE ON CLAIMS THAT ARISE FROM LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

2. THIS CONTRACTOR SHALL BE HELD TO HAVE EXAMINED THE PREMISES AND SITE SO AS TO COMPARE THEM WITH THE DRAWINGS AND SPECIFICATIONS. NO ALLOWANCE SHALL BE MADE TO THE CONTRACTOR BY REASON OF HIS FAILURE TO HAVE MADE SUCH EXAMINATION OR OF ANY ERROR ON HIS PART.

D. DRAWINGS

1. DRAWINGS AND SPECIFICATIONS ARE TO BE CONSIDERED AS SUPPLEMENTING EACH OTHER. WORK SPECIFIED SHALL BE PERFORMED OR FURNISHED AS THOUGH MENTIONED IN BOTH SPECIFICATIONS AND DRAWINGS.

2. THE DRAWINGS ARE SCHEMATIC ONLY AND ARE INTENDED TO SHOW THE APPROXIMATE LOCATIONS. DO NOT SCALE.

E. SHOP DRAWINGS

1. THIS CONTRACTOR SHALL SUBMIT SHOP DRAWINGS ON THE ITEMS OF EQUIPMENT AND SYSTEMS AS NECESSARY TO CLEARLY SHOW EQUIPMENT AND CONSTRUCTION.

F. SUPERVISION

1. THIS CONTRACTOR SHALL HAVE IN CHARGE OF THE WORK, A COMPETENT SUPERINTENDENT WITH EXPERIENCE IN THE WORK TO BE INSTALLED UNDER THIS CONTRACT.

G. COORDINATION

1. THIS CONTRACTOR SHALL COORDINATE HIS WORK AND COOPERATE WITH THE OTHER CONTRACTORS. HE SHALL ARRANGE HIS WORK WITH THEIRS SO THAT THERE WILL BE NO DELAY IN THE PROPER INSTALLATION.

2. EXAMINE WORK OF OTHER TRADES WHICH COMES IN CONTACT WITH OR IS COVERED BY THIS WORK. DO NOT ATTACH TO, COVER, OR FINISH AGAINST ANY DEFECTIVE WORK, OR INSTALL WORK OF THIS DIVISION IN A MANNER WHICH WILL PREVENT OTHER TRADES FROM PROPERLY INSTALLING THEIR WORK. CONSULT ALL DRAWINGS, SPECIFICATIONS AND DETAILS OF OTHER DIVISIONS OF THE WORK.

H. CUTTING AND PATCHING

1. ALL CUTTING AND PATCHING WORK RELATED TO THIS CONTRACT WILL BE THE RESPONSIBILITY OF THIS CONTRACTOR.

I. GUARANTEE AND WARRANTIES

1. WARRANT THAT EQUIPMENT AND ALL WORK IS INSTALLED IN ACCORDANCE WITH GOOD ENGINEERING PRACTICE AND THAT ALL EQUIPMENT WILL MEET REQUIREMENTS SPECIFIED. ANY EQUIPMENT FAILING TO PERFORM OR FUNCTION AS SPECIFIED SHALL BE REPLACED WITH COMPLYING EQUIPMENT, WITHOUT COST TO THE OWNER.

2. GUARANTEE AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS; MAKE GOOD REPAIR OR REPLACE ANY DEFECTIVE WORK, MATERIAL OR EQUIPMENT WITHIN O YEAR FROM DATE OF ACCEPTANCE.

J. INSTALLATION REQUIREMENTS

1. LOCATION OF PIPING, EQUIPMENT, ETC., ON THE DRAWINGS IS DIAGRAMMATIC; INDICATED POSITIONS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE; EXACT LOCATIONS SHALL BE SUBJECT TO BUILDING CONSTRUCTION AND INTERFERENCES WITH OTHER WORK. ARCHITECT RESERVES RIGHT TO MAKE MINOR CHANGES IN LOCATION OF ANY PART OF THE WORK UP TO THE TIME OF ROUGHING-IN WITHOUT ADDITIONAL COST.

K. TEST AND ADJUSTMENTS

1. OBTAIN ALL INSPECTIONS REQUIRED BY LAW, ORDINANCES, RULES, REGULATIONS OF AUTHORITIES HAVING JURISDICTION, FURNISH CERTIFICATES OF SUCH INSPECTIONS. PAY ALL FEES AND PROVIDE ALL EQUIPMENT, POWER AND LABOR NECESSARY FOR INSPECTIONS AND TEST.

2. PRESSURE TESTS

a. ALL PIPING SHALL BE GIVEN THE FOLLOWING PRESSURE TEST WITHOUT APPRECIABLE PRESSURE DROP. EQUIPMENT WHICH WOULD BE DAMAGED BY THE REQUIRED TEST PRESSURE SHALL BE ISOLATED FROM THE SYSTEM DURING TESTING.

SERVICE	MEDIUM	(PSI)	HRS.
DOMESTIC WATER	WATER	125	6
GAS PIPING	AIR	50	24

b. SANITARY SEWERS PER STATE PLUMBING CODE AND LOCAL AUTHORITY.

L. MATERIALS

1. PIPE & FITTINGS

DOMESTIC WATER – TYPE "L" HARD COPPER
WASTE & DRAIN PIPING (ABOVE GROUND INTERIOR) – CAST IRON(ASTM A-74,ASTM-888,CISPI-301), BRASS(ASTM B 43)
BUILDING SEWERS & DRAINS (UNDERGROUND) - CAST IRON(ASTM A-74,CISPI-301)
REFRIGERANT – TYPE "L" HARD COPPER.

M. VALVES

1. VALVES IN WATER PIPING: BALL VALVES WITH SCREWED ENDS, MIN. 150 LBS., SWP. VALVES USED FOR SHUT-OFF AND BALANCING SHALL BE EQUIPPED WITH MEMORY STOP.

N. INSULATION

1. ALL INSULATION SHALL BE INSTALLED OVER CLEAN DRY SURFACES. INSULATION MUST BE DRY AND IN GOOD CONDITION. WET OR DAMAGED INSULATION WILL NOT BE ACCEPTABLE. NO INSULATION SHALL BE APPLIED PRIOR TO PRESSURE TEST COMPLETION OF THE RESPECTIVE PIPING SYSTEMS.

2. FIBERGLASS PIPE INSULATION SHALL BE INSTALLED WITH JOINTS BUTTED FIRMLY TOGETHER. JACKET LAPS TO BE SEALED WITH FACTORY APPLIED ADHESIVE. BUTT JOINTS TO BE SEALED WITH BUTT STRIPES, HAVING FACTORY APPLIED ADHESIVE. VALVES AND FITTINGS SHALL BE INSULATED USING MITERED SECTIONS OF INSULATION, INSULATION CEMENT, OR PREMOLDED FITTING INSULATION. THE INSULATION APPLIED TO THE VALVES AND FITTINGS SHALL BE COVERED WITH THE SAME TYPE OF COVERING AS USED ON THE PIPE INSULATION.

3. PROVIDE THE FOLLOWING INSULATION PRODUCTS AS MANUFACTURED BY OWENS-CORNING. INSULATION PRODUCTS AS MANUFACTURED BY ARMSTRONG, CERTAINTEED OR KNAUF ARE ACCEPTABLE. ADHESIVE SHALL BE BENJAMIN FOSTER OR EQUAL.

4. MATERIAL

DOMESTIC HOT WATER – 1/2" THICK ASJ/SSL FIBERGLASS
DOMESTIC COLD WATER – 1/2" THICK ASJ/SSL FIBERGLASS

O. WASTE SYSTEMS

1. RUN ALL DRAINAGE PIPING AS DIRECT AS POSSIBLE. ACTUAL LOCATION OF DRAINS AND WASTE PIPING SHALL MEET THE VARIOUS BUILDING CONDITIONS. DO ANY WORK NECESSARY TO CONCEAL PIPING OR CLEAR PIPING OF OTHER TRADES.

P. WATER SUPPLY SYSTEMS

1. EXTEND WATER SERVICE FROM LANDLORD SUPPLIED WATER METER CONNECTION PROVIDED OUTSIDE OF BUILDING WITH HOT AND COLD WATER BEING SUPPLIED AND CONNECTED TO ALL FIXTURES AND EQUIPMENT.

Q. GAS PIPING SYSTEMS

1. EXTEND NEW GAS PIPING FROM THE NEW GAS METER LOCATED OUTSIDE OF BUILDING WHICH IS ALLOCATED FOR SPACE, AND CONNECT TO ALL ROOFTOP HVAC UNITS, KITCHEN EQUIPMENT. INSTALL DRIP LEG AND SHUTOFF VALVE AT CONNECTION.

END OF SECTION

ABBREVIATIONS

FD	FLOOR DRAIN	SS	SERVICE SINK
LAV	LAVATORY	VTR	VENT THRU ROOF
WC	WATER CLOSET		
UR	URINAL		

PLUMBING LEGEND

SYMBOL	DESCRIPTION
SAN	SANITARY WASTE
SAN	SANITARY SEWER (UNDERFLOOR)
GSAN	GREASE SANITARY (UNDERFLOOR)
	VENT PIPING
	COLD WATER
	HOT WATER
	RECIRCULATING HOT WATER
G	GAS
	SHUT-OFF VALVE
	CHECK VALVE
	BALANCING VALVE
	FLOOR SINK WITH HALF GRATE
	FLOOR DRAIN
	PIPE UP OR DOWN
	PIPE UP
	UNION
	SHUT-OFF VALVE IN RISER
	CAP ON END OF PIPE
	CLEANOUT
	DOUBLE CHECK VALVE ASSEMBLY
	REDUCED PRESSURE BACKFLOW PREVENTER
	SOLENOID VALVE
	POINT OF NEW CONNECTION

ENERGY CONSERVATION NOTES:

1. AS PER IECC 2015 PIPING FROM A WATER HEATER TO THE TERMINATION OF HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED IN ACCORDANCE WITH TABLE OF MINIMUM PIPE INSULATION THICKNESS.

MINIMUM PIPE INSULATION THICKNESS							
FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (INCHES)				
	CONDUCTIVITY BTU·IN./(H·FT2·°F)	MEAN RATING TEMPERATURE, °F	<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

2. HOT WATER SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER IECC 2015. THE HOT WATER VOLUME FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER MAXIMUM PIPING LENGTH TABLE.

3. AS PER IECC 2015 AUTOMATIC CONTROLS SHALL BE INSTALLED THAT LIMITS THE OPERATION OF A RE-CIRCULATING PUMP AND THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE.

4. AS PER IECC 2015 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).

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

GENERAL PLUMBING NOTES

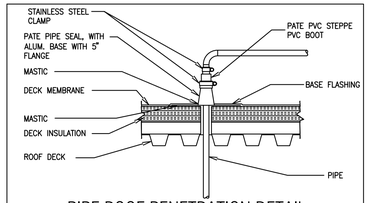
1. CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL UTILITIES TO BE USED FOR POINTS OF CONNECTION PRIOR TO SUBMITTING BID AND START OF WORK, AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
2. FIXTURE: EXACT LOCATIONS. MOUNTING HEIGHTS AND COLORS OF PLUMBING FIXTURES SHALL BE OBTAINED FROM THE ARCHITECTURAL AND KITCHEN EQUIPMENT DRAWINGS.
3. DISABLED ACCESS FIXTURES: SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS AND MOUNTING HEIGHTS, INSTALLATION SHALL COMPLY WITH A.D.A. REQUIREMENTS.
4. INTERFERENCE: ALL PLUMBING WORK SHALL BE INSTALLED SO AS TO AVOID STRUCTURAL FRAMING, MECHANICAL AND ELECTRICAL EQUIPMENT.
5. CLEANOUTS: ALL CLEANOUTS SHALL BE INSTALLED WHERE READILY ACCESSIBLE, WHERE INDICATED AND AS REQUIRED BY CODE. THE CONTRACTOR SHALL COORDINATE ALL CLEAN OUTS LOCATIONS WITH EQUIPMENT, CABINETS, ETC., AND THE ARCHITECT PRIOR TO ANY INSTALLATION.
6. VENT TERMINATION:
   VENT MUST TERMINATE AT LEAST 24" ABOVE THE ROOF OR 7" ABOVE THE ROOF DECK
7. FULL SIZE: ALL VALVES, UNIONS. ETC. TO BE SAME SIZE AS LINE SIZE UNLESS OTHERWISE INDICATED ON DRAWINGS.
8. LATERAL SUPPORT: ALL EQUIPMENT SHALL BE LATERALLY SUPPORTED IN ALL DIRECTIONS TO RESIST A MIN. OF 50% OF THE EQUIPMENT'S OPERATING WEIGHT.
9. 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 CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THIS PROJECT:
   a. INTERNATIONAL BUILDING CODE 2015
   b. INTERNATIONAL MECHANICAL CODE 2015
   c. INTERNATIONAL PLUMBING CODE 2015
   d. NATIONAL ELECTRICAL CODE 2020
   e. INTERNATIONAL FUEL GAS CODE 2015
   f. INTERNATIONAL ENERGY CONSERVATION CODE 2015
10. FIELD VERIFICATION: BEFORE FABRICATION OR INSTALLATION. THIS CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT AND EQUIPMENT PROVIDED UNDER ANOTHER SECTION OF SPECIFICATIONS. EXACT ROUGH-IN LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED IN FIELD.
11. ISOMETRICS: THE CONTRACTOR SHALL PROVIDE ALL RISER DIAGRAMS OR ISOMETRICS THAT MAYBE REQUIRED BY GOVERNING AUTHORITIES.
12. COORDINATION: THE PLUMBING CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS FOR ALL POINTS OF CONNECTION WITH THE GENERAL CONTRACTOR AND OTHER TRADES PRIOR TO BID.
13. PIPE SLOPE: ALL WASTE AND VENT PIPING SHALL SLOPE AT 2% UNLESS OTHERWISE INDICATED.
14. ACCESSIBILITY: ALL VALVES, OR OTHER EQUIPMENT SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS SHALL BE INSTALLED WITHIN 24" OF, AND BEHIND, AN ACCESS PANEL.
15. SPECIFICATION: THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH, AND BE CONSIDERED TO BE A PART OF THE SPECIFICATIONS.
16. PATCHING: THE CONTRACT SHALL BE RESPONSIBLE FOR PATCHING AND REPAIRING ALL AREAS WHICH ARE EXCAVATED AND/OR DAMAGED BY HIS OPERATIONS.
17. EXISTING PIPING DAMAGED: ALL EXISTING PIPING DAMAGED DURING EXCAVATION SHALL BE REPAIRED WITH MATERIALS TO MATCH EXISTING BY THE CONTRACTOR.

GENERAL PLUMBING NOTES

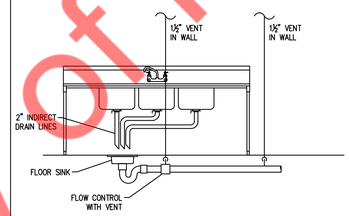
18. SAW CUTTING/CORE DRILLING: ALL CUTTING OF EXISTING PAVING, WALKS AND/OR FLOORS SHALL BE BY MACHINE SAW CUTTING. HOLES FOR PIPING IN CONCRETE WALLS OR FLOORS SHALL BE DONE USING CORE DRILLING EQUIPMENT.
19. INCOMPATIBLE MATERIAL CONNECTION: CONNECTION BETWEEN INCOMPATIBLE MATERIALS ABOVE GRADE AND INSIDE BUILDING SHALL BE MADE WITH 2 DIELECTRIC UNIONS SEPARATED BY A 12" SECTION OF RED BRASS PIPE.
20. SUBMITTALS AND SHOP DRAWINGS: THE PLUMBING CONTRACTOR SHALL SUBMIT SHOP DRAWING ON ALL WORK AND SUBMITTALS ON ALL FIXTURES, EQUIPMENT AND ACCESSORIES FOR REVIEW PRIOR TO ORDERING, FABRICATION AND INSTALLATION.

FIELD VERIFY ALL CONDITIONS

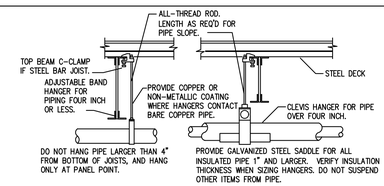
- DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.
- THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.
- BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.



PIPE ROOF PENETRATION DETAIL
NO SCALE

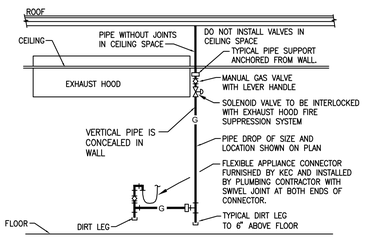


3 COMPARTMENT SINK DETAIL
NO SCALE

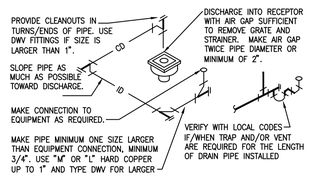


COMMENTS:
1. PROVIDE UPPER ATTACHMENT AS REQUIRED FOR CASES NOT SHOWN HERE. DO NOT INSTALL HANGER INSIDE INSULATION OR OTHERWISE PENETRATE VAPOR BARRIER. DO NOT HANG ONE PIPE FROM ANOTHER EXCEPT IN CHASES. TRAPEZE HANGERS MAY BE USED FOR MULTIPLE PARALLEL PIPES. SLOPE ALL WATER PIPING SLIGHTLY TOWARD DRAINABLE LOCATIONS. HANGER SPACING FOR PIPE SIZE: COPPER: 2"=9' 1½"=8' 1¼"=7' 1"=6' ¾"=6' ½"=5'. CAST IRON: 10' AND ONE NEAR ALL JOINTS. STEEL: 3"=12' 2½"=11' 2"=10' 1½"=9' 1"=7' ¾"=6' ½"=5'. LOCATE HANGERS AS CLOSE AS POSSIBLE TO TURNS AND TEES OF PIPE. PROVIDE SUPPLEMENTARY STEEL STRUTS BETWEEN JOISTS IF REQUIRED. LOCATE HANGERS TO TAKE LOAD OFF OF EQUIPMENT CONNECTIONS. ANCHOR WATER PIPE AGAINST SWAYING DUE TO CHANGES IN WATER VELOCITY. PROVIDE SEISMIC BRACING AS REQUIRED BY LOCAL AUTHORITIES. CHAINS OR PERFORATED STRAP IRON OR STEEL IS NOT ACCEPTABLE. DO NOT SUSPEND PIPE FROM JOIST BRACING MEMBERS. REFER TO CODES AND SPECIFICATIONS FOR FURTHER INFORMATION.

PIPE HANGERS DETAIL
NOT TO SCALE

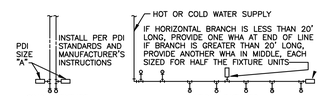


COOKING APPLIANCE GAS PIPE DETAIL
NOT TO SCALE



ROUTE PIPE INCONSPICULOUSLY AND UNOBTRUSIVELY, SECURED BY MEANS OF CLAMPS OR BRACKETS TO THEIR OWN EQUIPMENT UNIITS AND ROUTED TO THEIP SPECIFIC FLOOR SINKS. THERE SHALL NOT BE ANY LOOSE OR DANGLING WAST LINES, NOR WASTE LINES LYING ON THE FLOOR. DO NOT INSULATE INDIRECT DRAIN PIPE WHEN INSTALLED EXPOSED IN FOOD SERVICE FACILITY. REFER TO LOCAL CODES FOR FURTHER INFORMATION.

INDIRECT/CONDENSATE DRAIN
NOT TO SCALE

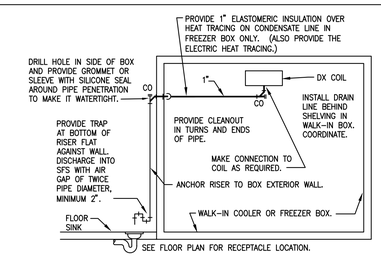


PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
A	1/2"	1–11
B	3/4"	12–32
C	1"	33–60
D	1–1/4"	61–113
E	1–1/2"	114–154
F	2"	154–330

FIXTURE UNIT TABULATION		
FIXTURE	COLD	HOT
VALVE WATER CLOSET	10	--
TANK WATER CLOSET	5	--
URINAL	5	--
LAVATORY/SINK	1.5	1.5
JANITOR'S SINK	3	3
SHOWER/BATHTUB	2	2

PC TO PROVIDE WATER HAMMER ARRESTERS BY SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, WATTS OR APPROVED EQUIVALENT WITH PISTON AND O-RING CONSTRUCTION, HAVING PDI #WH-201, ASSE #1010 AND ANSI #A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE UNITS AS SHOWN ON THE DRAWINGS AND/OR PER THE TABLES SHOWN ABOVE.

WATER HAMMER ARRESTORS
NOT TO SCALE



INSTALL PIPE HIGH AS POSSIBLE, ANCHORED TO WALL OF BOX WITH SUPPORTS AT MAXIMUM SIX FOOT CENTERS. USE TYPE "M" HARD COPPER TUBE AND FITTINGS WITH LEAD-FREE SOLDER JOINTS. SLOPE HORIZONTAL PIPE AT MINIMUM TWO PERCENT. PROVIDE CHROMATONE PAINT ON PIPE EXTERIOR TO BOX. REFER TO "INDIRECT DRAIN" DETAIL FOR OTHER REQUIREMENTS.

WALK-IN BOX CONDENSATE DRAIN
NOT TO SCALE

Architect

CIVIL ENGINEER

STRUCTURAL ENGINEER

LANDSCAPE COMPANY

MEP ENGINEER

DEVELOPER

PROJECT: EGGHOLIC

Drawing Issue

Description	Date
FOR PERMIT	10/04/2022

Drawn By: NYE
Checked By: NYE

Sheet Title
PLUMBING SPECIFICATIONS, GENERAL NOTES, DETAILS & LEGENDS

Sheet No.
P-0.1

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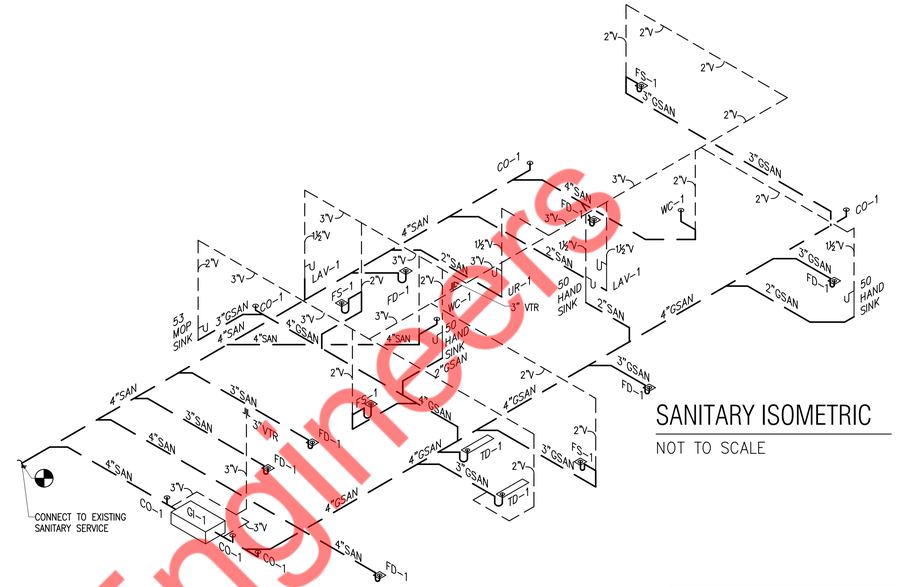
PLUMBING EQUIPMENT SCHEDULE

ITEM NO.	QTY.	EQUIPMENT CATEGORY	GAS SIZE(IN)	MBH	COLD WATER SIZE(IN)	HOT WATER SIZE(IN)	INDIRECT DRAIN SIZE	DIRECT DRAIN SIZE(IN)
1	1	WATER DISPENSING SYS.	–	–	1/2"	–	3/4"	–
26	1	GAS GRIDDLE	3/4"	84,900	–	–	–	–
32	3	STOCK POT	3/4"	80,000	–	–	–	–
36	1	ICE MACHINE	–	–	1/2"	–	–	–
39	1	6 BURNER	3/4"	210,000	–	–	–	–
50	3	HAND SINK	–	–	1/2"	1/2"	–	1–1/2"
51	1	2–COMPARTMENT SINK	–	–	3/4"	3/4"	2"	–
52	1	3–COMPARTMENT SINK	–	–	3/4"	3/4"	2"	–
–	2	FUTURE WOK STATION	–	–	1/2"	–	2"	–
53	1	MOP SINK	–	–	3/4"	3/4"	–	3"

SEE KITCHEN EQUIPMENT PLAN FOR ADDITIONAL INFO

PLUMBING FIXTURE SCHEDULE

LEGEND	PLUMBING FIXTURE	CONNECTION SIZE – INCHES					REMARKS
		SOIL/WASTE	VENT	COLD WATER	HOT WATER	THERMOSTATIC MIXING VALVE	
WC–1	FLOOR MOUNTED WATER CLOSET	4"	2"	¾"	–	–	FLUSH TANK
LAV–1	LAVATORY	1½"	1½"	½"	½"	PROVIDE	–
FD–1	FLOOR DRAIN	3",4''	–	–	–	–	–
TD–1	TRENCH DRAIN	3"	–	–	–	–	5" PRO SERIES DRAIN KIT WITH METAL GRATE MODEL: 864GMTL
FS–1	FLOOR SINK	3"	2"	–	–	–	–
CO–1	CLEAN OUT	3",4''	–	–	–	–	–
UR–1	URINAL	2"	1½"	¾"	–	–	FLUSH VALVE

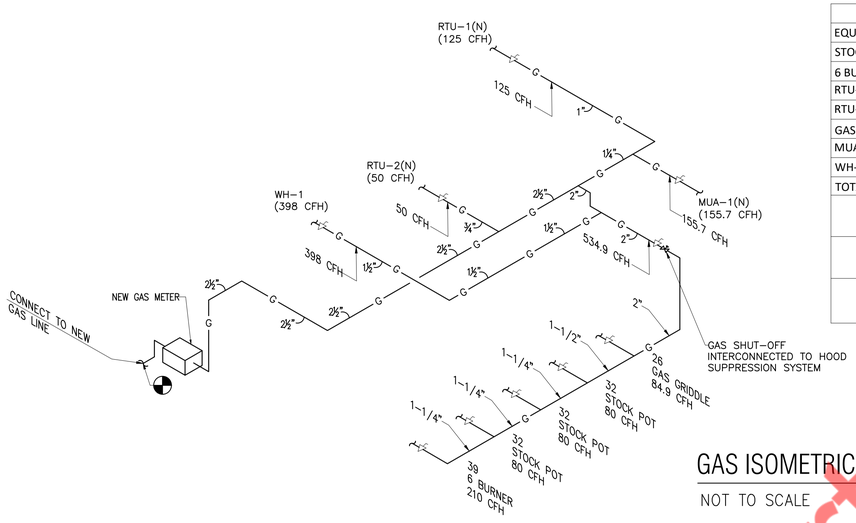


SANITARY ISOMETRIC

NOT TO SCALE

SANITARY ISOMETRIC DIAGRAM GENERAL NOTES

1. ALL SANITARY PIPING TO BE 3" DIAMETER UNLESS STATED OTHERWISE.
2. ALL VENT PIPING TO BE 1–1/2" DIAMETER UNLESS STATED OTHERWISE.
3. CONNECT SANITARY & VENT PIPING TO EXISTING PIPING IN AREA. FIELD VERIFY EXACT TIE–IN LOCATIONS.



GAS LOAD SUMMARY	
EQUIPMENT TAG	CFH LOAD
STOCK POT @3	240
6 BURNER	210
RTU-1(N)	125
RTU-2(N)	50
GAS GRIDDLE	84.9
MUA-1(N)	155.7
WH-1 @2	398
TOTAL LOAD	1263.6

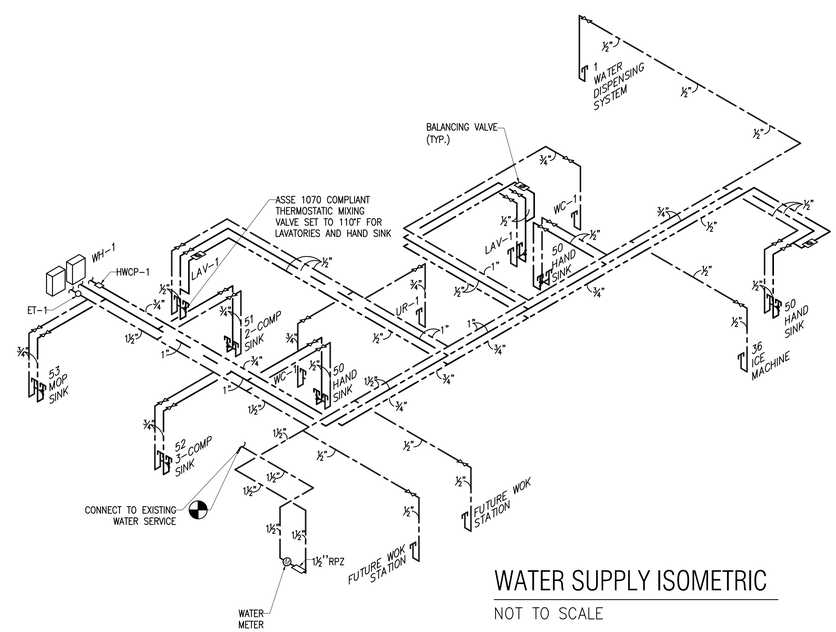
GAS PIPE SIZING PER TABLE 402.4(2) IFGC 2015

INLET PRESSURE-LESS THEN 2 PSI SPECIFIC GRAVITY-0.6

EQUIVALENT LENGTH OF PIPE= 77+(40% FITTINGS)= 108FT

GAS ISOMETRIC

NOT TO SCALE



WATER SUPPLY ISOMETRIC

NOT TO SCALE

PUMP SCHEDULE

TAG	SERVICE	LOCATION	PERFORMANCE DATA			PUMP CONSTRUCTION DATA	MOTOR DATA					MFGR MODEL	REMARKS
			GPM PER PUMP	TDH PER PUMP (FT)	WATER TEMP. (°F)	PUMP TYPE	MHP PER PUMP	STARTER TYPE	V/PH/HZ	RPM	ROTATION		
HWCP–1	HWR	ABOVE MOP SINK	2	8	120	INLINE, NORYL	1/12	AQUA STAT	115/1/60	1725	PER MFG	BELL & GOSSETT SERIES 100	–INLINE ON HW RETURN LINE AT WATER HEATER –PUMP SHOULD BE LEAD FREE

GAS WATER HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	FLOW RATE (GPM)	TEMPERATURE RISE @ GPM (°F)	INPUT (MBH)	VOLTAGE/ PHASE	QUANTITY
WH–1	RINNAI	CU–199i	3.8	100	199	120/1	2

EXPANSION TANK SCHEDULE

ITEM	LOCATION	SERVICE	CAPACITY (GALLONS)	MODEL	DIMENSION (DIAxHEIGHT)	WEIGHT (LBS)
EXPANSION TANK (ET–1)	FIRST FLOOR	HOT WATER	–	ST–1	3.4"x4"	1

GREASE TRAP SCHEDULE

TAG No.	LOCATION	SERVICE	FLOW CAPACITY (GPM)	GREASE CAPACITY (LBS)	MANUFACTURER AND MODEL	DIMENSIONS	APPROVAL
GI–1	EXTERIOR	KITCHEN WASTE	100	1895	SCHIER MODEL GB–250	LENGTH: 87" WIDTH: 33" HEIGHT: 44"	ASME A112.14.3 AND CSA B481.1 CERTIFIED

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Architect

CIVIL ENGINEER

STRUCTURAL ENGINEER

LANDSCAPE COMPANY

MEP ENGINEER

DEVELOPER

PROJECT: **EGGHOLIC**

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FOR PERMIT	10/04/2022

Drawn By: NYE

Checked By: NYE

Sheet Title

PLUMBING SCHEDULES & RISER DIAGRAMS

Sheet No.

P-0.2

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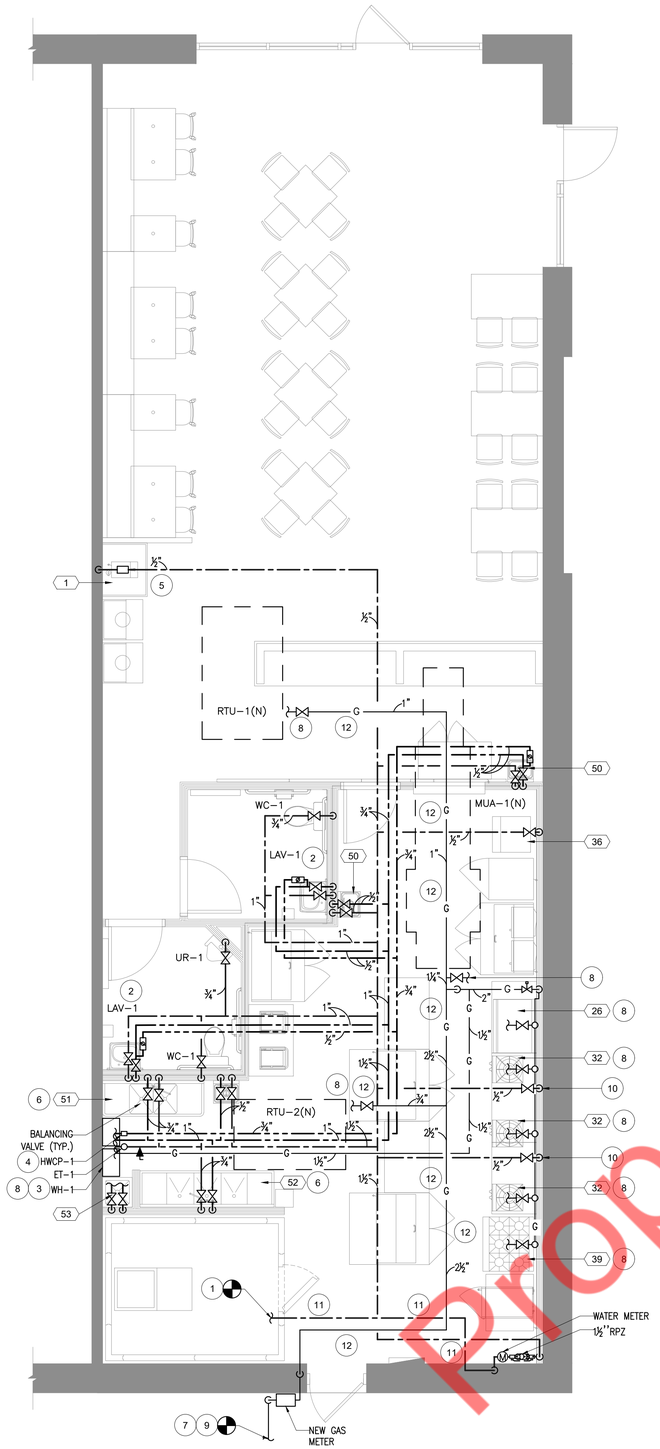


1 WATER AND GAS PLUMBING PLAN

SCALE: 1/4" = 1'-0"

WATER AND GAS PLAN PIPING NOTES:

1. CONNECT NEW 1½" CW TO EXISTING COLD WATER LINE IN THIS AREA FOR TENANT. CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING WATER LINE. CONTRACTOR TO VERIFY IN FIELD THE EXISTING BACKFLOW PREVENTER (RPZ) AND WATER METER. PROVIDE NEW IF NOT EXISTING.
2. PROVIDE A TEMPERING VALVE FOR LAVATORIES. POWER HYDROGUARD SERIES LM495, ASSE 1070 OR EQUAL. SET TEMPERATURE TO A MAXIMUM OF 110°F.
3. 1" CW/HW PIPING TO TANKLESS WATER HEATER. PLUMBING CONTRACTOR SHALL EXTEND WATER HEATER FLUE TO EXTERIOR PER MANUFACTURER'S INSTRUCTIONS.
4. PROVIDE HOT WATER RECIRCULATION PUMP (HWCP-1) & STRAP ON AQUASTAT. INSTALL AQUASTAT ON FIXTURE FURTHEST AWAY FROM HOT WATER HEATER. EXTEND RECIRCULATION PIPING TO TANKLESS WATER HEATERS PER MANUFACTURER'S INSTRUCTIONS.
5. PROVIDE ½" BFP BY WATTS MODEL SD-3. CONTRACTOR TO FIELD VERIFY AND INSTALL BFP AT AN ACCESSIBLE LOCATION.BACK FLOW PREVENTER (RPZ) SHALL BE INSTALLED IN A DEDICATED WATER SUPPLY LINE WHERE CHEMICAL UNITS AND KITCHEN EQUIPMENT OR APPLIANCE REQUIRE POTABLE WATER.
6. PROVIDE KITCHEN FAUCET HAND HELD SPRAYER WITH WATTS N9 SERIES DUAL CHECK VALVE VACUUM BREAKER(OR EQUAL) INSTALLED AFTER THE CONTROL VALVE.
7. CONTRACTOR TO VERIFY THE SIZE AND CAPACITY OF EXISTING GAS SERVICE IS EQUAL TO OR GREATER THAN 1300 CFH. COORDINATE ALL WORK WITH UTILITY COMPANY AND LANDLORD. EXTEND NEW GAS PIPING UP TO ROOFTOP TO EQUIPMENT AS SHOWN. FIELD VERIFY EXISTING GAS METER SIZE, CAPACITY AND LOCATION. PROVIDE NEW METER IF NOT EXISTING.
8. CONTRACTOR TO FIELD VERIFY EXISTING AVAILABLE GAS PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR RTU-1(N), RTU-2(N), MUA-1(N), WH-1 AND GAS BURNER.
9. CONNECT NEW 2½" GAS TO EXISTING GAS MAIN IN THIS AREA FOR TENANT. EXTEND NEW PIPING AS INDICATED. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING MAIN.
10. ½" WATER SUPPLY PROVIDED FOR FUTURE WOK STATION. CONTRACTOR TO VERIFY LOCATION OF SUPPLY LINE WITH OWNER.
11. NO TAP-OFF TO BE TAKEN BEFORE THE BACKFLOW PREVENTER.
12. GAS PIPING RUNNING ON ROOF.

SANITARY PLAN PIPING NOTES:

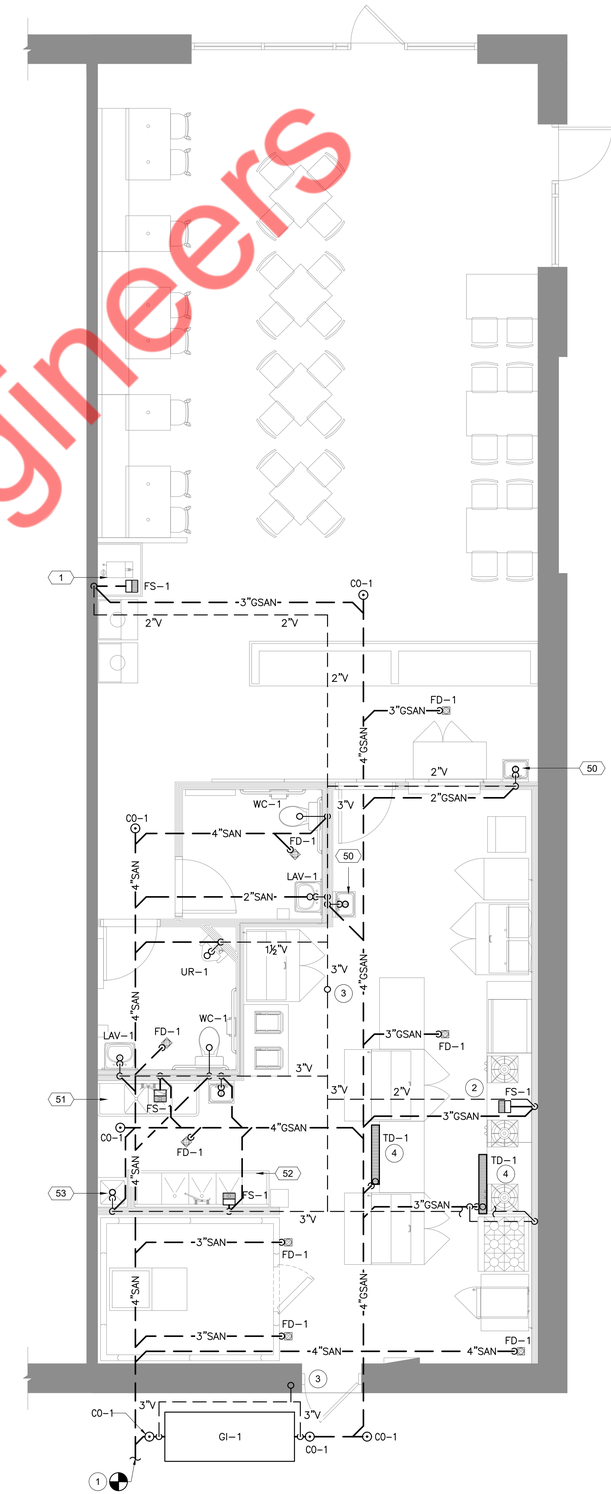
1. CONNECT NEW 4" SANITARY TO EXISTING SANITARY. CONTRACTOR SHALL VERIFY EXACT LOCATION, SIZE, AND INVERT OF EXISTING SANITARY MAIN.
2. CONTRACTOR TO VERIFY LOCATION OF FLOOR SINK WITH OWNER.
3. NEW 3" VENT UP TO NEW 3" VTR. CONTRACTOR SHALL FIELD VERIFY THAT NEW 3" V.T.R. IS INSTALLED 10' FROM ANY MECHANICAL OUTSIDE AIR INTAKE.
4. CONTRACTOR TO VERIFY LOCATION OF TRENCH DRAIN WITH OWNER.

GENERAL NOTES:

1. ALL NEW GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH IFGC 2015, SECTION-406. MECHANICAL GAUGES USED TO MEASURE PRESSURE SHALL HAVE A RANGE SUCH THAT THE HIGHEST END OF SCALE IS NOT GREATER THAN FIVE TIMES THE TEST PRESSURE.
2. AS PER IFGC 2015, SECTION 403.8, EXTERIOR GAS PIPING SHALL BE PROVIDED WITH PROTECTIVE COATING SUCH AS PAINT, TO PREVENT CORROSION.
3. AS PER IFGC 2015, SECTION 404.7, PROVIDE PROTECTION FOR ALL GAS PIPING FROM PHYSICAL DAMAGE IN CONCEALED AREAS BY THE USE OF SHIELDED PLATES
4. AS PER IFGC 2015, SECTION 407.2, EXTERIOR GAS PIPING ON ROOF SHALL BE PROPERLY SUPPORTED AS TO PROVIDE ADEQUATE SUPPORT FOR PIPING. PIPING SHALL BE SUPPORTED WITH METAL PIPE HOOKS, METAL PIPE STRAPS, METALS BANDS/BRACKET/HANGERS OR BUILDING STRUCTURAL COMPONENT.
5. AS PER IFGC 2015 SECTION 415,PIPING SHALL BE SUPPORTED AT INTERVALS NOT EXCEEDING THE SPACING SPECIFIED IN TABLE. SPACING OF SUPPORTS FOR CSST SHALL BE IN ACCORDANCE WITH THE CSST MANUFACTURER'S INSTRUCTIONS.

SUPPORT OF PIPING

STEEL PIPE,NOMINAL PIPE SIZE (INCHES)	SPACING OF SUPPORT (FEET)	NOMINAL SIZE OF TUBING (SMOOTH WALL)(INCHES O.D)	SPACING OF SUPPORT (FEET)
½	6	½	4
¾ OR 1	8	⅝ OR ¾	6
1¼ OR LARGER (HORIZONTAL)	10	⅞ OR 1	8
1¼ OR LARGER (VERTICAL)	EVERY FLOOR LEVEL	1¼ OR LARGER (VERTICAL)	EVERY FLOOR LEVEL



2 SANITARY PLUMBING PLAN

SCALE: 1/4" = 1'-0"

Property of NY Engineers

Architect

CIVIL ENGINEER

STRUCTURAL ENGINEER

LANDSCAPE COMPANY

MEP ENGINEER

DEVELOPER

PROJECT: **EGGHOLIC**

Drawing Issue

Description	Date
FOR PERMIT	10/04/2022

Drawn By: NYE
Checked By: NYE

Sheet Title

PLUMBING PLANS

Sheet No.

P-1.1

Kolbrook Job No. 1690.003 | Consultant Job No. -

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