DIVISION - 15 MECHANICAL SPECIFICATIONS

GENERAL

A. THE GENERAL CONDITIONS OF THE GENERAL SPECIFICATIONS, ALONG WITH ALL APPLICABLE INSTRUCTIONS TO BIDDERS SHALL FORM A PART OF THIS SECTION OF THE SPECIFICATIONS.

B. REFERENCE IS MADE TO REQUISITES FOR BIDDERS AND CONTRACTORS UNDER OTHER SECTIONS OF THESE SPECIFICATIONS, WHICH SHALL BE CONSIDERED BINDING, UNLESS OTHERWISE NOTED UNDER THIS SECTION.

SCOPE

EACH CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE CONSTRUCTION DETAILS, BOTH AS ON TENANT CONSTRUCTION DRAWINGS AND LANDLORD'S AS REFERRED TO, BEFORE SUBMITTING HIS BID AS NO ALLOWANCES WILL BE MADE BECAUSE OF THE CONTRACTOR'S UNFAMILIARITY WITH THESE DETAILS. ALL PERFORMANCE OF CONSTRUCTION SHALL BE AS REQUIRED BY THE PACE OF THE GENERAL CONSTRUCTION.

INSPECTION OF SITE

ALL PROPOSALS SHALL PRECLUDE THAT CONTRACTOR IS FAMILIAR WITH JOB SITE CONDITIONS AND UTILITY LOCATIONS AND THE LACK OF SPECIFIC INFORMATION ON THE DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY.

PERMITS

ALL PERMITS AND LICENSES NECESSARY FOR THE PROPER EXECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE SUBCONTRACTOR INVOLVED.

CODE REQUIREMENTS

ALL WORK UNDER THIS CONTRACT SHALL COMPLY WITH THE PROVISIONS OF THE SPECIFICATIONS, DRAWINGS OR AS DIRECTED BY THE OWNER, AND SHALL SATISFY ALL APPLICABLE CODES, ORDINANCES, OR REGULATIONS OF THE GOVERNING BODIES, WHETHER SO SHOWN OR NOT, AND ALL MODIFICATIONS REQUIRED BY SUCH AUTHORITIES SHALL BE MADE BY THE CONTRACTOR WITHOUT ANY ADDITIONAL COST TO THE OWNER.

MATERIALS AND WORKMANSHIP

A. ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURERS, AND UNLESS OTHERWISE SPECIFIED SHALL BE NEW, AND FREE FROM ANY DEFECTS. ALL LIKE MATERIALS USED SHALL BE OF THE SAME MANUFACTURE AND QUALITY UNLESS OTHERWISE SPECIFIED.

B. ALL WORK UNDER THIS CONTRACT SHALL BE PERFORMED BY COMPETENT WORKMEN AND EXECUTED IN A NEAT AND WORKMANLIKE MANNER. WORK SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION, AND ON COMPLETION, THE INSTALLATION SHALL BE THOROUGHLY CLEANED AND ALL DEBRIS PRESENT AS A RESULT OF THIS CONTRACT SHALL BE REMOVED FROM THE PREMISES, DO NOT JUST ABANDON.

CODES AND REGULATIONS

EACH SUBCONTRACTOR SHALL COMPLY WITH ALL LAWS, ORDINANCES, RULES AND REGULATIONS BEARING ON THE CONDUCT OF THE WORK AS DRAWN OR SPECIFIED. IF A SUBCONTRACTOR OBSERVES THAT THE DRAWINGS AND SPECIFICATIONS ARE AT A VARIANCE, HE SHALL PROMPTLY NOTIFY THE GENERAL CONTRACTOR AND THE TENANT IN WRITING. IF ANY SUBCONTRACTOR PERFORMS ANY WORK KNOWING IT TO BE CONTRARY TO LAWS, ORDINANCES, RULES AND REGULATIONS AND WITHOUT GIVING SUCH NOTICE, THE SUBCONTRACTOR SHALL BEAR ALL COSTS ARISING THEREFROM.

PROTECTION OF WORK AND PROPERTY

A. EACH SUBCONTRACTOR SHALL CONTINUOUSLY MAINTAIN ADEQUATE PROTECTION OF ALL HIS WORK FROM DAMAGE AND SHALL PROTECT THE OWNER'S PROPERTY FROM INJURY OR LOSS ARISING FROM HIS WORK. HE SHALL MAKE GOOD ANY SUCH DAMAGE, INJURY, OR LOSS, EXCEPT SUCH AS MAY BE DIRECTLY DUE TO CAUSES BEYOND HIS CONTROL AND NOT TO HIS FAULT OR NEGLIGENCE. HE SHALL ADEQUATELY PROTECT ADJACENT PROPERTY AS WELL.

B. EACH SUBCONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF THEIR EMPLOYEES ON THE WORK AND SHALL COMPLY WITH ALL PROVISIONS OF FEDERAL, STATE AND LOCAL BUILDING CODES AND SAFETY LAWS TO PREVENT ACCIDENTS OR INJURY TO PERSONS ON OR ADJACENT TO THE PREMISES WHERE THE WORK IS BEING PERFORMED. EACH SUBCONTRACTOR SHALL MAINTAIN ALL INSURANCE REQUIRED TO PROTECT HIMSELF, OWNER AND TENANT FOR THE DURATION OF THE WORK AGAINST PROPERTY DAMAGE AND PUBLIC LIABILITY.

CHANGES IN THE WORK

THE TENANT, WITHOUT INVALIDATING THE CONTRACT, MAY ORDER EXTRA WORK OR MAKE CHANGES BY ALTERING, ADDING TO OR DEDUCTING FROM THE WORK, THE CONTRACT SUM BEING ADJUSTED ACCORDINGLY.

COOPERATION

ALL WORK UNDER THESE SPECIFICATIONS SHALL BE ACCOMPLISHED IN CONJUNCTION WITH OTHER CONTRACTORS AND TRADES OF THIS PROJECT IN A MANNER WHICH WILL ALLOW EACH CONTRACTOR AND TRADE ADEQUATE TIME AT THE PROPER STAGE OF CONSTRUCTION TO FULFILL HIS CONTRACTS. REFERENCE SHALL BE MADE TO THE OWNER FOR INSTRUCTIONS SHOULD ANY QUESTIONS ARISE BETWEEN TRADES AS TO THE PLACING OF LINES, DUCTS, CONDUITS, FIXTURES, OR EQUIPMENT, OR SHOULD IT APPEAR DESIRABLE TO REMOVE ANY GENERAL CONSTRUCTION WHICH WOULD AFFECT THE APPEARANCE OR STRENGTH OF THE STRUCTURE.

SUBSTITUTION OF MATERIALS

MANUFACTURER'S NAMES ARE LISTED HEREIN TO ESTABLISH A STANDARD. THE PRODUCTS OF OTHER MANUFACTURERS WILL BE ACCEPTABLE, IF IN THE OPINION OF THE TENANT, THE SUBSTITUTE MATERIAL IS OF A QUALITY AS GOOD OR BETTER THAN THE MATERIAL SPECIFIED, AND WILL SERVE WITH EQUAL EFFICIENCY AND DEPENDABILITY, THE PURPOSE FOR WHICH THE ITEMS SPECIFIED WERE INTENDED. CONTRACTOR ASSUMES ALL RESPONSIBILITIES AND COST IMPACTS OF SUBSTITUTIONS.

SHOP DRAWINGS

SHOP DRAWINGS AND CATALOG DATA ON ALL MAJOR ITEMS OF EQUIPMENT AND SYSTEMS, AND SUCH OTHER ILLUSTRATIVE MATERIAL AS MAY BE CONSIDERED NECESSARY BY THE TENANT, SHALL BE SUBMITTED BY THIS CONTRACTOR IN ADEQUATE TIME TO PREVENT DELAY AND CHANGES DURING CONSTRUCTION.

DRAWINGS AND SPECIFICATIONS

A. THE DRAWINGS SHOW DIAGRAMMATICALLY THE LOCATIONS OF THE VARIOUS LINES, DUCTS, CONDUITS, FIXTURES, AND EQUIPMENT AND THE METHOD OF CONNECTING AND CONTROLLING THEM. IT IS NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL AND ALL FITTINGS REQUIRED FOR A COMPLETE SYSTEM.

B. SHOULD ANY CHANGES BE DEEMED NECESSARY BY THE CONTRACTOR IN ITEMS SHOWN ON CONTRACT DRAWINGS, THE SHOP DRAWINGS, DESCRIPTIONS, AND THE REASON FOR THE PROPOSED CHANGES SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL.

RESPONSIBILITY

A. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE SATISFACTORY AND COMPLETE EXECUTION OF ALL WORK INCLUDED IN HIS CONTRACT. HE SHALL PRODUCE COMPLETE FINISHED OPERATING SYSTEMS AND PROVIDE ALL INCIDENTAL ITEMS REQUIRED AS PART OF HIS WORK, REGARDLESS OF WHETHER SUCH ITEM IS PARTICULARLY SPECIFIED OR INDICATED.

B. CONTRACTOR SHALL SUPPLY TO LANDLORD AND TENANT A CERTIFIED BALANCE REPORT AT COMPLETION OF PROJECT. THIS IS REQUIRED FOR BOTH REMODELED AND NEW STORES.

HEATING, VENTILATING AND AIR CONDITIONING

GENERAL

A. THE WORK COVERED BY THIS SECTION OF THESE SPECIFICATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE RESPECTIVE DRAWINGS, INFORMATION, OR INSTRUCTIONS TO BIDDERS, AND THE GENERAL CONDITIONS, ADDENDA, OR DIRECTIVES WHICH MAY BE ISSUED BY THE OWNER, HEREWITH, OR OTHERWISE, SHALL BE COMPLIED WITH IN EVERY RESPECT.

B. THE LISTING HEREIN OF AN ARTICLE OR MATERIAL, OPERATION OR METHOD, REQUIRES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL EACH ITEM LISTED, UNLESS SPECIFICALLY NOTED TO THE CONTRARY. THE CONTRACTOR SHALL PERFORM EACH OPERATION PRESCRIBED OR LISTED ACCORDING TO THE CONDITIONS STATED.

EXAMINATION OF SITE

ALL CONTRACTORS SUBMITTING PROPOSALS FOR THIS WORK SHALL FIRST EXAMINE THE SITE AND ALL CONDITIONS THEREON AND/OR THEREIN. ALL PROPOSALS SHALL TAKE INTO CONSIDERATION ALL SUCH CONDITIONS AS MAY AFFECT THE WORK UNDER THIS CONTRACT.

SCOPE

FURNISH ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR A COMPLETE FULLY OPERATIVE HEATING, VENTILATING, AND AIR CONDITIONING SYSTEM EXCEPT AS SPECIFICALLY EXCLUDED BY THE DRAWINGS, AND/OR TENANT'S DIRECTIONS.

EQUIPMENT

A. 1. ROOFTOP UNITS: FURNISH HEATING AND AIR CONDITIONING AS SCHEDULED. UNIT TO BE COMBINED PACKAGED SYSTEM, ALL SEASON EQUIPMENT, CONSISTING OF GAS HEATING SECTION, BLOWER, DX COIL, COMPRESSOR(S), AND AIR COOLED CONDENSING SECTION. UNIT SHALL BE DESIGNED FOR DOWN FLOW ARRANGEMENT WITH ALL DUCT PENETRATIONS WITHIN FACTORY ROOF CURB.

2. FEATURES: UNITS TO BE WOUND FOR VOLTAGE AND PHASE AS SCHEDULED. HEAVY GAUGE ALUMINIZED STEEL, STAINLESS STEEL OR COATED HEAT EXCHANGER WILL BE ACCEPTABLE. UNIT MUST BE A.G.A. APPROVED FOR OUTDOOR APPLICATION. DIRECT EXPANSION COIL WITH FACTORY INSTALLED EXPANSION VALVE – BLOWER SHALL BE OF THE CENTRIFUGAL BELT DRIVEN OR MULTI-SPEED DIRECT DRIVE TYPE WITH FORWARD CURVED BLADES – BLOWER AND MOTOR ISOLATED FOR QUIET OPERATION – BUILT IN MOTOR STARTER WITH OVER VOLTAGE PROTECTION. HERMETICALLY SEALED COMPRESSOR WITH INHERENT OVERLOAD PROTECTION THERMOSTAT – NON-PRORATED 5-YEAR WARRANTY ON COMPRESSOR AND 10-YEAR WARRANTY ON HEAT EXCHANGER – CONDENSER COIL CONSTRUCTED OF COPPER TUBING WITH ALUMINUM FINS – CRANKCASE HEATERS – BUILT IN MOTOR STARTERS ELECTRIC IGNITION – HIGH, LOW PRESSURE CUTOUT ON COMPRESSOR – SHUTOFF VALVES ON LIQUID AND SUCTION LINES – SHORT CYCLE TIMER PROTECTION – FILTER – DRYER – VIBRATION ISOLATION. UNIT FACTORY CHARGED.

3. ACCESSORIES: SUPPLY AND RETURN FILTER CASING ASSEMBLY, TWO COMPLETE SETS OF THROWAWAY TYPE FILTERS. FILTERS SHALL BE 2" THICK. ONE SET TO BE REMOVED AND REPLACED JUST PRIOR TO TEST & BALANCE – FULL ECONOMIZER PACKAGE WITH LOW LEAKAGE FRESH AIR STANDARD RETURN AIR DAMPERS AND DAMPER MOTOR, – MINIMUM POSITION SETTING – PROVIDE MANUFACTURER'S INTERFACE AS REQUIRED FOR OPERATION WITH THERMOSTAT AS SPECIFIED. PROVIDE MOUNTING CURB APPROVED BY NATIONAL ROOF CONTRACTORS ASSOCIATION TO SUPPORT THE ENTIRE ASSEMBLY WITH NAILER STRIP AND AIR TIGHT GASKET.

E. ALL HVAC UNITS WILL BE EQUIPPED WITH PROGRAMMABLE THERMOSTAT.
DESIGN AND STANDARD CONDITIONS FOR THERMOSTAT OPERATION WILL BE AS FOLLOWS:

COOLING: 75'F MAXIMUM OCCUPIED COOLING TEMPERATURE
85'F COOLING NIGHT SETBACK.

HEATING: 70'F MAXIMUM OCCUPIED HEATING TEMPERATURE
60'F HEATING NIGHT SETBACK.

FAN: CONTINUOUS IN OCCUPIED AND RECOVERY MODE AND WITH HEATING OR COOLING EQUIPMENT IN UNOCCUPIED MODE.

DEADBAND: CAPABLE OF MAINTAINING A 5'F DEADBAND.

CLOCK: 7 DAY CAPABLE OF 7 DIFFERENT DAY SCHEDULES.

OVERNIGHT: HAVE A 2 HOUR OVERRIDE ACCESSIBLE TO MANAGER.

BACKUP: CAPABLE OF MAINTAINING PROGRAMMED SETTING FOR AT LEAST 10 HOURS WITHOUT POWER.

F. THE HVAC SUBCONTRACTOR SHALL IDENTIFY ALL ROOF MOUNTED HVAC EQUIPMENT AND APPARATUS WITH 2" HIGH PAINTED STENCILED STORE NAME ON ALL SIDES OF EQUIPMENT.

DUCTWORK

A. SQUARE AND RECTANGULAR DUCTWORK SHALL BE CONSTRUCTED OF NEW GALVANIZED PRIME GRADE SHEET STEEL OF THE FOLLOWING GAUGES:

DUCT SIZE	GAUGE
12" AND LESS	NO. 26 U.S. GAUGE
13" TO 30"	NO. 24 U.S. GAUGE
31" TO 54"	NO. 22 U.S. GAUGE
55" TO 84"	NO. 20 U.S. GAUGE
85" AND OVER	NO. 18 U.S. GAUGE

B. SQUARE AND RECTANGULAR DUCTWORK SHALL BE CONSTRUCTED AS FOLLOWS:

SIZE	METHOD
17" AND LESS	"S" AND DRIVE CLEATS
18" TO 30"	"L" STANDING SEAMS ON 3'-0" CENTERS
31" TO 54"	1-1/4" STANDING SEAMS ON 3'-0" CENTERS

ALL KITCHEN HOOD EXHAUST DUCTWORK SHALL BE SINGLE WALL, FACTORY-BUILT, GREASE DUCT FOR USE WITH TYPE I HOODS, WHICH CONFORMS TO NFPA-96. SEE ADDITIONAL SPECIFICATIONS ON SHEET MH1-01 OF HOOD DRAWINGS.

1. THE KITCHEN HOOD EXHAUST DUCTWORK SHALL BE ENCLOSED IN A RATED ENCLOSURE PER CODE, TWO (2) LAYERS OF 3M FIRE BARRIER DUCT WRAP 615+ OR SIMILAR.

2. THE CONTRACTOR SHALL INCLUDE IN HIS PRICE:
–ALL NECESSARY TRANSITION AND CONNECTION FITTINGS TO THE HOOD AND EXHAUST FANS.
– ALL CLEAN-OUT ACCESS PANELS AS REQUIRED BY CODE.
– ALL ELBOW AND TRANSITION FITTINGS.
– ALL HANGERS AND SUPPORTS.
–SHOP DRAWINGS SHOWING PROPOSED FABRICATION AND INSTALLATION COORDINATED WITH EXISTING FIELD CONDITIONS AND OTHER TRADES.

ROUND SPIRAL DUCTWORK SHALL BE LINX FACTORY PAINTED SPIRAL DUCTWORK AND FITTINGS OR APPROVED EQUAL. INSTALLED AND SUSPENDED AS PER MANUFACTURER'S RECOMMENDATIONS. GAUGES FOR SHOP FABRICATED DUCTS SHALL BE AS FOLLOWS:

UP TO 12" IN DIAMETER	NO. 26 GAUGE
13" TO 30"	NO. 24 GAUGE
31" TO 42"	NO. 22 GAUGE
43" TO 60"	NO. 20 GAUGE

ELBOWS SHALL HAVE A CENTERLINE RADIUS OF 1-1/2 TIMES DUCT DIAMETER AND MAY BE SMOOTH ELBOWS OR 5 PIECE 90 DEGREE ELBOWS AND 3 PIECE 45 DEGREE ELBOWS. JOINTS OF ROUND DUCTS SHALL BE SLIP TYPE WITH A MINIMUM OF 3 SHEET METAL SCREWS.

1. NOT USED.
2. ALL LOW PRESSURE DUCTWORK SHALL BE EXTERNALLY SEALED USING UNITED SHEET METAL, MMM EC-800, OR HARDCAST DUCT SEALER INSTALLED IN THE JOINTS PRIOR TO CLOSURE. ADDITIONALLY SEAL ALL EXTERNAL TRANSVERSE JOINTS AND FITTING CONNECTIONS EXTERNALLY.

C. ALL SUPPLY AIR DUCTS (HEATING AND COOLING) AND RETURN AIR DUCTS AND OUTSIDE AIR DUCTS SHALL BE GALVANIZED STEEL WITH MIN. 1-1/2" (R-6) THICK EXTERNAL THERMAL INSULATION EXCEPT DUCT LINED FOR ACOUSTICAL PURPOSES. CONTINUE INSULATION TO TOP OF ALL DIFFUSERS, GRILLES, REGISTERS, ETC. ALL EXHAUST AND RELIEF AIR DUCTS SHALL BE GALVANIZED STEEL. ALL KITCHEN HOOD EXHAUST DUCTWORK SHALL HAVE FIRE BARRIER DUCT WRAP. DUCT WRAP SHALL BE TESTED IN ACCORDANCE WITH ASTM E 2336. 2 LAYERS OF 3M FIRE BARRIER DUCT WRAP 615+ OR SIMILAR TO BE USED.

D. CONTRACTOR WILL INSTALL INSECT SCREENS ON ALL DUCT OPENINGS WHICH LEAD TO OR ARE OUTDOORS. INSECT SCREENS SHALL BE 10 GAUGE, ONE-HALF INCH (1/2") MESH IN REMOVABLE GALVANIZED STEEL FRAMES.

E. ALL DUCTWORK SHALL BE DESIGNED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN THE AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS GUIDE (ASHRAE) AND FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST METHODS RECOMMENDED IN THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA) LOW VELOCITY DUCT MANUAL, LATEST EDITION.

F. NOT USED.

HANGERS AND SUPPORTS

A. ALL HORIZONTAL DUCTS HAVING A DIMENSION OF 40 INCHES AND LESS SHALL BE SUPPORTED BY MEANS OF BAND IRON HANGERS OF NO. 18 U.S. GAUGE ATTACHED TO THE DUCT BY MEANS OF RIVETS, SCREWS, OR CLAMPS, AND FASTENED TO STRUCTURE ABOVE BY TOGGLE BOLTS OR OTHER MEANS. EACH SECTION OF DUCTWORK SHALL HAVE AT LEAST ONE PAIR OF SUPPORTS. VERTICAL DUCTS SHALL BE SUPPORTED WITH 1-1/4" x 1-1/4" x 1-1/4" ANGLES WHERE THEY PASS THROUGH THE FLOOR LINES.

B. ALL HORIZONTAL DUCTS HAVING A DIMENSION OF 40 INCHES AND MORE SHALL BE SUPPORTED BY MEANS OF ANGLE IRON TRAPEZE HANGERS. EACH SECTION OF DUCTWORK SHALL HAVE AT LEAST ONE PAIR OF SUPPORTS.

FLASHING

A. CONTRACTOR WILL PROVIDE WATER TIGHT 24 GA. SHEET METAL FLASHINGS AT ALL EXTERIOR WALLS AND ROOF PENETRATIONS.

B. ALL CUTTING OF ROOF OPENINGS, SUPPORTS FOR ROOF OPENINGS, PITCH PANS, ROOF CURBS, FLASHINGS, COUNTER FLASHINGS, REPAIR TO ROOF, ETC. ASSOCIATED WITH HVAC SUBCONTRACTOR SHALL BE THE RESPONSIBILITY AND PART OF THE CONTRACT HVAC SUB-CONTRACTOR. HE SHALL EMPLOY THE LANDLORD'S ROOFERS FOR THIS WORK SO AS TO MAINTAIN THE ROOF BOND.

DAMPERS

A. SPLITTER DAMPERS SHALL BE FABRICATED OF SHEET STEEL NOT LESS THAN NO. 16 U.S. GAUGE WITH THE LEADING EDGE HEMMED. EACH DAMPER SHALL BE LARGE ENOUGH TO COVER THE SMALLER OF THE TWO OPENINGS IT CONTROLS. DAMPERS SHALL BE CONTROLLED AS FOLLOWS:

EXPOSED OR ACCESSIBLE DUCTWORK – LOCKING QUADRANTS EQUAL TO YOUNG REGULATOR NO. 1 WITH DAMPER ROD END BEARINGS ON OPPOSITE END.

CONCEALED DUCTWORK – LOCKING QUADRANT EQUAL TO YOUNG REGULATOR NO. 315 (CHROMIUM PLATED WITH DAMPER ROD END BEARINGS ON BOTH ENDS).

B. VOLUME DAMPERS SHALL BE OF THE OPPOSED INTERLOCKING TYPE AS MANUFACTURED BY AMERICAN FOUNDRY AND FURNACES CO. (AFFCO) OR EQUAL. BLADES SHALL BE OF NO. 16 GAUGE SHEET METAL AND SHALL NOT EXCEED 48" IN LENGTH OR 12" IN WIDTH. BLADES SHALL BE ON ONE-HALF INCH (1/2") DIAMETER RUSTPROOF AXLE. BEARINGS SHALL BE OF THE SELF-LUBRICATING FERRULE TYPE.

C. FIRE DAMPERS SHALL BE SUPPLIED AND INSTALLED BY HVAC CONTRACTOR AT DUCT PENETRATIONS IN FIRE RATED WALLS, CEILINGS, AND ROOFS AS REQUIRED. COORDINATE WITH LANDLORD, LOCAL FIRE MARSHALL AND ALL CODES AND GOVERNING AUTHORITIES HAVING JURISDICTION.

D. JOB FABRICATED TURNING VANES SHALL BE ACCEPTABLE IN SQUARE ELBOWS. PROVIDE AND INSTALL BARBER-COLEMAN AIR TURNS OR EQUAL. TURNING VANES SHALL BE OF THE SAME GAUGE METAL AS THE DUCT IN WHICH THEY ARE INSTALLED. RADIUS ELBOWS SHALL HAVE A CENTER-LINE RADIUS OF ONE AND ONE-HALF (1-1/2) TIMES THE DUCT WIDTH.

DUCTWORK - EXCEPTIONS

DUCTWORK FOR EXHAUSTING AIR OR OUTSIDE SUPPLY AIR SHALL BE ALL METAL AND CONSTRUCTED ACCORDING TO RECOMMENDED PRACTICES AS FOUND IN THE LATEST ISSUE OF ASHRAE.

SUPPORT OF DUCT SYSTEM

HANGER DESIGN SHALL BE AS DESCRIBED IN THE LATEST EDITION OF THE "SMACNA" MANUAL. REINFORCEMENT MEMBERS MAY BE USED TO SUPPORT DUCT SYSTEM PROVIDED DETAILS OUTLINED IN THE AFOREMENTIONED MANUAL ARE ADHERED TO.
DUCTS SHALL BE SUPPORTED AT ALL TURNS AND TRANSITIONS AND NOT MORE THAN 8'-0" O.C. STRAIGHT DUCTS UP TO 59" MAX. DIMENSIONS SHALL BE SUPPORTED 6'-0" O.C. DUCTS OVER 60" MAX. DIMENSIONS SHALL BE SUPPORTED AT 4'-0" O.C.

REINFORCEMENT

ALL DUCTS REQUIRING REINFORCEMENT SHALL BE REINFORCED ACCORDING TO THE LATEST EDITION OF "SMACNA" MANUAL.

MATERIALS FOR REINFORCEMENT MEMBERS SHALL BE GALVANIZED STEEL. ALL SCREWS AND WASHERS SHALL BE PLATED OR GALVANIZED.

ACCESSORY ITEMS

ALL MANUAL DAMPERS, FIRE DAMPERS, TURNING VANES, REGISTER CONNECTIONS, ACCESS DOORS OR OTHER ASSOCIATED ACCESSORIES SHALL BE INSTALLED ACCORDING TO THE LATEST PUBLICATION OF "SMACNA" MANUAL.

TESTING AND ADJUSTING

CONTRACTOR WILL DEMONSTRATE OPERATION OF SYSTEM TO FULL SATISFACTION OF TENANT, WILL BALANCE AIR FLOW IN ACCORDANCE WITH AIR QUANTITIES ON DRAWINGS AND WILL RECORD VOLUME READINGS IN ACCORDANCE WITH ASHRAE AND PROVIDE SAME TO TENANT. ALL PIPING SHALL WITHSTAND AIR PRESSURE TESTING PER GOVERNING PLUMBING CODE.

A. AIR DISTRIBUTION SYSTEMS:
1. INSPECT INSTALLATION AND VERIFY CONFORMITY TO DESIGN. VERIFY THAT SUPPLY, RETURN, AND EXHAUST DUCTS HAVE BEEN PRESSURE-TESTED FOR LEAKAGE AS RECOMMENDED IN THE APPROPRIATE SMACNA STANDARDS.
2. VERIFY THAT VOLUME AND FIRE DAMPERS ARE PROPERLY LOCATED AND FUNCTIONAL.
3. VERIFY THAT SUPPLY, RETURN, EXHAUST AND TRANSFER GRILLES, REGISTERS AND DIFFUSERS ARE INSTALLED AND OPERATING PROPERLY.

B. VERIFY THAT CONTROL COMPONENTS ARE INSTALLED IN ACCORDANCE WITH PROJECT REQUIREMENTS AND ARE FUNCTIONING AS INTENDED, INCLUDING ELECTRICAL POWER, CONTROL AND INTERLOCK WIRING, DAMPER SEQUENCES, SMOKE DETECTORS, ETC.

C. UPON COMPLETION OF THE INSTALLATION AND START-UP OF THE MECHANICAL EQUIPMENT, TEST, ADJUST AND BALANCE SYSTEM COMPONENTS TO OBTAIN OPTIMUM CONDITIONS IN EACH CONDITIONED SPACE IN THE BUILDING.

D. BEFORE FINAL ACCEPTANCE IS MADE, FURNISH TO THE ARCHITECT THE FOLLOWING DATA:
1. SUMMARY OF MAIN SUPPLY, RETURN AND EXHAUST DUCT PILOT TUBE TRANSVERSES AND FAN SETTINGS.
2. AIR QUANTITIES AT EACH SUPPLY, RETURN, RELIEF AND EXHAUST AIR HANDLING DEVICE.
3. AIR PRESSURE READINGS ENTERING AND LEAVING EACH SUPPLY FAN AND EXHAUST FAN.
4. MOTOR CURRENT AND VOLTAGE READINGS AT EACH EQUIPMENT MOTOR.
5. TEST RESULTS SHALL BE RECORDED ON STANDARD FORMS CONFORMING TO AABC AND NEBB REQUIREMENTS. THE REPORT SHALL INCLUDE AIR FLOW SCHEMATIC DIAGRAMS INDICATING AND IDENTIFYING TEST LOCATIONS SUCH AS DUCT TRANSVERSE, OUTLET READINGS, PRESSURE READINGS AND TEMPERATURE READINGS, AND SHALL BE REFERENCED TO THE RECORDED DATA ON THE FORMS.

E. MAKE AN INSPECTION IN THE BUILDING DURING THE OPPOSITE SEASON FROM THAT IN WHICH THE INITIAL ADJUSTMENTS WERE MADE, AND AT THAT TIME MAKE ANY NECESSARY MODIFICATIONS TO THE INITIAL ADJUSTMENTS REQUIRED TO PRODUCE OPTIMUM OPERATION OF THE SYSTEM COMPONENTS, TO PRODUCE THE PROPER CONDITIONS IN EACH SPACE.

F. INSTRUCTION: THE CONTRACTOR SHALL INSTRUCT THE BUILDING OPERATING PERSONNEL IN THE CONSTRUCTION AND OPERATION OF ALL EQUIPMENT.

GUARANTEE

ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF ACCEPTANCE. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTANCE BY TENANT SHALL BE A CONDITION OF THIS CONTRACT. ALL WORK FOUND TO BE DEFECTIVE SHALL BE REPAIRED OR REPLACED BY THIS SUBCONTRACTOR WITHOUT ADDITIONAL CHARGE TO THE TENANT.

MECHANICAL
TEMPORARY SERVICES

THE CONTRACTOR SHALL PROVIDE THE FOLLOWING SPECIFIC ITEMS OF TEMPORARY SERVICES:

A. TELEPHONE – THE TENANT'S GENERAL CONTRACTOR SHALL INSTALL A JOB SITE TELEPHONE AND NOTIFY TENANT AS LISTED ON SHEET A-1 OF THE TELEPHONE NUMBER AND THE NAME OF THE SUPERINTENDENT.

B. TEMPORARY WATER – WATER REQUIRED IN THE PERFORMANCE OF THE CONTRACT SHALL BE PROVIDED AND PAID FOR BY THE CONTRACTOR. WATER USED FOR HUMAN CONSUMPTION SHALL CONFORM TO REQUIREMENTS OF STATE AND LOCAL AUTHORITIES FOR POTABLE WATER.

C. TEMPORARY ELECTRICITY – TEMPORARY ELECTRIC SERVICE REQUIRED IN THE PERFORMANCE OF THE CONTRACT SHALL BE FURNISHED AND PAID FOR BY THE CONTRACTOR WHO SHALL FURNISH, INSTALL, AND MAINTAIN ALL TEMPORARY OVERHEAD CONSTRUCTION, METERS, DROPS, AND OTHER WIRING AND FITTINGS FOR BOTH LIGHT AND POWER AT LOCATIONS REQUIRED IN THE WORK AND SHALL BEAR THE COST OF MAKING THE SERVICE CONNECTIONS. BEFORE FINAL ACCEPTANCE, TEMPORARY ELECTRICAL SERVICE FACILITIES INSTALLED BY THE CONTRACTOR SHALL BE REMOVED AND THE SERVICE CONNECTIONS SEVERED IN ACCEPTABLE MANNER.

D. TEMPORARY HEAT – WHEN REQUIRED FOR PROPER INSTALLATION OR PROTECTION OF ANY PORTION OF THE WORK, THE CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY HEATING UNITS AS APPROVED BY THE LANDLORD OR LOCAL AUTHORITY.

E. COST OF LANDLORD PROVIDED UTILITY SERVICES – IF THE LANDLORD ELECTS TO PROVIDE TEMPORARY UTILITY SERVICES, THE CONTRACTOR WILL BE SO INFORMED BY THE TENANT. THE CONTRACTOR SHALL MAKE TO PAY THE COST OF SAID TEMPORARY CONSTRUCTION AND UTILITY SERVICES.

NOTE FOR TENANT GENERAL CONTRACTOR

IT IS THE RESPONSIBILITY OF THE TENANT'S GENERAL CONTRACTOR TO MAKE USE OF APPLICABLE NOTES AND SPECIFICATIONS LISTED ON THIS SHEET AS THEY MAY PERTAIN TO THE SPECIFIC JOB.

MUNICIPAL APPROVAL STAMPS

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FGE PROJECT NUMBER: 24-XXX

ISSUE DATE		
REV	ISSUE	DATE
	PERMIT LL BID	07-12-2024

SEAL

STATE OF OHIO
MATTHEW RICHARD CASE
PE.85398
REGISTERED PROFESSIONAL ENGINEER

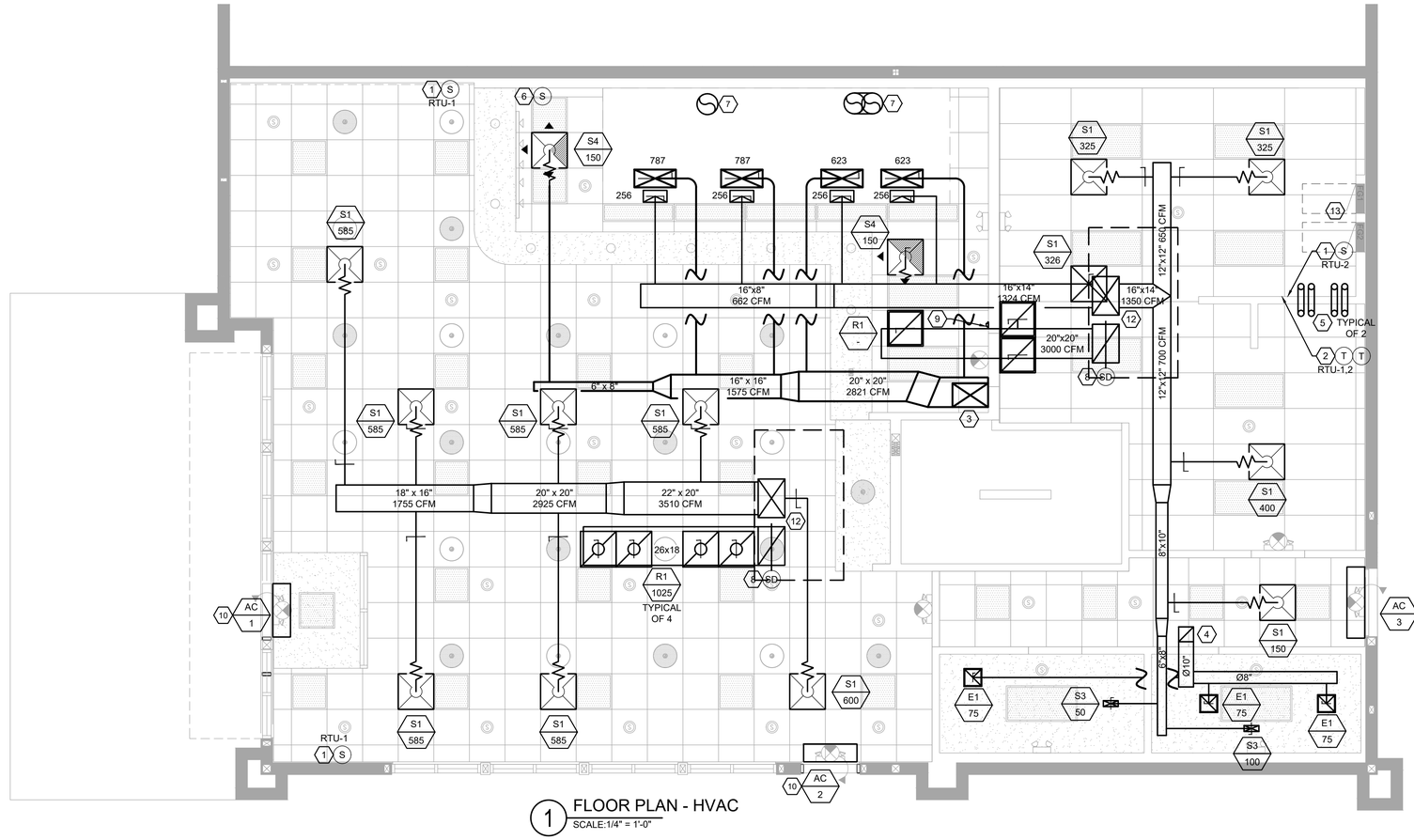
07-12-2024

SHEET TITLE

MECHANICAL SPECIFICATIONS

SHEET NUMBER

M1.0



1 FLOOR PLAN - HVAC
SCALE:1/4" = 1'-0"

MECHANICAL SYMBOL LEGEND

T	THERMOSTAT
S	TEMPERATURE SENSOR
H	HUMIDITY SENSOR
SD	SMOKE DETECTOR
	FLEXIBLE DUCT
	VOLUME DAMPER
FD	FIRE DAMPER
	CEILING SUPPLY AIR DIFFUSER
	CEILING RETURN AIR GRILLE
	SIDEWALL AIR DIFFUSER OR GRILLE
	NEW DUCTWORK
	EXISTING DUCTWORK
D	CONDENSATE DRAIN
G	GAS PIPING
	PIPE TURNING DOWN
	PIPE TURNING UP
	BALL VALVE
	GATE VALVE
	CONNECTION OF NEW TO EXISTING
	CHECK VALVE
	GAS COCK
	UNION
	PRESSURE GAUGE
	STRAINER
AFF	ABOVE FINISHED FLOOR
S1 100	AIR DEVICE # / CFM — S - SUPPLY, R - RETURN, E - EXHAUST

SEQUENCE OF OPERATIONS

ROOFTOP UNITS:

1. THERMOSTATS SHALL CONTROL OCCUPIED/UNOCCUPIED MODE OF OPERATION FOR THE ENTIRE SYSTEM IN ACCORDANCE WITH PROGRAMMED TIMES AND SET POINTS.
2. ON A CALL FOR COOLING FROM THE THERMOSTAT, SYSTEM SHALL ENERGIZE (MECHANICAL COOLING) IN STAGES, OA DAMPER SHALL OPEN TO MINIMUM POSITION. WHEN OUTDOOR ENTHALPY, AS SENSED BY UNIT MOUNTED CONTROLS, IS BELOW ITS SETTING, AND FREE COOLING IS AVAILABLE, UNIT MOUNTED ECONOMIZER SHALL BE ENABLED AND MODULATE DAMPERS BEYOND THEIR MIN. POSITION SET-POINTS TO SATISFY THE SETTING OF (55°F ADJUSTABLE). DURING THIS CYCLE, THE MECHANICAL COOLING SHALL BE DISABLED. ENTHALPY CONTROLLER SHALL RESET THE OUTSIDE AIR DAMPERS TO THE MINIMUM POSITION AND STAGED THE MECHANICAL COOLING WHEN THE SET-POINT IS EXCEEDED.
3. ON A CALL FOR HEATING, GAS FIRED HEAT EXCHANGERS SHALL BE ENERGIZED AND SHALL RUN UNTIL SET-POINT IS SATISFIED. ECONOMIZER DISABLED.
4. DURING NIGHT SETBACK PERIOD AS PROGRAMMED ON ASSOCIATED ROOFTOP UNIT THERMOSTAT, BLOWER FAN SHALL BE OFF AND OUTSIDE AIR DAMPERS SHUT. ON A CALL FOR HEATING OR COOLING, THE OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED AND THE HEAT EXCHANGER OR COMPRESSOR CYCLE SHALL RUN UNTIL SPACE SET-POINT IS SATISFIED.
5. OVERRIDE TIMER SWITCH (MOUNTED ON THERMOSTAT) SHALL BYPASS THE PROGRAMMABLE THERMOSTAT (OCCUPIED SETTING) AND SHALL ENERGIZE THE SYSTEM INTO THE OCCUPIED MODE FOR A MINIMUM OF A 3 HOUR PERIOD.
6. REMOTE TEMPERATURE SENSORS SHALL BE USED SO THAT THERMOSTATS CAN BE IN PREP ROOM AREA, AWAY FROM THE PUBLIC.

EXHAUST FANS:

1. TOILET ROOM EXHAUST FANS SHALL BE INTERLOCKED WITH THE RTU THERMOSTATS. DURING THE OCCUPIED MODE, THE EXHAUST FAN SHALL RUN CONTINUOUSLY. DURING UNOCCUPIED HOURS, EXHAUST FANS SHALL BE TURNED OFF.

DUCT SMOKE DETECTORS:

1. ROOFTOP UNIT SUPPLY FAN SHALL BE DE-ENERGIZED UPON DETECTION OF SMOKE IN DUCT SMOKE DETECTOR.

MECHANICAL KEYED NOTES

1. REMOTE TEMPERATURE AND HUMIDITY SENSOR MOUNTED ON WALL AT 60" AFF. REMOTE SENSORS TO COMMUNICATE WITH REMOTE HMI INTERFACE AT MANAGER'S STATION. VERIFY HMI INTERFACE LOCATIONS WITH OWNER. CONTRACTOR SHALL PROVIDE ALL WIRING FOR A COMPLETE SYSTEM.
2. NEW THERMOSTAT LOCATED AT MANAGER'S STATION. NEW THERMOSTAT(S) TO BE CAPTIVEAIRE HMI CONTROLLER. MOUNT AT 48" AFF. VERIFY EXACT THERMOSTAT LOCATIONS WITH OWNER.
3. DUCT DOWN FROM MAU, SAME SIZE AS OPENING. PROVIDE 16"x8" SUPPLY DUCT RUN OUT TO SUPPLY PLENUM AT KITCHEN HOOD. PROVIDE WITH VOLUME DAMPER AS SHOWN AND BALANCE TO 256 CFM. SEE CAPTIVEAIRE DRAWINGS FOR ADDITIONAL INFORMATION. TYPICAL OF 4.
4. 10"x10" EXHAUST DUCT UP TO EF-3 ON ROOF.
5. 4" PVC/CPVC INTAKES AND 4" PVC/CPVC EXHAUST FROM GAS WATER HEATERS UP TO ROOF. COMBINE RIGHT BEFORE ROOF PENETRATION WITH CONCENTRIC VENT KITS. WATER HEATERS PROVIDED AND INSTALLED BY OTHERS.
6. INSTALL ROOM TEMPERATURE SENSOR (PROVIDED BY OTHERS) FOR KITCHEN HOOD. VERIFY EXACT MOUNTING HEIGHT IN FIELD.
7. 14"Ø GREASE EXHAUST DUCT UP TO EXHAUST FAN ON ROOF. SEE ROOF PLAN FOR ADDITIONAL DETAILS. TRANSITION DUCTWORK AS NECESSARY TO AVOID OBSTRUCTIONS.
8. COORDINATE INSTALLATION OF NEW DUCT SMOKE DETECTOR IN RETURN AIR DUCT WITH ELECTRICAL CONTRACTOR. UNIT TO BE PROVIDED WITH ANNUNCIATION BELOW UNIT WITH REMOTE TEST STATION LOCATED AT MANAGER'S DESK. VERIFY EXACT LOCATION IN FIELD WITH OWNER REPRESENTATIVE. DUCT DETECTOR SHALL BE TIED TO THE FIRE ALARM PANEL FOR SUPERVISORY MONITORING.
9. ANSUL MANUAL PULL STATION. SEE ARCHITECTURAL SHEET A1.2 FOR EXACT LOCATION.
10. PROVIDE AIR CURTAIN, (AC-1,2), MARS MODEL LPV236-1EEI-OB, (208V/3Ø), 10 KW ELECTRIC HEAT, ABOVE ENTRY DOORS. THIS CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS FOR A COMPLETE FUNCTIONING SYSTEM, INCLUDING BUT NOT LIMITED TO: WALL MOUNTING BRACKET, ADJUSTABLE DISCHARGE VANES, AND DOOR MICRO SWITCHES WITH MAGNETIC MOTOR CONTROLLERS. COLOR TO BE OBSIDIAN BLACK.
11. PROVIDE AIR CURTAIN, (AC-3), MARS MODEL LPV248-1EEI-OB, (208V/3Ø), 13 KW ELECTRIC HEAT, ABOVE ENTRY DOORS. THIS CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS FOR A COMPLETE FUNCTIONING SYSTEM, INCLUDING BUT NOT LIMITED TO: WALL MOUNTING BRACKET, ADJUSTABLE DISCHARGE VANES, AND DOOR MICRO SWITCHES WITH MAGNETIC MOTOR CONTROLLERS. COLOR TO BE OBSIDIAN BLACK.
12. DUCT DROPS SHALL BE FULL SIZE OF OPENING AT RTU. PROVIDE TURNING VANES.
13. MAINTAIN CODE REQUIRED CLEAR SPACE ABOVE ELECTRICAL PANELS.

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TOLEDO, OH 43617
FOGE PROJECT NUMBER: 24-XXX

ISSUE DATE

REV	ISSUE	DATE
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SEAL

07-12-2024

SHEET TITLE

FLOOR PLAN HVAC

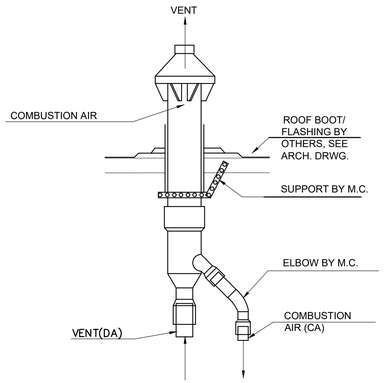
SHEET NUMBER

M2.0

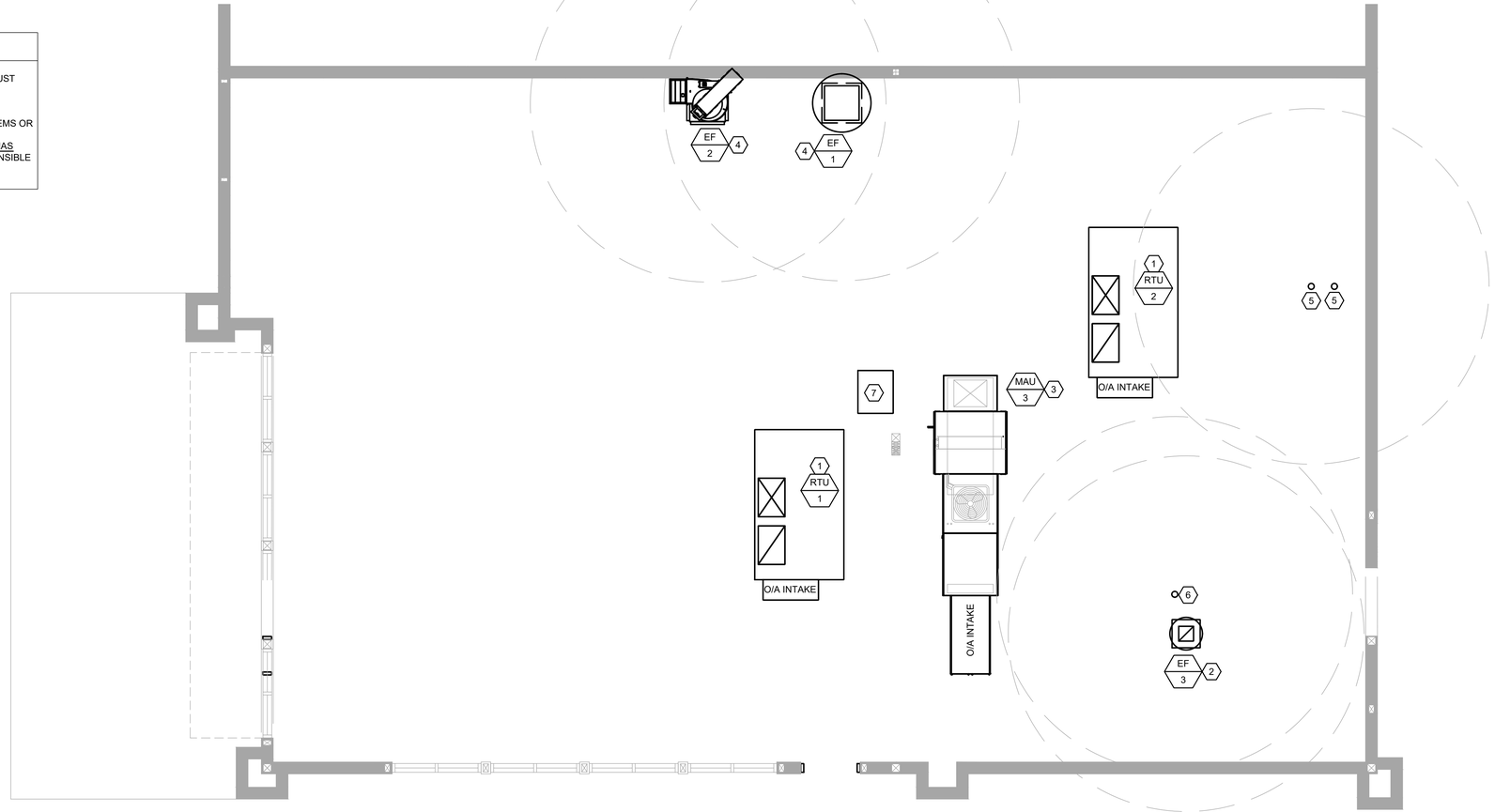
REFER TO ARCHITECTURAL ROOF PLAN FOR ROOF TOP EQUIPMENT LOCATIONS AND DETAILS.

MECHANICAL UNIT SUPPORT

RELATED TO STRUCTURAL SUPPORT:
ALL NEW, REPLACEMENT, AND/OR RELOCATED MECHANICAL UNIT(S), KITCHEN EXHAUST HOOD(S), MAKE-UP AIR UNIT(S), ELECTRICAL TRANSFORMER(S), WATER HEATER(S), INCLUDING ANY CURB(S) AND/OR CURB ADAPTOR(S)/TRANSITION CURB(S) (WHERE APPLICABLE), ARE SHOWN FOR "REFERENCE-ONLY".
ADEQUACY OF THE STRUCTURE'S ABILITY TO SUPPORT ANY OR ALL OF THESE SYSTEMS OR COMPONENT WEIGHTS, INCLUDING THE EFFECTS OF DEFLECTION, POTENTIAL FOR PONDING, SNOW DRIFTING (AS APPLICABLE), WIND LOADING AND SEISMIC LOADING HAS NOT BEEN EVALUATED BY CASE ENGINEERING, INC. CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUACY AND CODE COMPLIANCE OF EXISTING STRUCTURE TO SUPPORT PROPOSED NEW EQUIPMENT.



2 CONCENTRIC VENT KIT DETAIL
SCALE: NONE



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

GENERAL NOTES

1. DUCT/PIPING LAYOUT IS SCHEMATIC, EXACT LOCATION OF DUCT/PIPING AND EQUIPMENT SHALL BE COORDINATED WITH THE BUILDING STRUCTURE, EQUIPMENT, EXISTING CONDITIONS, ARCHITECTURAL DRAWINGS, AND ALL OTHER TRADES PRIOR TO INSTALLATION. ANY CONTRACTOR INSTALLING WORK PRIOR TO COORDINATION SHALL RELOCATE HIS WORK AT HIS EXPENSE TO ALLOW PROPER INSTALLATION OF ANY AND ALL OTHER TRADES' WORK. CONTRACTOR TO VERIFY THAT DUCTWORK SIZES, ELEVATIONS, EQUIPMENT WILL FIT ABOVE CEILING SYSTEM.
2. ALL WORK SHALL COMPLY WITH LOCAL MECHANICAL CODE AND ALL OTHER APPLICABLE CODES.
3. DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS.
4. ALL SUPPLY DUCTWORK ABOVE CEILING SPACES SHALL BE EXTERNALLY INSULATED WITH 1-1/2" THICK FIBERGLASS INSULATION.
5. FLEXIBLE RUNOUTS TO AIR DEVICES SHALL BE NO MORE THAN 5'-0" IN LENGTH AND SHALL BE INSULATED.
6. MANUAL DAMPERS SHALL BE PROVIDED AT ALL BRANCH TAPS FOR BALANCING. WHERE BRANCH TAPS ARE LOCATED ABOVE HARD LID CEILING OR OTHER INACCESSIBLE AREAS, PROVIDE MANUAL VOLUME DAMPER AT NECK OF AIR DEVICE AS WELL.
7. ALL MECHANICAL WORK SHALL BE IN STRICT COMPLIANCE WITH THE LOCAL MECHANICAL CODES AND APPLICABLE PROVISION OF THE LOCAL FUEL GAS CODES. ALL WORK IS SUBJECT TO ON-SITE APPROVAL BY THE LOCAL AUTHORITY.
8. THE MECHANICAL CONTRACTOR SHALL PROVIDE A COMPLETE SYSTEM BALANCE REPORT, HEAT GAIN, HEAT LOSS, AND COOLING CALCULATIONS TO LANDLORD'S REPRESENTATIVE TO VERIFY THAT THE REQUIRED VENTILATION AIR TO BE PROVIDED TO EACH SPACE HAS BEEN OBTAINED.
9. REFER TO SHEET M2-01 FOR MECHANICAL LEGEND.
10. SEE ARCHITECTURAL DRAWING A9-01 FOR FINISH SPECIFICATIONS.
11. ALL KITCHEN HOOD EXHAUST WORK SHALL BE 14 GAUGE BLACK IRON OR 18 GAUGE 303 STAINLESS STEEL WITH CONTINUOUS WELDED SEAMS, OR CAPTIVEAIRE NON-WELDED FACTORY GREASE DUCT SYSTEM WHICH IS ETL LISTED TO STANDARD UL-1978 AND CAN/ULC-S662 WHEN INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND NFPA STANDARD 96. ACCESS DOORS SHALL BE PROVIDED EVERY 20'-0" AND AT ANY CHANGE IN DIRECTION. ALL SEAMS, JOINTS, AND PENETRATIONS SHALL BE LIQUID TIGHT AND CONTINUOUS.
12. PROVIDE AND INSTALL ALL ADDITIONAL STEEL FOR ROOF STRUCTURE SUPPORT OF ALL EQUIPMENT ON ROOF. ALL ROOF WORK BY LANDLORD'S CONTRACTOR AT TENANT'S EXPENSE. ALL EQUIPMENT ON ROOF SHALL BE CURB OR RAIL MOUNTED AND FLASHED TO ROOF MEMBRANE.
13. THE TOP OF ALL DIFFUSERS SHALL BE INSULATED TO PREVENT CONDENSATION AND RUST TO FORM.

MECHANICAL KEYED NOTES

1. NEW ROOFTOP UNITS BY TENANT. INSTALL AT LOCATION OF EXISTING RTU BEING REMOVED UNDER LANDLORD'S SCOPE OF WORK, VERIFY EXACT LOCATION IN FIELD. RE-USE EXISTING CURB IF POSSIBLE AND PROVIDE CURB ADAPTER AS REQUIRED. MAINTAIN REQUIRED CLEARANCES AS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE TURNING VANES AS REQUIRED. IN CASE OF DISCREPANCIES, CONTACT ENGINEER OF RECORD PRIOR TO START OF WORK.
2. NEW EXHAUST FAN FOR RESTROOMS.
3. NEW MAKE UP AIR UNIT ON CURB. INSTALL AT LOCATION OF EXISTING MAU BEING REMOVED UNDER LANDLORD'S SCOPE OF WORK, VERIFY EXACT LOCATION IN FIELD. REFER TO SHEET MH3.0 FOR MORE INFORMATION.
4. NEW EXHAUST FAN PROVIDED BY CAPTIVEAIRE FOR THE KITCHEN HOOD. GENERAL CONTRACTOR TO COORDINATE GREASE GUARD SYSTEM INSTALLATION. REFER TO SHEETS MH3.0 AND MH4.0 FOR MORE INFO.
5. 4"Ø CONCENTRIC KIT FOR WATER HEATER. MAINTAIN 12" MIN. CLEARANCE ABOVE HIGHEST ANTICIPATED SNOW LEVEL. MAXIMUM OF 24" ABOVE ROOF.
6. SANITARY VENT THROUGH ROOF. VERIFY EXACT LOCATION IN FIELD, NOTIFY TENANT'S ENGINEER OF ANY MAJOR DISCREPANCIES.
7. REMOTE CONDENSER FOR WALK-IN COOLER.

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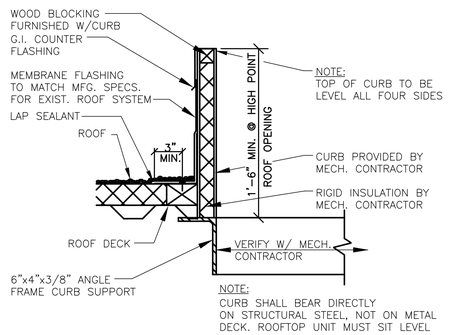
SHEET TITLE

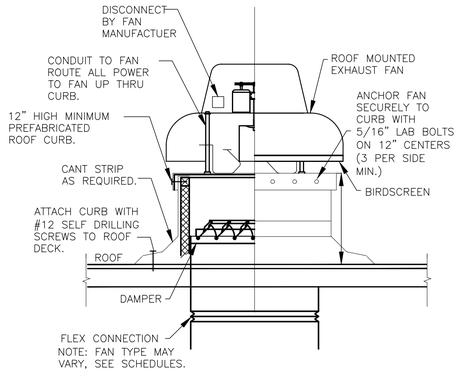
ROOF PLAN HVAC

SHEET NUMBER

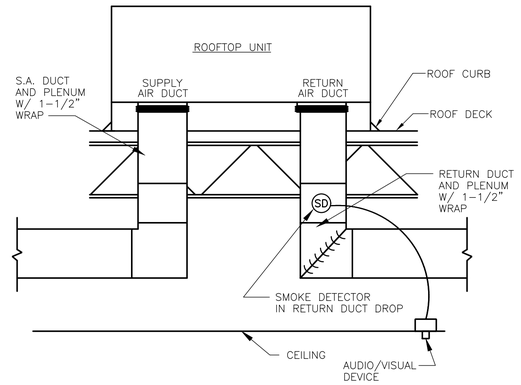
M3.0



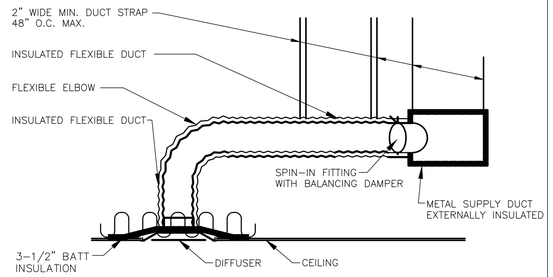
1 ROOF CURB SECTION
SCALE: NONE



2 ROOF MOUNTED FAN
SCALE: NONE

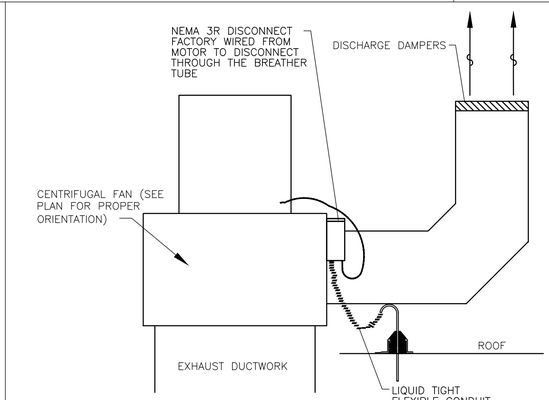


3 ROOFTOP UNIT MOUNTING DETAIL
SCALE: NONE



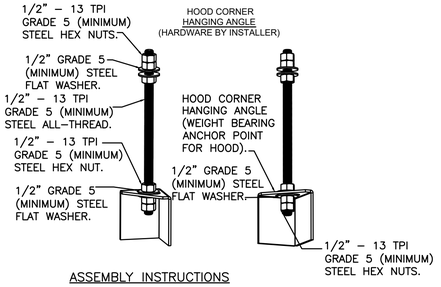
* REFER TO THE MECHANICAL EQUIPMENT SCHEDULE FOR COMPONENT AND DEVICE SPECIFICATIONS.

4 HVAC DUCTWORK DETAIL
SCALE: NONE



5 GRILL HOOD EXHAUST FAN DETAIL
SCALE: NONE

NOTE: PROVIDE SECOND DUCT CLEANOUT AT 6" ABOVE CONNECTION TO HOOD DUCT COLLAR.



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.

6 HOOD HANGING ANGLE DETAIL
SCALE: NONE

NEW RTU SCHEDULE (RTU-1)

MFR.	MODEL NO.	UNIT WT.	UNIT SIZE	VOLTS	HZ	PH	MCA	MOCP	MIN. OUTSIDE AIR CFM
LENNOX	LGT150H4E 10.8 EER	1426	12.5 TONS	208	60	3	61	80	800

TOTAL	COOLING		HEATING			INDOOR FAN	FILTERS		
CFM	TOTAL	SENS.	INPUT	OUPUT	STAGES	MOTOR	NO.	FILTER SIZE	TYPE
4100	141	106	180	146	2	3.75 HP	4	20x25x2	T/A

NEW RTU SCHEDULE (RTU-2)

MFR.	MODEL NO.	UNIT WT.	UNIT SIZE	VOLTS	HZ	PH	MCA	MOCP	MIN. OUTSIDE AIR CFM
LENNOX	LGT092H4E 12.3 EER	1364	7.5 TONS	208	60	3	43	50	400

TOTAL	COOLING		HEATING			INDOOR FAN	FILTERS		
CFM	TOTAL	SENS.	INPUT	OUPUT	STAGES	MOTOR	NO.	FILTER SIZE	TYPE
3000	93.0	67.9	180	146	2	2 HP	4	20x25x2	T/A

NOTES:
1. FIVE (5) YEAR COMPRESSOR WARRANTY, TEN (10) YEAR HEAT EXCHANGER/BURNER WARRANTY.
2. CONTRACTOR SHALL INSTALL FACTORY FURNISHED HAIL GUARDS OVER CONDENSER COILS AND INLET HOODS OVER OUTSIDE AIR INTAKES.
3. CONTRACTOR SHALL FLASH RTU OPENINGS TO MATCH DUCTWORK SIZE INDICATED.
4. FULL MODULATING ECONOMIZER.
5. PROVIDE ENTHALPY SENSOR AND CONTROLS FOR ECONOMIZER.
6. PROVIDE UNIT MOUNTED NEMA 3R DISCONNECT.
7. PROVIDE GFI RATED CONVENIENCE OUTLET.
8. PROVIDE EXHAUST DAMPERS TO MODULATE OUTSIDE AIR AND RETURN AIR AT ROOFTOP UNIT.
9. RETURN AIR SMOKE DETECTOR
10. EQUIPPED WITH NON-FUSED DISCONNECT, SINGLE POINT CONNECTION.

AIR DEVICE SCHEDULE

PLAN MARK	MFR	MODEL	FACE SIZE	NECK SIZE	TYPE	NOTES
S1	TITUS	TMS	24"x24"	SCHEDULE	DIFF.	1,2,3,6
S2	TITUS	TDC	24"x24"	SCHEDULE	DIFF.	2,3,4,6
S3	TITUS	350FL	10"x4"	SCHEDULE	DIFF.	2,3,5,6
R1	TITUS	TMS	24"x24"	SCHEDULE	R.G.	2,3,6
E1	TITUS	350FL	12"x12"	SCHEDULE	E.G.	3,5,6
E2	TITUS	350FL	12"x12"	SCHEDULE	E.G.	2,3,5,6

NOTES:
1. 4-WAY THROW UNLESS OTHERWISE NOTED.
2. PROVIDE ADAPTOR BOOTS AS REQUIRED.
3. FINISH SHALL MATCH CEILING FINISH UNLESS OTHERWISE SPECIFIED. VERIFY FINISHES WITH ARCHITECTURAL DRAWINGS PRIOR TO ORDERING.
4. 3-WAY AIR THROW PATTERN.
5. PROVIDE SQUARE TO ROUND ADAPTOR AS REQUIRED.
6. #26 WHITE IN KITCHEN, PREP, VESTIBULE, AND RESTROOMS, #84 FACTORY BLACK IN DINING ROOM AND HALL.

AIR DEVICE RUNOUT SCHEDULE

DUCT CFM	DUCT SIZE
0 - 100	6" ROUND
101 - 240	8" ROUND
241 - 449	10" ROUND
450 - 680	12" ROUND
681 - 1030	14" ROUND
1031 - 1250	15" ROUND
1251 - 1450	16" ROUND
1451 - 2000	18" ROUND

GENERAL NOTES
1. AIR DEVICE NECK SIZE SHALL BE THE SAME AS RUNOUT SIZE.
2. RECTANGULAR DUCT SIZES OF EQUIVALENT FREE AREA MAY BE BE SUBSTITUTED FOR ROUND DUCT.
3. RUNOUTS MAY BE RIGID OR FLEX DUCT PER SPECIFICATIONS.

AIR BALANCE SCHEDULE

UNIT MARK	SUPPLY AIR	OUTSIDE AIR	MAKE-UP AIR	EXHAUST AIR	RETURN AIR	NOTES
RTU-1	4100	800			3300	
RTU-2	3000	400			2600	
MAU-1			2821			
EF-1				-1662		
EF-2				-1852		
EF-3				-375		
BLDG. TOTAL	7100	1200	2821	-3889	5900	

MAKE-UP	HVAC UNITS		1200
	MAKEUP AIR UNIT		2821
	TOTAL		4021
EXHAUST	KITCHEN HOODS		-3514
	GENERAL EXHAUST		-375
	TOTAL		-3889
BALANCE RESULTS	MAKE-UP		4021
	EXHAUST		-3889
	TOTAL		132

MAKEUP AIR UNIT SCHEDULE

MARK	CFM	E.S.P. (IN. W.C.)	MOTOR DATA			HEATING DATA			COOLING DATA		MFR	MODEL	UNIT WT.	NOTES
			HP	VOLTS	PH	TYPE	MBH IN	MBH OUT	TOTAL	SENSIBLE				
MAU-1	2821	0.375	3.0	208	3	DIRECT	224	206	60	60	CAPTIVEAIRE	A2-D.500-20D-MPU	1391	1,2

1. REFER TO MECHANICAL HOOD DRAWINGS FOR MORE INFORMATION.
2. EQUIPPED WITH NON-FUSED DISCONNECT, SINGLE POINT CONNECTION.

FAN SCHEDULE

MARK	TYPE	CFM	E.S.P. (IN. W.C.)	DRIVE	MOTOR DATA			SERVES	MFR	MODEL	UNIT WT.	NOTES
					HP	VOLTS	PH					
EF-1	ROOF	1662	1.375	DIRECT	2.0	208	3	FRYERS	CAPTIVEAIRE	DU180HFA	199	3,4,5,6,8,9
EF-2	ROOF	1852	1.1	DIRECT	2.0	208	3	GRILL	CAPTIVEAIRE	CASRE15DD	241	3,4,5,7,8,9
EF-3	ROOF	375	0.5	DIRECT	1/30	115	1	TOILET/MOP SK	GREENHECK	G-095-E	35	1,2

NOTES:
1. NEW EXHAUST FAN.
2. FAN SHALL BE INTERLOCKED WITH RTU THERMOSTATS SO THAT EXHAUST FAN RUNS CONTINUOUSLY DURING OCCUPIED MODE.
3. HOOD EXHAUST FAN TO BE CONNECTED TO HOOD CONTROL PANELS AND ANSUL SYSTEM.
4. HOOD EXHAUST FAN TO BE PROVIDED BY KITCHEN EQUIPMENT SUPPLIER.
5. REFER TO MECHANICAL HOOD DRAWINGS FOR MORE INFORMATION.
6. GREASE GUARD TO EXTEND 15" ON ALL SIDES OF EXHAUST FAN, INSTALL BEFORE EXHAUST FAN IS ACTIVATED, CALL BYRON GAYLORD AT 331.301.4171.
7. DRIP GUARD TO BE INSTALLED UNDER FAN, CONTACT CALL BYRON GAYLORD AT 331.301.4171.
8. REFER TO ARCHITECTURAL SHEET A2-15 FOR MORE INFORMATION ON GREASE GUARDS FOR EXHAUST FANS.
9. EQUIPPED WITH NON-FUSED DISCONNECT, SINGLE POINT CONNECTION.

(BASED ON INTERNATIONAL MECHANICAL CODE)

Unit	Room	Az - Area	Pz - People	Rp - CFM/Person	RA - CFM/Area	Vbz = RpPz+RaAz	Ez	Voz = Vbz/Ez	Vpz	Zp = Voz/Vpz	D - Diversity	Vou = D * Vbz	EV	Vot = Vou/Ev
RTU-2	BOH/PREP	500	6	7.5	0.12	105	0.8	131	1600	0.08	1.0	131	1.0	**131**
	KITCHEN FOH	380	8	7.5	0.12	106	0.8	132	1100	0.12	1.0	132	1.0	**132**
	HALLWAY	115	0	0.0	0.06	7	0.8	9	150	0.06	1.0	9	1.0	**9**
RTU-1	DINING	1145	78	7.5	0.18	791	0.8	989	4100	0.24	1.0	989	0.9	**1099**
												TOTAL VENTILATION NEEDED		1371

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M4.0

System Checksums

By CASE ENGINEERING INC

RTU-1 — **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 88 / 73 / 101

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	12,291	12,291	14
Glass Solar	0	0	0	0
Glass/Door Cond	61	0	61	0
Wall Cond	766	274	1,040	1
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	0		0	0
Sub Total ==>	827	12,566	13,392	15
Internal Loads				
Lights	3,145	59	3,204	4
People	6,600	0	6,600	8
Misc	54,485	0	54,485	62
Sub Total ==>	64,230	59	64,289	73
Ceiling Load	1,032	-1,032	0	0
Ventilation Load	0	0	8,682	10
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	2,051		2,051	2
Exhaust Heat		-637	-637	-1
Sup. Fan Heat			0	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	68,139	10,955	87,776	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	61	0
Wall Cond	794	1
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	0	0
Sub Total ==>	856	1
Internal Loads		
Lights	3,145	5
People	3,300	5
Misc	54,478	84
Sub Total ==>	60,923	94
Ceiling Load	1,024	2
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	2,051	3
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	64,854	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 1

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-9,371	6.80
Glass Solar	0	0	0.00
Glass/Door Cond	-288	-288	0.21
Wall Cond	-2,075	-2,887	2.09
Partition/Door	0	0	0.00
Floor	-1,891	-1,891	1.37
Adjacent Floor	0.00	0.00	0.00
Infiltration	0	0	0.00
Sub Total ==>	-4,254	-14,437	10.47
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-792	0	0.00
Ventilation Load	0	-15,184	11.01
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	-108,733	-108,733	78.87
Exhaust Heat		489	-0.35
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-113,779	-137,864	100.00

TEMPERATURES

	Cooling	Heating
SADB	57.7	96.9
Ra Plenum	75.9	67.8
Return	75.9	67.8
Ret/OA	76.5	64.3
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	3,887	3,887
Terminal	3,887	3,887
Main Fan	3,887	3,887
Sec Fan	0	0
Nom Vent	203	203
AHU Vent	203	203
Infil	0	0
MinStop/Rh	0	0
Return	3,887	3,887
Exhaust	203	203
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	5.2	5.2
cfm/ft²	3.46	3.46
cfm/ton	531.40	
ft²/ton	153.80	
Btu/hr-ft²	78.02	-122.55
No. People	12	

COOLING COIL SELECTION

	Total Capacity ton	MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	°F	gr/lb	Leave DB °F	°F	gr/lb
Main Clg	7.3	87.8	79.1	3,887	76.5	62.4	63.9	57.7	54.7	60.9
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	7.3	87.8								

AREAS

	Gross Total ft²	Glass ft²	(%)
Floor	1,125		
Part	0		
Int Door	1		
ExFlr	42		
Roof	1,125	0	0
Wall	378	0	0
Ext Door	21	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-137.9	3,887	64.3	96.9
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-137.9			

Project Name: TOLEDO,OH
Dataset Name: DXU-OH-03-24 FIVEGUYS.TRC

TRACE® 700 v6.3.5 calculated at 11:20 AM on 06/24/2024
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System Checksums

By CASE ENGINEERING INC

RTU-2 dining — **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 18
Outside Air: OADB/WB/HR: 83 / 70 / 90

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	9,660	9,660	7
Glass Solar	53,244	0	53,244	38
Glass/Door Cond	3,390	0	3,390	2
Wall Cond	1,487	1,791	3,278	2
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	0		0	0
Sub Total ==>	58,121	11,452	69,572	50
Internal Loads				
Lights	3,908	0	3,908	3
People	41,983	0	41,983	30
Misc	3,600	0	3,600	3
Sub Total ==>	49,491	0	49,491	35
Ceiling Load	872	-872	0	0
Ventilation Load	0	0	23,437	17
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-2,034	-2,034	-1
Sup. Fan Heat			0	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	108,484	8,545	140,466	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	56,439	63
Glass/Door Cond	2,592	3
Wall Cond	1,640	2
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	0	0
Sub Total ==>	60,671	67
Internal Loads		
Lights	3,908	4
People	20,992	23
Misc	3,600	4
Sub Total ==>	28,500	32
Ceiling Load	715	1
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	89,886	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 1

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-9,512	10.26
Glass Solar	0	0	0.00
Glass/Door Cond	-19,436	-19,436	20.97
Wall Cond	-1,602	-3,537	3.82
Partition/Door	0	0	0.00
Floor	-3,840	-3,840	4.14
Adjacent Floor	0.00	0.00	0.00
Infiltration	0	0	0.00
Sub Total ==>	-24,878	-36,325	39.20
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-872	0	0.00
Ventilation Load	0	-58,381	63.00
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		2,034	-2.19
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-25,750	-92,673	100.00

TEMPERATURES

	Cooling	Heating
SADB	52.6	75.9
Ra Plenum	75.4	67.6
Return	75.4	67.6
Ret/OA	76.9	54.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	4,049	4,049
Terminal	4,049	4,049
Main Fan	4,049	4,049
Sec Fan	0	0
Nom Vent	779	779
AHU Vent	779	779
Infil	0	0
MinStop/Rh	0	0
Return	4,049	4,049
Exhaust	779	779
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	19.2	19.2
cfm/ft²	3.54	3.54
cfm/ton	345.90	
ft²/ton	97.82	
Btu/hr-ft²	122.68	-80.94
No. People	76	

COOLING COIL SELECTION

	Total Capacity ton	MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	°F	gr/lb	Leave DB °F	°F	gr/lb
Main Clg	11.7	140.5	104.6	4,049	76.9	63.3	67.7	52.6	51.3	55.7
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	11.7	140.5								

AREAS

	Gross Total ft²	Glass ft²	(%)
Floor	1,145		
Part	0		
Int Door	1		
ExFlr	80		
Roof	1,145	0	0
Wall	891	423	47
Ext Door	63	63	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-92.7	4,049	54.8	75.9
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-92.7			

Project Name: TOLEDO,OH
Dataset Name: DXU-OH-03-24 FIVEGUYS.TRC

TRACE® 700 v6.3.5 calculated at 11:20 AM on 06/24/2024
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MUNICIPAL APPROVAL STAMPS

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CERTIFICATE OF AUTHORITY NO. 5613

TOLEDO, OH
6920 CENTRAL AVENUE
TOLEDO, OH 43617
FGE PROJECT NUMBER: 24-XXX

ISSUE DATE

REV	ISSUE	DATE
	PERMIT LL BID	07-12-2024

SEAL

07-12-2024

SHEET TITLE

MECHANICAL
HVAC LOAD

SHEET NUMBER

M5.0

COMcheck Software Version COMcheckWeb
Mechanical Compliance Certificate

Project Information

Energy Code:	2018 IECC
Project Title:	Five Guys, Toledo, OH
Location:	Toledo, Ohio
Climate Zone:	5a
Project Type:	Alteration

Construction Site: 6920 CENTRAL AVENUE, TOLEDO, Ohio 43617 — Owner/Agent: — Designer/Contractor:

Mechanical Systems List

Quantity	System Type & Description
1	RTU-1 (Single Zone): Heating: 1 each - Central Furnace, Gas, Capacity = 146 kBtu/h Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE Cooling: 1 each - Single Package DX Unit, Capacity = 141 kBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 10.80 EER, Required Efficiency = 10.80 EER Proposed Part Load Efficiency = 14.00 IEER, Required Part Load Efficiency = 12.20 IEER Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: FAN 1 Supply, Constant Volume, 4100 CFM, 3.8 motor nameplate hp, 0.0 fan efficiency grade, 0.0 total fan efficiency, 0.0 design fan efficiency , fan exception: Single fan <= 5HP
1	RTU-2 (Single Zone): Heating: 1 each - Central Furnace, Gas, Capacity = 146 kBtu/h Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE Cooling: 1 each - Single Package DX Unit, Capacity = 93 kBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 12.30 EER, Required Efficiency = 11.00 EER Proposed Part Load Efficiency = 14.60 IEER, Required Part Load Efficiency = 12.60 IEER Fan System: FAN SYSTEM 2 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: FAN 2 Supply, Constant Volume, 4000 CFM, 2.0 motor nameplate hp, 0.0 fan efficiency grade, 0.0 total fan efficiency, 0.0 design fan efficiency , fan exception: Single fan <= 5HP

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COM*check* Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title ____ Signature ____ Date ____

COMcheck Software Version COMcheckWeb
Inspection Checklist

Energy Code: 2018 IECC

Requirements: 31.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.12.2, C403.12.3 [FO9][3]	Snow/ice melting system and freeze protection systems have sensors and controls configured to limit service for pavement temperature and outdoor temperature. future connection to controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5, C404.5.1, C404.5.2 [PL6][3]	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C404.6.3 [PL7][3]	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C404.7 [PL8][3]	Demand recirculation water systems have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.2.6 [ME41][3]	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.8.4 [ME142][2]	Motors for fans that are not less than 1/12 hp and less than 1 hp are electronically commutated motors or have a minimum motor efficiency of 70 percent. These motors have the means to adjust motor speed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.8.5 [ME143][2]	Each DX cooling system > 65 kBtu and chiller water/evaporative cooling system with fans > 1/4 hp are designed to vary the indoor fan airflow as a function of load and comply with detailed requirements of this section.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.12.1 [ME71][2]	Systems that heat outside the building envelope are radiant heat systems controlled by an occupancy sensing device or timer switch.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.5.5 [ME113][2]	Fault detection and diagnostics installed with air-cooled unitary DX units having economizers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.2.2 [ME59][1]	Natural or mechanical ventilation is provided in accordance with International Mechanical Code Chapter 4. Mechanical ventilation has capability to reduce outdoor air supply to minimum per IMC Chapter 4.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.7.1 [ME59][1]	Demand control ventilation provided for spaces >500 ft2 and >25 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.7.2 [ME115][3]	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.7.6 [ME141][3]	HVAC systems serving guestrooms in Group R-1 buildings with > 50 guestrooms: Each guestroom is provided with controls that automatically manage temperature setpoint and ventilation (see sections C403.7.6.1 and C403.7.6.2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.7.4 [ME57][1]	Exhaust air energy recovery on systems meeting Table C403.7.4(1) and C403.7.4(2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.7.5 [ME116][3]	Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and satisfy hood rating requirements and maximum exhaust rate criteria.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.11.1, C403.11.2 [ME60][2]	HVAC ducts and plenums insulated in accordance with C403.11.1 and constructed in accordance with C403.11.2, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.5, C403.5.1, C403.5.2 [ME62][1]	Air economizers provided where required, meet the requirements for design capacity, control signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.5.3.3 [ME124][1]	Air economizers automatically reduce outdoor air intake to the design minimum outdoor air quantity when outdoor air intake will not reduce cooling energy usage. See Table C403.5.3.3 for applicable device types and climate zones.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.5.3.4 [ME125][1]	System capable of relieving excess outdoor air during air economizer operation to prevent overpressurizing the building. The relief air outlet located to avoid recirculation into the building.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.5.3.5 [ME126][1]	Return, exhaust/relief and outdoor air dampers used in economizers have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Reference section C403.7.7 for details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.4.1.4 [ME63][2]	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint >= 80F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.3.3 [ME35][1]	Hot gas bypass limited to: <=240 kBtu/h – 50% >240 kBtu/h – 25%	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.2.1 [ME53][3]	Air outlets and zone terminal devices have means for air balancing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.5, C403.5.1, C403.5.2 [ME123][3]	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections C403.5.1 and refrigeration compressor systems that comply with C403.5.2..	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.6 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.7 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8.2, C405.8.2.1 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.3 [FI8][3]	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.2 [FI27][3]	HVAC systems and equipment capacity does not exceed calculated loads.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.2.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.4.1.2 [FI38][3]	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.2.4.1.3 [FI20][3]	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.2.4.2 [FI39][3]	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.2.4.2.1, C403.2.4.2.2 [FI40][3]	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.2.4.2.3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.1 [FI28][1]	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.3.1 [FI31][1]	HVAC equipment has been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.3.2 [FI10][1]	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.3.3 [FI32][1]	Economizers have been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.4 [FI29][1]	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.1 [FI7][3]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.3 [FI43][1]	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.4 [FI30][1]	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

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CERTIFICATE OF AUTHORITY NO. 5613

TOLEDO, OH
6920 CENTRAL AVENUE
TOLEDO, OH 43617
PROJECT NUMBER: 24-XXX
FGE

ISSUE DATE

REV	ISSUE	DATE
	PERMIT LL BID	07-12-2024

SEAL

STATE OF OHIO — MATTHEW RICHARD CASE — PE.85398 — REGISTERED — PROFESSIONAL ENGINEER

07-12-2024

SHEET TITLE

MECHANICAL COMCHECK

SHEET NUMBER

M6.0

HOOD INFORMATION – JOB#6327047

HOOD NO	TAG	MODEL	LENGTH	MAX COOKING TEMP	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) HEIGHT	DIA	CFM	VEL	SP	MUA CFM	AC CFM	HOOD CONSTRUCTION	HOOD CONFIG END TO END	ROW
1	GRILLS	5424 ND-2-ACPSP-F	9' 9"	600 DEG	1852	4"	14"	1852	1732	-0.940"	1574	608	430 SS WHERE EXPOSED	LEFT	ALONE
2	FRYERS	5424 ND-2-ACPSP-F	8' 9"	600 DEG	1662	4"	14"	1662	1555	-0.792"	1247	560	430 SS WHERE EXPOSED	RIGHT	ALONE

HOOD NO	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	CAPTRATE SOLO FILTER	7	16"	16"	85% SEE FILTER SPEC	6	RECESSED ROUND	NO	LEFT	12"x54"x24"	TANK FS	4.0/4.0/4.0		1 LIGHT 1 FAN	YES	1034 LBS
2	CAPTRATE SOLO FILTER	6	16"	16"	85% SEE FILTER SPEC	6	RECESSED ROUND	NO							YES	602 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	GRILLS	FIELD WRAPPER 18.00" HIGH FRONT, LEFT.
		LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		1-PINT GREASE CUP.
2	FRYERS	FIELD WRAPPER 18.00" HIGH FRONT, RIGHT.
		RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		1-PINT GREASE CUP.

PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S) WIDTH	LENG	DIA	CFM	SP
1	GRILLS	Front	129"	24"	6"	MUA	12"	28"		787	0.199"
						MUA	12"	28"		787	0.199"
						AC	8"	16"		304	0.086"
						AC	8"	16"		304	0.086"
2	FRYERS	Front	105"	24"	6"	MUA	12"	28"		623	0.149"
						MUA	12"	28"		623	0.149"
						AC	8"	16"		280	0.087"
						AC	8"	16"		280	0.087"

BALANCING NOTES:

Exhaust Requirements

100–105% OF DESIGN PER HOOD

MEASURED AT THE EXHAUST FILTER WHILE THE FILTER IS INSTALLED

Supply Requirements

95–100% OF DESIGN PER SUPPLY PLENUM

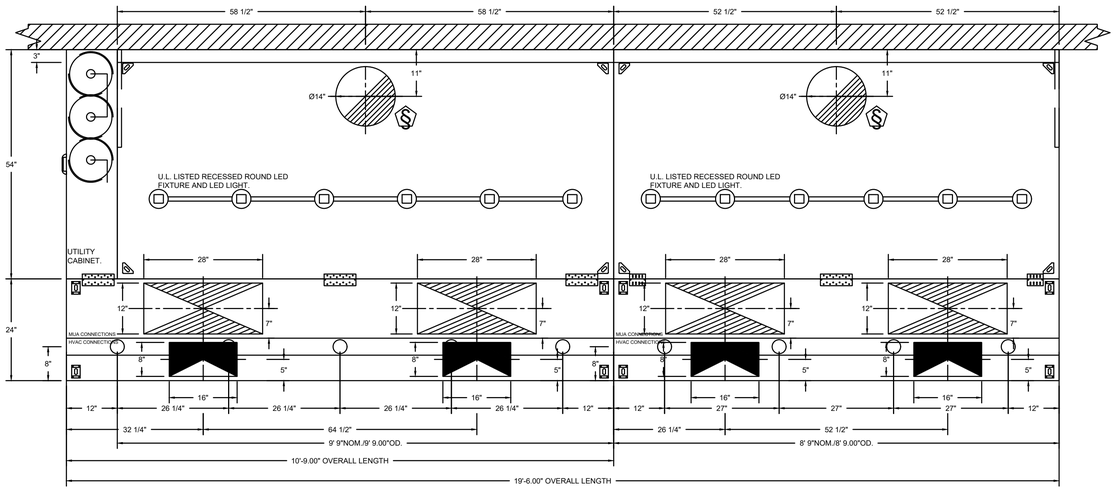
MEASURED AT THE BOTTOM FACE OF THE PERFORATION (DISCHARGE POINT)

SCOPE OF WORK

HOOD(S): PROVIDED BY OWNER. INSTALLED BY GC.
FIRE SYSTEM(S): PROVIDED & INSTALLED BY OWNER.
EXHAUST FAN(S): PROVIDED BY OWNER. INSTALLED BY GC.
MAKEUP AIR UNIT(S): PROVIDED BY OWNER. INSTALLED BY GC.
ELECTRICAL CONTROL(S): PROVIDED BY OWNER. INSTALLED BY GC.
GC IS RESPONSIBLE FOR COMPLETE START–UP OF EXHAUST FANS AND MAKEUP AIR UNIT PER CAPTIVEAIRE OPERATION & INSTALLATION MANUAL

IMPORTANT INSTALLATION NOTES:

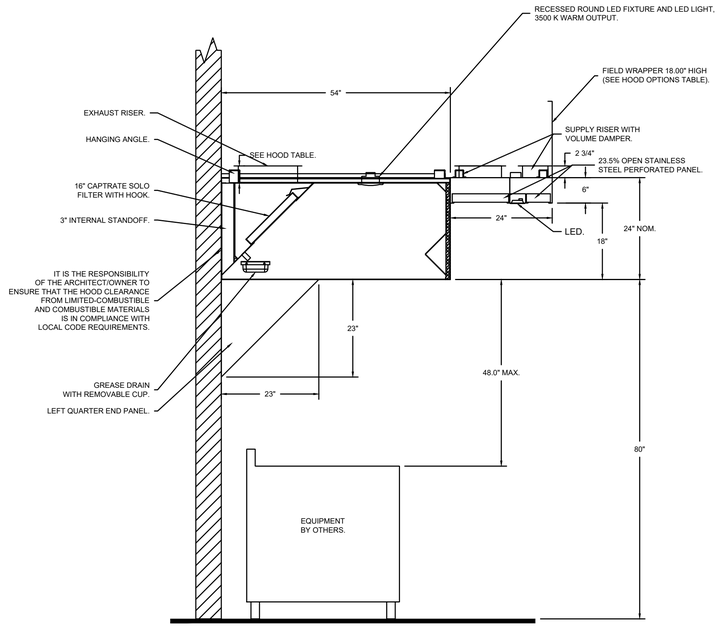
– LEFT MOUNTED UTILITY CABINET WILL BE PRE–INSTALLED ON HOOD
IF CEILING HEIGHT IS NOT 10' AFF CONTACT CAPTIVE–AIRE FOR REVISED DRAWINGS AND TO DETERMINE IF THE UTILITY CABINET IS POSSIBLE.
– DO NOT INSTALL QUARTER END PANELS BETWEEN HOODS



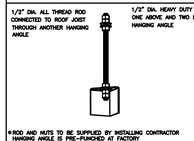
PLAN VIEW – HOOD #1 (GRILLS)
9' 9.00" LONG 5424ND–2–ACPSP–F
ACPSP SHIPS LOOSE FOR FIELD INSTALLATION

PLAN VIEW – HOOD #2 (FRYERS)
8' 9.00" LONG 5424ND–2–ACPSP–F
ACPSP SHIPS LOOSE FOR FIELD INSTALLATION

LIGHTING FOR ACPSP JOB # 6327047 - HOODS #1, #2
INPUT: 120V AC, 1 PHASE, 50/60HZ, 3.5 WATTS PER LIGHT.
TO CONTROL LIGHTS WITH HOOD LIGHT SWITCH, WIRE PER HOOD ELECTRICAL CONTROL PANEL SCHEMATIC.
TO CONTROL LIGHTS WITH BUILDING LIGHT SWITCH, WIRE BLACK AND WHITE WIRE TO A 120VAC SERVICE.
END TO END ACPSPS REQUIRE 120VAC FIELD WIRING FROM J-BOX TO J-BOX. REPLACE LIGHTS WITH LED LIGHTS ONLY.



SECTION VIEW – MODEL 5424ND–2–ACPSP–F
HOOD – #1&#2 (GRILLS & FRYERS)



HANGING ANGLE DETAIL

ETL LISTING DESCRIPTION BLOCK

THE CAPTIVEAIRE MODEL ND–2 HAS BEEN U.L. 710 TESTED, LISTED, AND APPROVED TO EXHAUST A MINIMUM OF 140 CFM PER LINEAR FOOT OVER 600 DEGREE COOKING EQUIPMENT WHEN QUARTER END PANELS ARE INSTALLED.

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH

NFPA #96
ETL SANITATION LISTED
ETL LISTED #3054804-001
Intertek

FOR QUESTIONS, CONTACT:
CAPTIVE-AIRE SYSTEMS, INC.

STORES NORTH OF FAIRFAX, VA CONTACT:
MARK PROFET
PHONE (800) 988-0881
EMAIL: REG32@CAPTIVEAIR.COM

STORES SOUTH OF FAIRFAX, VA CONTACT:
JAYSON NEWMAN
PHONE (800) 419-1447
EMAIL: REG28@CAPTIVEAIR.COM

DESCRIPTION	DATE:

CAPTIVE-AIRE
Maryland Office
8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192276931 EMAIL: reg32@captiveaire.com

Five Guys - Toledo, OH
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6/25/2024

6879563

AD-32

NTS

MASTER DRAWING

1

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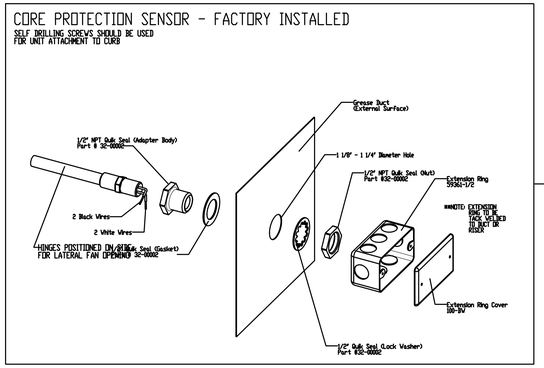
CAPTIVEAIRE DRAWINGS

SHEET NUMBER

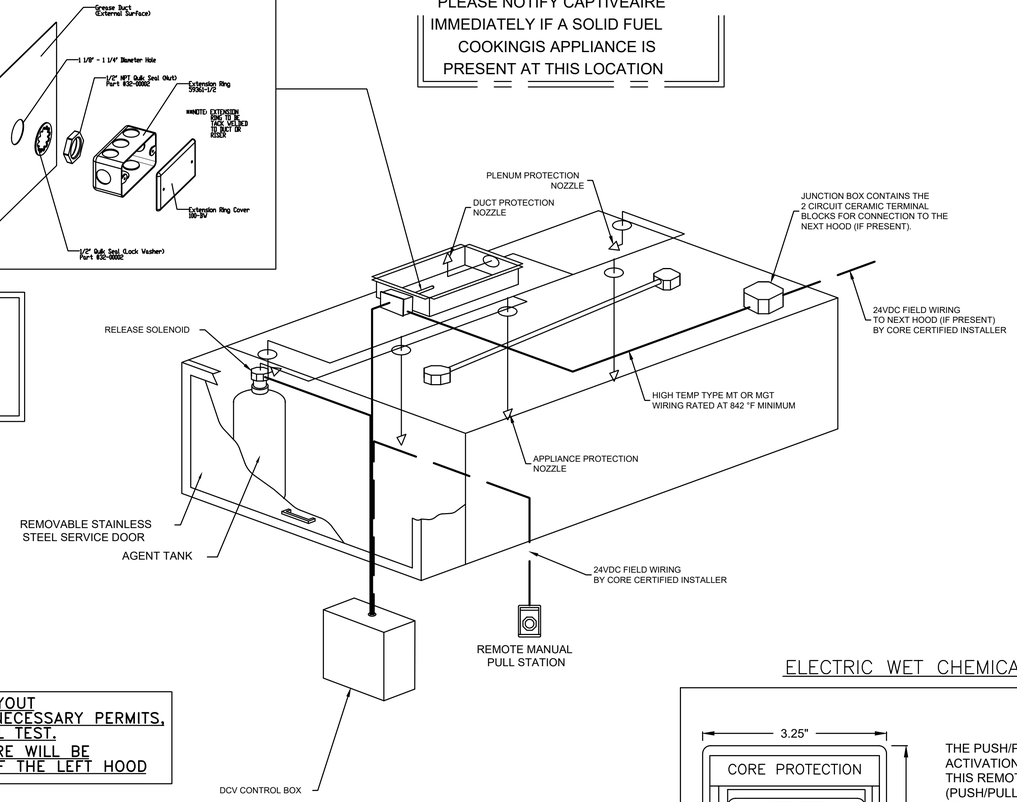
MH1.0

TYPICAL ELECTRIC WET CHEMICAL SYSTEM LAYOUT



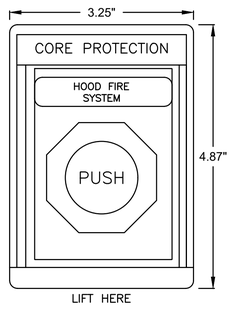
*** NOTE ***
SOLID FUEL APPLIANCES NOT PERMITTED WITH WET CHEMICAL FIRE SYSTEM. PLEASE NOTIFY CAPTIVEAIRE IMMEDIATELY IF A SOLID FUEL COOKINGIS APPLIANCE IS PRESENT AT THIS LOCATION

*** NOTE ***
A FIRESTAT MUST BE INSTALLED AT 50 FT INTERVALS WHEN DUCT LENGTH EXCEEDS 50 FT.



TYPICAL TANK SYSTEM LAYOUT
NOTE: FIRE SYSTEM TO INCLUDE ALL NECESSARY PERMITS, FIELD HOOKUP, AND FINAL TEST.
NOTE: FIRE SYSTEM ENCLOSURE WILL BE FACTORY-MOUNTED ON LEFT SIDE OF THE LEFT HOOD

ELECTRIC WET CHEMICAL PULL STATION DETAIL



THE PUSH/PULL STATION IS A REMOTE MANUAL ACTIVATION DEVICE TO ACTIVATE THE FIRE SYSTEM. THIS REMOTE MANUAL ACTIVATION DEVICE (PUSH/PULL STATION) CONTAINS ONE SET OF NORMALLY OPEN CONTACTS, AND MOUNTS TO ANY STANDARD JUNCTION BOX. WHEN THE FRONT BUTTON IS PRESSED, THE ELECTRICAL CONNECTION TO THE FIRE SYSTEM IS COMPLETED, THUS ACTIVATING THE FIRE SYSTEM.

THE REMOTE MANUAL ACTIVATION (PUSH/PULL STATION) SHOULD BE MOUNTED AT A POINT OF EGRESS AND POSITIONED AT A HEIGHT DETERMINED BY THE AUTHORITY HAVING JURISDICTION (AHJ). THIS POSITION IS USUALLY 10 TO 20 FEET FROM THE HOOD AND 42 TO 48 INCHES ABOVE THE FLOOR. TO RESET, TWIST THE PUSH-BUTTON CLOCKWISE UNTIL THE INTERNAL LATCH IS RELEASED.

THE CLEAR PROTECTIVE COVER MUST BE INSTALLED TO PROTECT THE DEVICE FROM ACCIDENTAL ACTIVATIONS. THE COVER IS PROVIDED AS PART OF THE MANUAL ACTIVATION DEVICE.

DESCRIPTION	DATE:

CAPTIVEAIRE

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6/25/2024

6879563

AD-32

NTS

MASTER DRAWING

2

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SHEET TITLE

CAPTIVEAIRE DRAWINGS

SHEET NUMBER

MH2.0

EXHAUST FAN INFORMATION – JOB#6879563

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	CFM	ESP	RPM	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	FRYERS	1	DU180HFA	1662	1.375	1072	2.000	0.8410	3	208	7.3	384 FPM	199	11.4
2	GRILL	1	CASRE15DD	1852	1.100	1784	2.000	1.4520	3	208	6.1	1361 FPM	241	28.3

CONDENSER DETAILS

FAN UNIT NO	TAG	FAN UNIT MODEL #	CONDENSER NO	TONNAGE	VOLTAGE	PHASE	FREQUENCY	MCA	RLA	MAX FUSE SIZE	MIN WIRE SIZE	SEER
3	MAU-1	A2-D.500-20D-MPU	1	5	208-230	3 PHASE	60 HZ	21.4 AMPS	17.4 AMPS	30 AMPS	10 AWG	14

MUA FAN INFORMATION – JOB#6879563

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	HP	BHP	PHASE	VOLT	FLA	MCA	MOCP	WEIGHT (LBS)	SONES
3	MAU-1	1	A2-D.500-20D-MPU	20MF-2-MOD	A2-D.500	2000	2821	0.375	1425	3.000	1.5250	3	208	9.5	11.9A	20A	1391	12.8

COILS – JOB#6879563

FAN UNIT NO	TAG	COIL TYPE	DESIGN CFM	COOLING						
				ENTERING DB TEMP	ENTERING WB TEMP	LEAVING DB TEMP	LEAVING WB TEMP	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY
3	MAU-1	DX	2821	88.0°F	73.0°F	67.5°F	67.0°F	60.0 MBH	60.0 MBH	0.0 MBH

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(%)
3	MAU-1	223934	206019	70°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	92

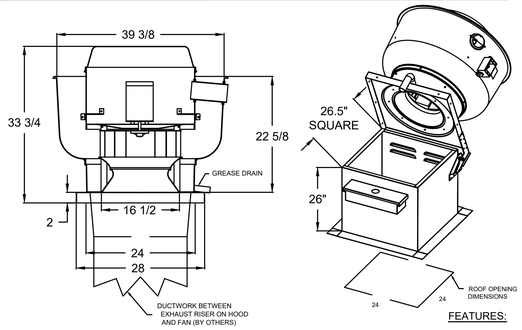
FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	FRYERS	1	GREASE BOX
		1	2 YEAR PARTS WARRANTY
2	GRILL	1	RE15 - RAIN CAP ASSEMBLY - INCLUDES HARDWARE AND GASKET
		1	2 YEAR PARTS WARRANTY
3	MAU-1	1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC
		1	BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 2 (1" MOD VALVE)
		1	SHIP LOOSE GAS STRAINER 1"
		1	MOTORIZED BACKDRAFT DAMPER FOR A2-D HOUSING - MEETS AMCA CLASS 1A RATING
		1	LOW FIRE START
		1	FREEZESTAT
		1	5 TON SINGLE CIRCUIT MODULAR PACKAGED AC COOLING OPTION FOR SIZE 2 DF/EH MUA (1000 TO 2750 CFM), 208V/230V, 3 PHASE. COOLING THERMOSTAT OR PROGRAMMABLE STAT REQUIRED FOR PROPER OPERATION
		1	DOWNTURN PLENUM FOR SIZE 2 DX COIL MODULE
		1	SIZE 2 MPU-AC MOISTURE ELIMINATOR OPTION - ALLOWS COOLING COIL FACE VELOCITY TO INCREASE TO 650 FPM - INCREASES COOLING COIL MAX CFM TO 3250 CFM
		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

CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	FRYERS	34 LBS	CURB	26.500"W X 26.500"L X 26.000"H VENTED HINGED.
2	# 2	GRILL	37 LBS	CURB	23.000"W X 23.000"L X 24.000"H VENTED.
3	# 3	MAU-1	107 LBS	CURB	31.000"W X 79.000"L X 20.000"H INSULATED.
	# 3			RAIL	6.000"W X 31.000"L X 20.000"H.

FAN #1 DU180HFA
EXHAUST FAN FOR HOOD COVERING FRYERS



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

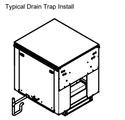
GREASE BOX

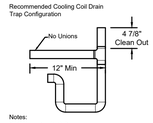
FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS)
- ROOF MOUNTED FANS
- RESTAURANT MODEL
- UL705 AND UL762
- VARIABLE SPEED CONTROL
- INTERNAL WIRING
- WEATHERPROOF DISCONNECT
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE)
- HIGH HEAT OPERATION 300°F (149°C)
- GREASE CLASSIFICATION TESTING

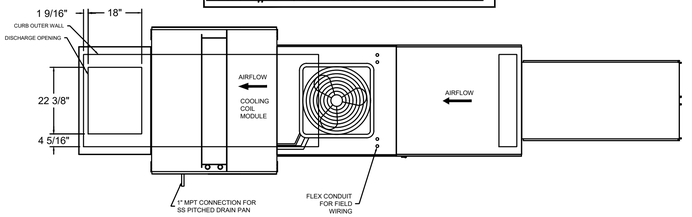
ATTENTION

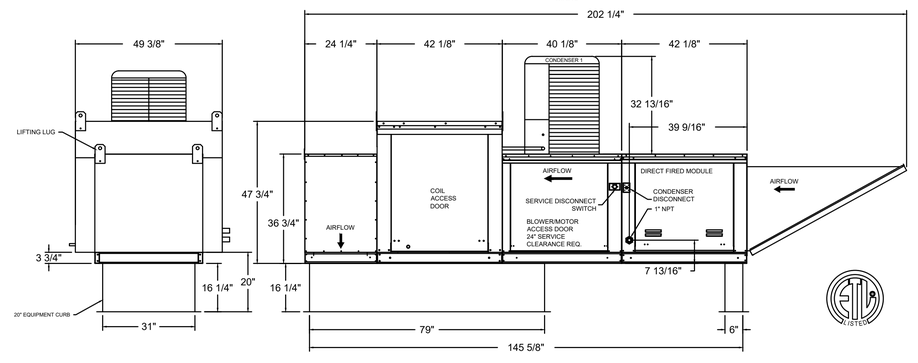
INSTALLER MUST READ LABEL NEAR DISCONNECT SWITCH! MESSAGE ON LABEL: "INSTALLER SHOULD SUPPLY ENOUHG ELECTRICAL CORD TO LET FAN MAKE COMPLETE SWING"





FAN #3 A2-D.500-20D-MPU





SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 5°F. TEMP. RISE = 70°F.
BTUs CALCULATED OFF ACTUAL AIR DENSITY.
OUTPUT BTUs AT ALTITUDE OF 0.0 FT. = 210965.
INPUT BTUs AT ALTITUDE OF 0.0 FT. = 229310.
OUTPUT BTUs AT ALTITUDE OF 655 FT. = 206019.
INPUT BTUs AT ALTITUDE OF 655 FT. = 223934.

FAN #3 A2-D.500-20D-MPU - HEATER (MAU-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. BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 2 (1" MOD VALVE).
7. SHIP LOOSE GAS STRAINER. TO BE INSTALLED UPSTREAM OF UNIT CONNECTION. 1" CONNECTION.
8. 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. LF1205 ACTUATOR INCLUDED.
9. LOW FIRE START. ALLOWS THE BURNER CIRCUIT TO ENERGIZE WHEN THE MODULATION CONTROL IS IN A LOW FIRE POSITION.
10. FREEZESTAT FACTORY SET AT 35°F AND 10 MINUTES.
11. 5 TON, SINGLE CIRCUIT 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. (1,000 TO 2,750 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 = 3EY1102.
12. DOWNTURN PLENUM FOR SIZE 2 COOLING COIL MODULE - REQUIRED FOR DOWN DISCHARGE COOLING COIL APPLICATIONS.
13. SIZE 2 MPU-AC MOISTURE ELIMINATOR OPTION - ALLOWS COOLING COIL FACE VELOCITY TO INCREASE TO 650 FPM. INCREASES COOLING COIL MAX CFM TO 3250 CFM.
14. 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.
15. PROFILE PLATE CONFIGURATION FOR SIZE 2 DIRECT FIRED UNIT FOR LOW CFM APPLICATIONS.
16. HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER/MPU SECTION).
17. 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".

WEATHER DESIGN DATA
BASED ON TOLEDO, OH REGION

FAN #2 CASRE15DD
EXHAUST FAN FOR HOOD COVERING GRILLS

FEATURES:

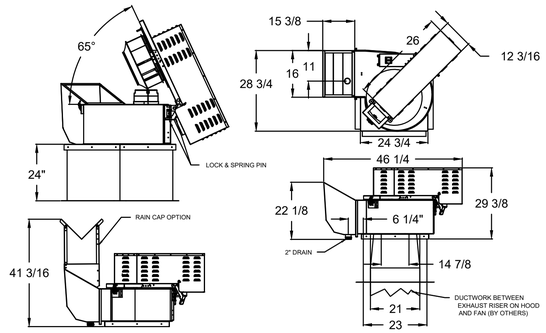
- ROOF MOUNTED FANS
- RESTAURANT MODEL
- UL762
- HIGH HEAT OPERATION DIRECT DRIVE 300°F (149°C)
- HIGH HEAT OPERATION BELT DRIVE 500°F (260°C)
- HEAT SLINGER
- GREASE CLASSIFICATION TESTING
- TILT OUT WHEEL
- LOCKING PIN FOR POWER PACK
- MOTOR WEATHER COVER
- INTERLOCKED DISCONNECT SWITCH

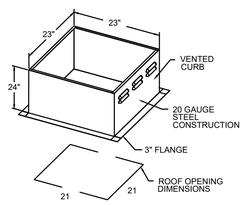
NORMAL TEMPERATURE TEST DIRECT DRIVE
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST BELT & DIRECT DRIVE
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

RE15 - RAIN CAP ASSEMBLY - INCLUDES HARDWARE AND GASKET.





HEATER SETTINGS:

SET INTAKE TEMPERATURE TO 58°F

SET DISCHARGE TEMPERATURE TO 65°F

IMPORTANT INSTALLATION NOTES:

– ELECTRICAL CONNECTION SHOULD BE MADE ON THE HINGE SIDE OF THE EXHAUST FANS TO ENSURE FANS CAN BE HINGED FOR CLEANING

– RAIN CAP MUST BE FIELD NSTALLED ON FAN #2 AT THE HEIGHT AND ORIENTATION SHOWN ON DETAIL

SCOPE OF WORK

HOOD(S): PROVIDED BY OWNER. INSTALLED BY GC.
FIRE SYSTEM(S): PROVIDED & INSTALLED BY OWNER.
EXHAUST FAN(S): PROVIDED BY OWNER. INSTALLED BY GC.
MAKEUP AIR UNIT(S): PROVIDED BY OWNER. INSTALLED BY GC.
ELECTRICAL CONTROL(S): PROVIDED BY OWNER. INSTALLED BY GC.

GC IS RESPONSIBLE FOR COMPLETE START–UP OF EXHAUST FANS AND MAKEUP AIR UNIT PER CAPTIVEAIRE OPERATION & INSTALLATION MANUAL

DESCRIPTION	DATE:

CAPTIVEAIRE

Maryland Office
8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192275931 EMAIL: reg32@captiveaire.com

Five Guys - Toledo, OH
6920 Central Avenue,
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6/25/2024

6879563

AD-32

NTS

MASTER DRAWING

3

MUNICIPAL APPROVAL STAMPS

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CONSULTANT

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CERTIFICATE OF AUTHORITY NO. 5613

TOLEDO, OH
6920 CENTRAL AVENUE
TOLEDO, OH 43617
FGE
PROJECT NUMBER: 24-XXX

ISSUE DATE

REV	ISSUE	DATE
	PERMIT LL BID	07-12-2024

SEAL

07-12-2024

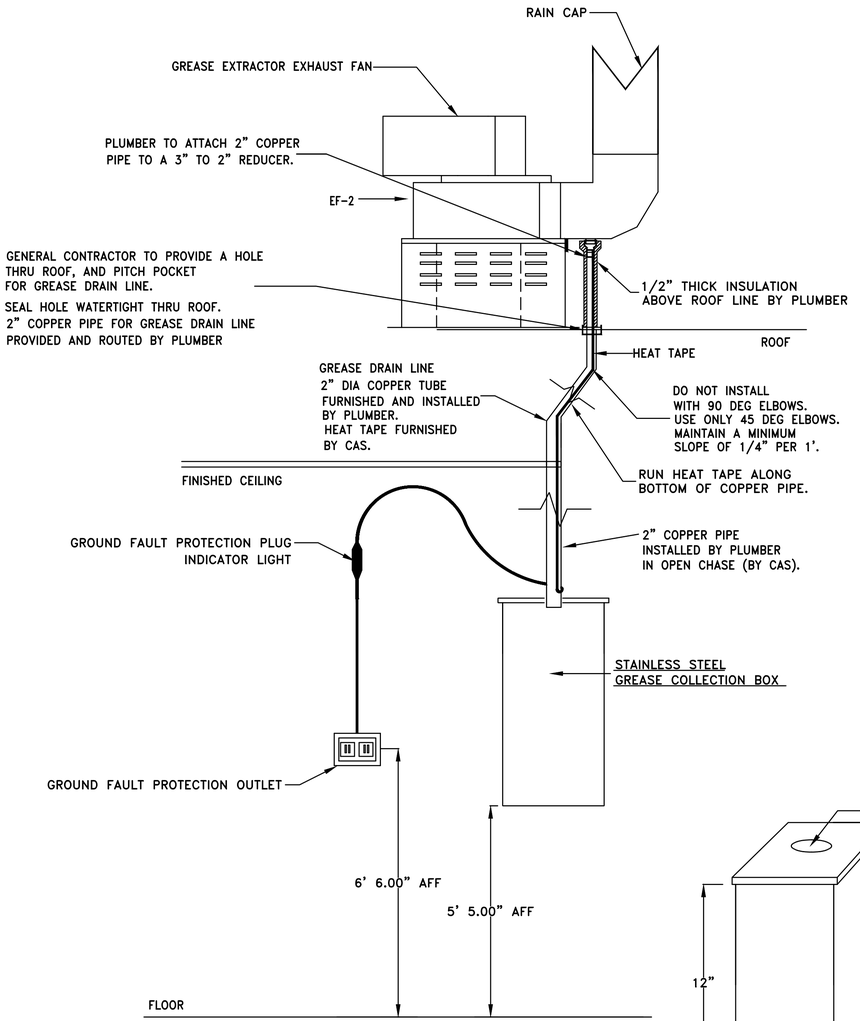
SHEET TITLE

CAPTIVEAIRE DRAWINGS

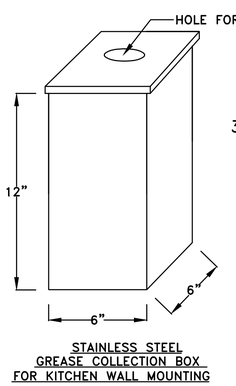
SHEET NUMBER

MH3.0

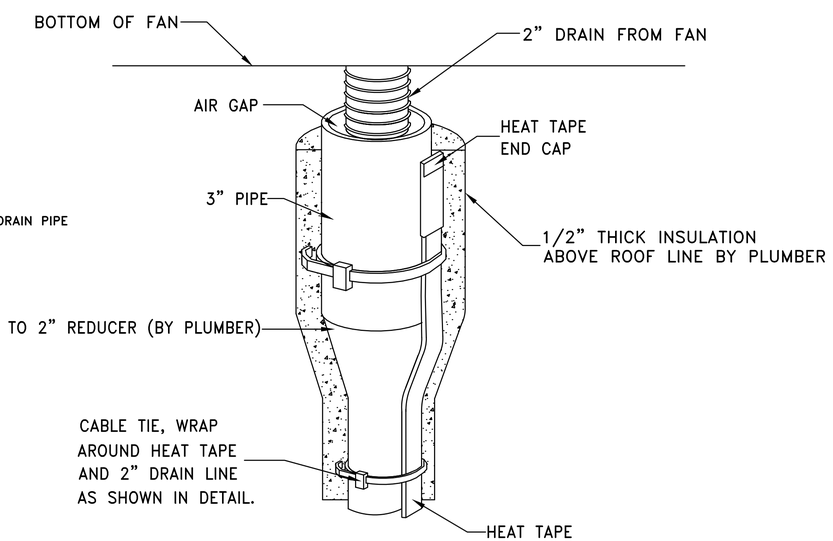
DRAIN LINE HEATER INSTALLATION DETAIL



	INSTALLATION PROCEDURE:	TRADE RESPONSIBLE
1.	THE HEAT TAPE ASSEMBLY IS SHIPPED LOOSE FROM THE EXHAUST FAN.	CAS
2.	THE GENERAL CONRACTOR IS TO PROVIDE HOLE IN ROOF AND SEAL THE HOLE (SEE DIAGRAM).	GENERAL CONTRACTOR
3.	INSTALL THE COPPER GREASE LINE DRAIN PIPE, SUPPLIED BY THE PLUMBER.	PLUMBER / ELECTRICIAN
4.	REMOVE (AND SAVE) THE END CAP AND GROUND FAULT PLUG. (GIVE PARTS TO ELECTRICIAN)	PLUMBER
5.	ROUTE THE HEAT TAPE ON THE OUTSIDE OF THE COPPER TUBE.	PLUMBER
6.	SECURE HEAT TAPE AND END CAP TO DRAIN USING CABLE TIE AS SHOWN IN END DETAIL.	PLUMBER
7.	INSULATE COPPER DRAIN LINE ABOVE THE ROOF LINE.	PLUMBER
8.	THE ELECTRICIAN IS TO SUPPLY GROUND FAULT PROTECTION OUTLET LOCATED NEAR GREASE COLLECTION BOX (15 AMP, 120 VOLT CIRCUIT) THE POWER SOURCE SHOULD BE A SEPERATE CIRCUIT. THE HEAT TAPE IS TO BE PROTECTED BY G.F.C.I. CIRCUIT BREAKER. THE HEAT TAPE STAYS ON ALL THE TIME, AND IS NOT CONTROLLED BY THE FAN ON-OFF SWITCH.	ELECTRICIAN
9.	PLUMBER TO MOUNT GREASE COLLECTION BOX ON THE WALL IN PREP AREA. GREASE COLLECTION BOX PROVIDED BY CAS.	PLUMBER
10.	ELECTRICIAN TO MAKE FINAL CONNECTION BETWEEN GROUND FAULT PLUG AND HEAT TAPE. GROUND FAULT PLUG PROVIDED BY CAS.	ELECTRICIAN
11.	ELECTRICIAN TO MAKE FINAL CONNECTION BETWEEN END CAP AND HEAT TAPE (ON ROOF). END CAP PROVIDED BY CAS.	ELECTRICIAN



STAINLESS STEEL GREASE COLLECTION BOX FOR KITCHEN WALL MOUNTING



END DETAIL

HEAT TAPE END CAP.
HEAT TAPE EXTENDS ABOVE DRAIN PIPE.

IT IS THE RESPONSIBILTY OF THE CONTRACTOR TO DETERMINE IF THE GREASE DRAIN SYSTEM IS ACCEPTABLE TO LOCAL CODE AUTHORITIES

DESCRIPTION	DATE:

CAPTIVEAIRE
Maryland Office
8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192275931 EMAIL: reg32@captiveaire.com

Five Guys - Toledo, OH
6920 Central Avenue,
Toledo, OH, 43617

6/25/2024

6879563

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MUNICIPAL APPROVAL STAMPS

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PROJECT NUMBER: 24-XXX

ISSUE DATE		
REV	ISSUE	DATE
	PERMIT LL BID	07-12-2024

SEAL

STATE OF OHIO
MATTHEW RICHARD CASE
PE.85398
REGISTERED PROFESSIONAL ENGINEER

07-12-2024

SHEET TITLE

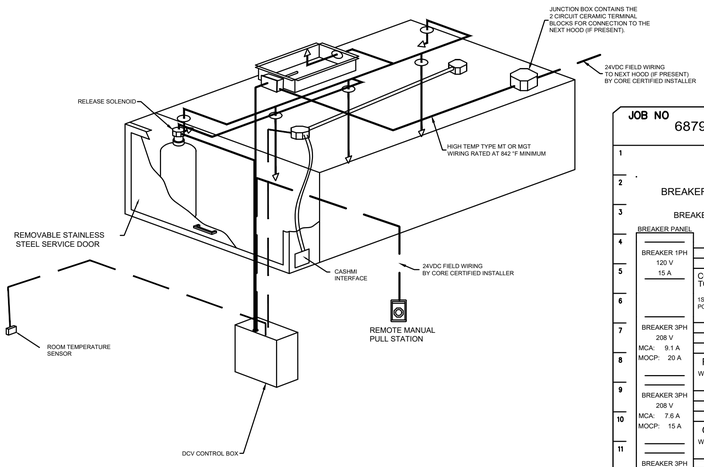
CAPTIVEAIRE DRAWINGS

SHEET NUMBER

MH4.0

ELECTRICAL PACKAGE – JOB#6879563

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	ϕ	HP	VOLT	FLA
1		DCV-2111	WALL MOUNT IN SS BOX	UTILITY CABINET LEFT	1 LIGHT 1 FAN	SMART CONTROLS DCV	FRYERS	EXHAUST	3	2.000	208	7.3
							GRILL	EXHAUST	3	2.000	208	6.1
							MAU-1	SUPPLY	3	3.000	208	9.5



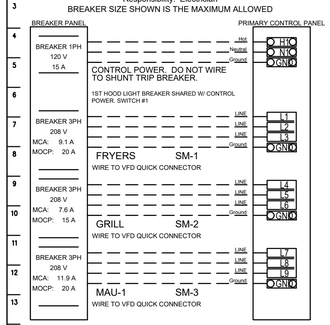
DCV WALL MOUNT CONTROL BOX DETAIL

JOB NO	MODEL NUMBER	DRAWN BY	SCHEMATIC TYPE
6879563	DCV-2111		INSTALL
	JOB NAME Five Guys - Toledo, OH	DATE 6/25/2024	DWG NO ECP #1-1

DESCRIPTION OF OPERATION:
Demand Control Ventilation, w/ control for 2 Exhaust Fans, 1 Supply Fan, Exhaust on in Fire, Lights out in Fire, Fans modulate based on duct temperature. INVERTER DUTY 3 PHASE MOTOR REQUIRED FOR USE WITH VFD. Room temperature sensor shipped loose for field installation.Verify distance between VFD and Motor; additional cost could apply if distance exceeds 50 feet.

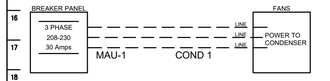
BREAKER PANEL TO PRIMARY CONTROL PANEL

Responsibility: Electrician
BREAKER SIZE SHOWN IS THE MAXIMUM ALLOWED



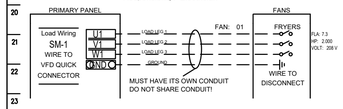
BREAKER PANEL TO FANS

Responsibility: Electrician



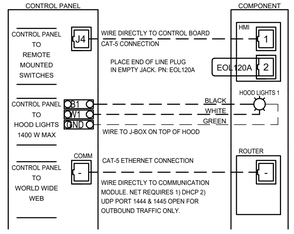
CONTROL PANEL TO FANS

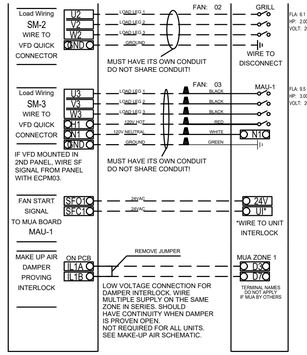
Responsibility: Electrician

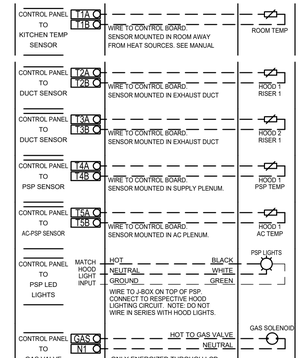


CONTROL PANEL TO ACCESSORY ITEMS

Responsibility: Electrician

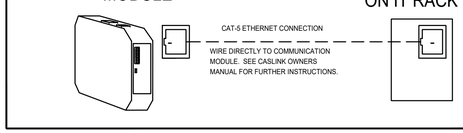






SEQUENCE OF OPERATION – APPLIANCE INTERLOCK
- IN AUTO POSITION, FANS WILL TURN ON WHEN TEMPERATURE IS ABOVE 85 DEGREES AND WILL SHUT DOWN WHEN TEMPERATURE COOLS BELOW 85 DEGREES.
- IN ON POSITION, FANS WILL REMAIN ON CONSTANTLY
- IN FIRE CONDITION, EXHAUST WILL TURN ON OR REMAIN ON. MAKEUP AIR WILL SHUT DOWN AUTOMATICALLY.

CONTROL PANEL TO WORLD WIDE WEB



SCOPE OF WORK

HOOD(S): PROVIDED BY OWNER. INSTALLED BY GC.
FIRE SYSTEM(S): PROVIDED & INSTALLED BY OWNER.
EXHAUST FAN(S): PROVIDED BY OWNER. INSTALLED BY GC.
MAKEUP AIR UNIT(S): PROVIDED BY OWNER. INSTALLED BY GC.
ELECTRICAL CONTROL(S): PROVIDED BY OWNER. INSTALLED BY GC.
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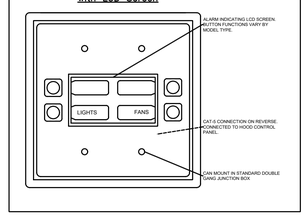
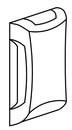
HOOD CONTROL PACKAGE INTERFACE with LCD Screen



ROOM TEMPERATURE SENSOR

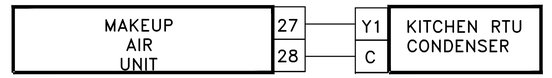


The Room Temperature sensor is a 10K Ohm Thermistor. The sensor provides constant room temperature to the controller. It should be installed on a wall somewhere in the space but not directly under the hood or close to an appliance so that the reading is not affected by heat.

Typically a system will have one room temperature sensor. However, systems configured with 2 fan zones have the option to be ordered with 2 room temperature sensors, one for each zone. They should be mounted in the space accordingly.

MUA/ RTU INTERLOCK DETAIL) (BY ELECTRICIAN)

24VAC Coil – Signal From Condenser
”Call For Cooling Interlock”

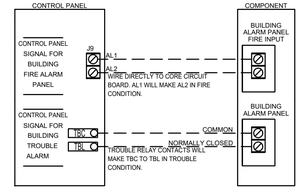


NOTE: THIS CONNECTION WILL LOCK OUT THE MUA BURNER CIRCUIT WHEN A/C IS BEING SUPPLIED TO THE SPACE

TANK CONNECTIONS

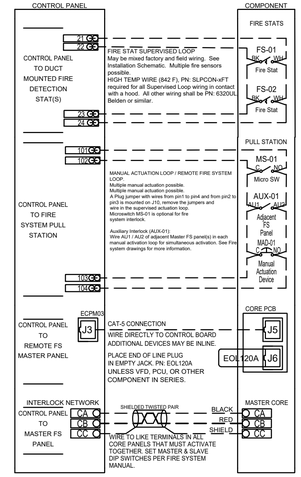
CONTROL PANEL TO FIRE SYSTEM

Responsibility: ALARM CONTRACTOR



CONTROL PANEL TO FIRE SYSTEM

Responsibility: CERTIFIED INSTALLER



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Maryland Office

DESCRIPTION	DATE:

Five Guys - Toledo, OH
6920 Central Avenue,
Toledo, OH, 43617

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MUNICIPAL APPROVAL STAMPS

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TOLEDO, OH
6920 CENTRAL AVENUE
TOLEDO, OH 43617
FGE PROJECT NUMBER: 24-XXX

ISSUE DATE

REV	ISSUE	DATE
	PERMIT LL BID	07-12-2024

SEAL

07-12-2024

SHEET TITLE

CAPTIVEAIRE DRAWINGS

SHEET NUMBER
MH5.0

JOB NO	MODEL NUMBER	DRAWN BY	SCHEMATIC TYPE	DESCRIPTION OF OPERATION:
6879563	DCV-2111		INSTALL	Fire System #1 TANK FS - 4.0/4.0/4.0.
	JOB NAME Five Guys - Toledo, OH	DATE 6/25/2024	DWG NO ECP #1-3	

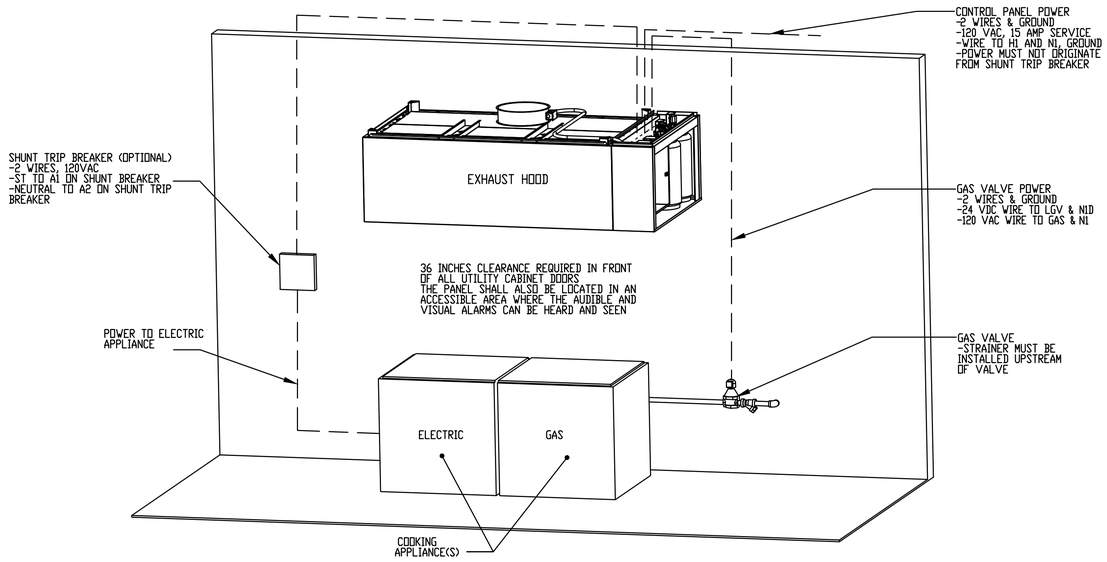
TANK PROTECTION ELECTRICAL DETAIL

02/10/2021 Rev. 2

FS-1: MASTER

ELECTRICIAN:
1. WIRE MAIN CONTROL PANEL PER INCLUDED SCHEMATIC
2. WIRE ALL FANS PER INCLUDED SCHEMATIC
3. WIRE SHUNT TRIP BREAKER (OPTIONAL)
4. WIRE UDS APPLIANCE KILL SWITCH, IF EQUIPPED (OPTIONAL)
5. WIRE GAS VALVE

ELECTRICAL CONTRACTOR REQUIREMENT					
ITEM	CONNECTION IN PANEL	CONNECTION IN DEVICE	VOLTAGE	AMPERAGE	COMMENTS
SHUNT TRIP BREAKER (OPTIONAL)	ST & N1	BREAKER COIL (A1 & A2)	120 VAC	< 4 AMPS	ST TO A1 ON SHUNT BREAKER COIL, AND NEUTRAL TO A2 ON SHUNT TRIP BREAKER COIL
CONTROL PANEL POWER	H1 & N1 + GROUND	CIRCUIT BREAKER	120 VAC	15 AMPS	CONTROL PANEL POWER MUST NOT BE RUN THROUGH SHUNT TRIP BREAKER
UDS APPLIANCE KILL SWITCH (OPTIONAL)	KTS & N1	KTS & N1	120 VAC	< 4 AMPS	KILL SWITCH TERMINALS MUST BE IN SERIES WITH OTHER KILL SWITCHES
REMOTE 120VAC ANSUL AUTOMAN (OPTIONAL)	AU1, AU2	SOLENOID	120 VAC	< 6 AMPS	120V TO AU1, AU2 TO ANSUL ELECTRIC AUTOMAN, ANSUL SOLENOID TO NEUTRAL
GAS VALVE	LGV & N1D (IF 24 VDC) GAS & N1 (IF 120 VAC)	RED/RED/GREEN	24 VDC OR 120 VAC	< 1.0 AMPS	IF 24 VDC - 2 WIRES & GROUND, N1D TO RED, LGV TO RED, AND GREEN TO GROUND IF 120 VAC - 2 WIRES & GROUND GAS TO RED, N1 TO RED, AND GREEN TO GROUND



NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

DESCRIPTION	DATE:

CAPTIVEAIRE

Maryland Office
8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192275931 EMAIL: reg32@captiveaire.com

Five Guys - Toledo, OH
6920 Central Avenue,
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MUNICIPAL APPROVAL STAMPS

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6920 CENTRAL AVENUE
TOLEDO, OH 43617
FGE PROJECT NUMBER: 24-XXX

ISSUE DATE		
REV	ISSUE	DATE
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SEAL

07-12-2024

SHEET TITLE

CAPTIVEAIRE DRAWINGS

SHEET NUMBER

MH6.0

JOB NO	MODEL NUMBER	DRAWN BY	SCHEMATIC TYPE	DESCRIPTION OF OPERATION:
6879563	DCV-2111		INSTALL	Fire System #1 TANK FS - 4.0/4.0/4.0.
	JOB NAME Five Guys - Toledo, OH	DATE 6/25/2024	DWG NO ECP #1-4	

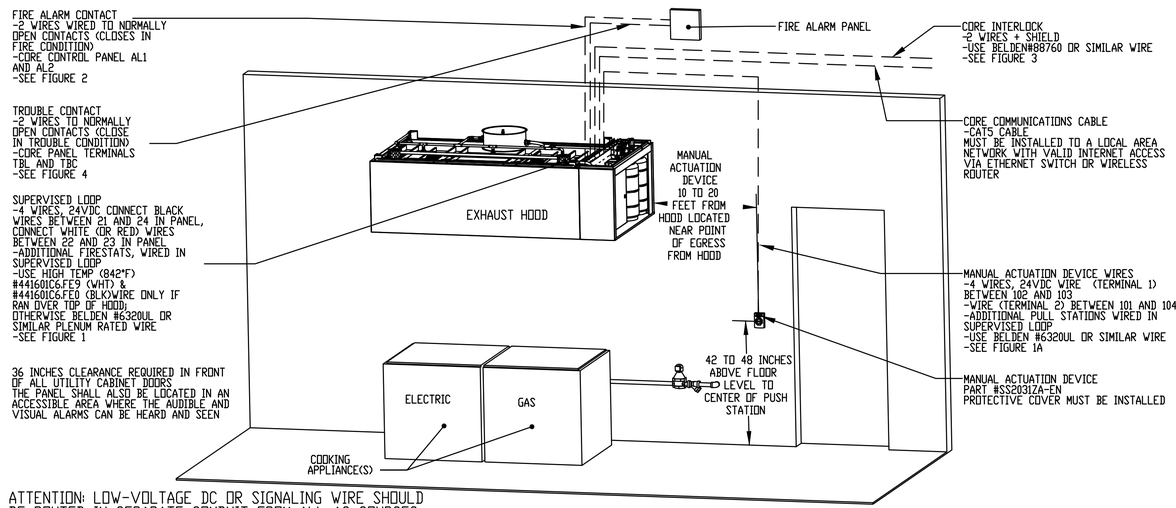
TANK PROTECTION LOW-VOLTAGE DETAIL

10/01/2023 Rev. 3

ALARM CONTRACTOR:
1. WIRE MANUAL ACTUATION DEVICE(S), REMOTE FIRESTAT(S), CORE INTERLOCK(S), FIRE SENSOR(S) AND FIRE ALARM CONTACTS
2. COMPLETE FINAL HOOKUP OF SYSTEM
3. VERIFY FINAL FIRE SYSTEM TEST

FS-1: MASTER

ALARM CONTRACTOR REQUIREMENT					
ITEM	CONNECTION IN PANEL	CONNECTION ON DEVICE	VOLTAGE	AMPERAGE	COMMENTS
MANUAL ACTUATION DEVICE(S)	101 AND 104 102 AND 103	1 & 2	24 VDC	< 1.0 AMPS	WIRE MANUAL ACTUATION DEVICE TERMINAL 1 BETWEEN CORE PANEL TERMINALS 102 AND 103 WIRE MANUAL ACTUATION DEVICE TERMINAL 2 BETWEEN CORE PANEL TERMINALS 101 AND 104 JUMPER 101 TO 104 AND 102 TO 103 IF NO MANUAL ACTUATION DEVICE IS INSTALLED
MANUAL ACTUATION DEVICE COVER	N/A	N/A	N/A	N/A	MANUAL ACTUATION DEVICE COVER MUST BE INSTALLED IF SURFACE MOUNTED, USE COVER EXTENSION STI-6531B
REMOTE FIRESTAT SENSOR(S)	21 AND 24 22 AND 23	BLACK AND WHITE	24 VDC	< 1.0 AMPS	WIRE FIRE SENSOR WHITE WIRES BETWEEN HOOD CORE PANEL TERMINALS 22 AND 23 WIRE FIRE SENSOR BLACK WIRE BETWEEN HOOD CORE PANEL TERMINALS 21 AND 24 HIGH TEMP (842°F) #441601C6.FE9 (WHT) & #441601C6.FE0 (BLK)WIRE OR SIMILAR ONLY IF RAN OF HOOD; OTHERWISE BELDEN #6320UL OR SIMILAR PLENUM RATED WIRE; SEE FIGURE 1
FIRE ALARM CONTACT	AL1, AL2	VARIES	50V MAX (AC/DC)	UP TO 1 AMP	FIRE ALARM RELAY CONTACTS FOR BUILDING FIRE ALARM LOCATED IN THE CORE ELECTRICAL CONTROL PANEL
CORE INTERLOCK(S)	CA, CB, CC	CA, CB, CC	RS-485 COMMUNICATIONS SIGNAL		CORE SYSTEM (1) CA, TO CORE SYSTEM (2) CA. CORE SYSTEM (1) CB, TO CORE SYSTEM (2) CB. CORE SYSTEM (1) CC, TO CORE SYSTEM (2) CC. USE BELDEN# 88760 OR SIMILAR WIRE
TROUBLE CONTACT	TBC, TBL, TDK	VARIES	MAX 120 VAC	UP TO 6 AMPS	WIRE TO TBL & TBC NORMALLY OPEN CONTACT, CLOSES IN TROUBLE CONDITION
CORE COMMUNICATIONS CABLE	RJ-45 Jack	INTERNET CONNECTION	SIGNAL	<1.0 AMPS	TYPICAL CONNECTION CAT5 CABLE TO LOCAL AREA NETWORK VIA ETHERNET SWITCH OR WIRELESS ROUTER WITH VALID INTERNET CONNECTION



ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

DESCRIPTION	DATE:

CAPTIVEAIRE

Maryland Office
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Five Guys - Toledo, OH
6920 Central Avenue,
Toledo, OH, 43617

6/25/2024

6879563

AD-32

NTS

MASTER DRAWING

7

MUNICIPAL APPROVAL STAMPS

ARCHITECT OF RECORD

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CERTIFICATE OF AUTHORITY NO. 5613

TOLEDO, OH
6920 CENTRAL AVENUE
TOLEDO, OH 43617
FGE PROJECT NUMBER: 24-XXX

ISSUE DATE		
REV	ISSUE	DATE
	PERMIT LL BID	07-12-2024

SEAL

07-12-2024

SHEET TITLE

CAPTIVEAIRE DRAWINGS

SHEET NUMBER

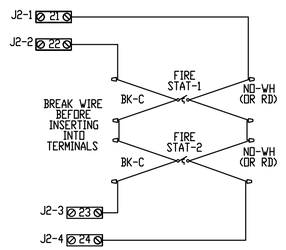
MH7.0

JOB NO	MODEL NUMBER	DRAWN BY	SCHEMATIC TYPE	DESCRIPTION OF OPERATION:
6879563	DCV-2111		INSTALL	Fire System #1 TANK FS - 4.0/4.0/4.0.
	JOB NAME Five Guys - Toledo, OH	DATE 6/25/2024	DWG NO ECR #1-5	

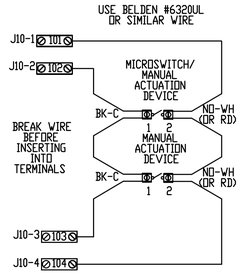
TANK PROTECTION LOW-VOLTAGE FIGURES

10/01/2023 Rev. 17

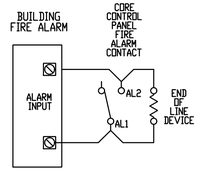
FS-1: MASTER



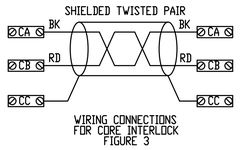
WIRING CONNECTIONS FOR FIRESTAT LOOP
FIGURE 1



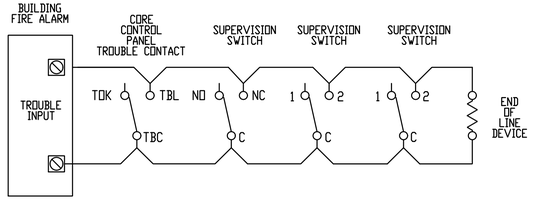
WIRING CONNECTIONS FOR MANUAL ACTUATION LOOP
FIGURE 1A



WIRING CONNECTIONS FOR FIRE ALARM CONTACT
FIGURE 2



WIRING CONNECTIONS FOR CORE INTERLOCK
FIGURE 3



WIRING CONNECTIONS FOR TROUBLE CONTACT
FIGURE 4

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES

DESCRIPTION	DATE:

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SHEET NUMBER

MH8.0

SPECIFICATIONS

Note: Manufacturers' names on which the specification is based indicate the minimum quality of product required. Substitution may be made to those specified if deemed equivalent by the owner's representative. All work and products shall meet the requirements of the landlord.

1. The general conditions and supplementary general conditions shall be considered as part of this specification.

2. Contractors shall visit site prior to bidding. Bids shall serve as evidence of knowledge of existing conditions. Field verify Landlord's electrical and telephone equipment and distance from leased space. No claims for extras resulting from lack of knowledge of existing site conditions shall be approved.

3. Furnish all labor, materials, equipment and tools to perform electrical work shown, noted or scheduled for a complete and finished installation.

   All materials and equipment shall be commercial grade and shall be UL listed and labeled.

   Materials, products and equipment, including components thereof shall be new and such as appears on the Underwriter's Laboratory list of approved items and shall meet the requirements of recognized standards.

   Equipment shall be sized in conformity with requirements of the NATIONAL Electrical Code and other applicable codes.

4. The word "provide" as used herein means to furnish,install and connect all electrical work as required for a complete, functional and code compliant installation, ready for intended use.

5. All work to be in accordance with NEC and all applicable federal, state, and local codes.

6. Contractor shall be responsible to complete all forms required to secure and pay for all required permits and inspection certificates.

7. Submit material lists and shop drawings for major equipment to the architect for approval. Submittals shall be in accordance with general conditions and shall bear the stamp of the electrical contractor showing that he has reviewed and approved them. Lack of such contractor's approval will be cause for rejection without review by the architect.

8. Scope of work:

   Provide electrical service to space per drawings and landlords requirements.

   Install new lighting fixtures, per schedule.

   New receptacles as indicated.

   If applicable, circuiting of relocated panel(s). Provide new circuit breakers as required.

   Provide telephone service and telephone system raceway and junction boxes. All telephone system wiring and devices within tenant space furnished by GC and and installed by owner or third party installer.

   Testing of all cables and circuit wiring after installation.

   Testing of all electrical equipment.

   Provision for temporary construction power.

9. Conduit shall be galvanized rigid steel, EMT (thin wall). Conduit shall be concealed in finished areas. Except as otherwise approved by Landlord's representative. EMT connections shall be compression type.

   Minimum sizes of conduit shall be 3/4" except 1/2" for switch legs. EMT shall be galvanized or electro-galvanized. EMT shall be used for feeders and branch circuits installed above suspended ceilings or concealed in interior partitions. EMT shall not be concealed in poured concrete floor or walls.

   Use heavy wall galvanized rigid steel conduit for under slab installations.

   Flexible metal conduit may be used only for short connections to fixtures and equipment, as permitted by code. Maximum length 5'-0".

10. All conductors shall be soft drawn, annealed copper, with 600V insulation:

    #10 and smaller-solid with single braid.

    #8 and larger- stranded with at least double braid.

    All wiring to be 2 #12, unless otherwise noted. #14 may be used for control applications. All low voltage wiring not required to be in conduit shall be fire retardant plenum rated.

    All wire and cable shall be new and shall be brought to the site in unbroken packages.

    General wiring shall have (75° C) THHN AND THWN OR (90° C) THHN insulation.

    Aluminum conductors are not permitted.

    Wire connectors shall be equal to Scotchlock for #8 and smaller, and T&B "Lock-Tite" for #6 and larger.

    Wires shall be color coded and followed throughout for feeders and branch circuits and used as a basis for balancing loads:

    Use 10 Awg (minimum) conductors for 20 ampere, 120 volt branch circuits longer than 75 feet.

120/208 Y VOLTS

PHASE	COLOR
A	BLACK
B	RED
C	BLUE
NEUTRAL	WHITE
GROUND	GREEN

11. Boxes and fittings:

    Boxes and fittings shall be new, 4" square by 2-1/8" deep minimum top quality and located where required to install the conductors in compliance with the prevailing codes. Approved manufactures are: STEEL CITY, RACO or APPLETON.

    Sheet metal boxes: NEMA OS 1. cast metal boxes: NEMA FB 1, type FS or FD, cast ferroalloy box with gasketed cover.

    Boxes in fire-rated walls shall have a fire rating equal to or greater than the rating of the wall.

12. Wiring Devices:

    Wiring device accessories including all wall plates shall be provided at each device. Wall plates shall be same color as device and manufactured as a companion to the device. All wiring devices and coverplates shall be noted.

    Wall switches, single pole, double pole, and three way shall be spec. grade, 20A, 120/277V, with screw terminals, equal to Hubbell #HBL1221. Manufacturers shall be Hubbell, Legrand or Leviton.

    General duty duplex receptacles shall be 2-pole, 3-wire grounding type, commercial grade, 20A, 125V equal to Hubbell #5362. Manufacturers shall be Hubbell, Legrand or Leviton.

    Ground fault interrupter receptacle shall be, duplex receptacles, feed-through type, capable of protecting connected downstream receptacles on a single circuit, 20A, 120V, 60 HZ; with solid-state ground fault sensing and signaling; with 5 milliamperes ground-fault trip level equal to Hubbell #GF5362. Approved Manufacturers shall be Hubbell, Legrand, or Leviton.

    Weatherproof receptacle cover shall be Hubbell #WP826MP. Approved Manufacturers shall be Hubbell, Legrand, or Leviton.

    Dedicated duplex receptacles shall be red, 2-pole, 3-wire 20A, 125V, straight blade device with dedicated ground connection, equal to Hubbell #5362-R. Approved manufacturers shall be Hubbell, Legrand, or Leviton.

    Mounting heights of devices shall be to the following centerlines, unless noted otherwise:

Toggle switches	4'-0"
Receptacles	1'-6"
Telephone outlets	4'-6"
Disconnect switches (TOP)	5'-6"
Panelboards (TOP)	6'-0"

13. Grounding system: This contractor shall provide, install, and connect a complete system of grounding for all equipment and structures. Mechanical and electrical connection shall be made with approved grounding connectors.

    Electrical system and equipment grounds shall comply with all local, state, and NEC codes and regulations.

    Panels, conduit systems, motor frames, lighting fixtures and other equipment that are a part of this installation shall be securely grounded.

    Main grounding system shall be sized to conform with section 250 of the NEC. Provide conduit to protect ground wire from damage to an area 6'-0" above floor.

    Ground all 3 wire receptacles to the equipment ground conductor.

    Equipment Ground conductor shall be supplied in all conduit.

    A separate dedicated, insulated ground system shall be installed for electronic cash registers.

14. Panelboards: Panelboards shall be lighting and appliance type, dead front and consist of cabinets, interiors, copper bus, main and bolt on type branch circuit protective devices, main lugs, and all necessary equipment for a complete panelboard. Detailed characteristics such as number of branches, frame or ampere rating, trip, bus size, type mounting or voltage ratings, shall be as shown on the drawings.

    Cabinet shall be fabricated of code gauge, hot galvanized steel with adequate gutters. Joints shall be welded and reinforced where required. The outside of surface mounted cabinets shall be finished with one coat of zinc chromate primer and at least one coat of gray enamel. Load center type panelboards are not acceptable.

    Trim and panelboard front shall be made of cold-rolled steel of code gauge steel. Trim shall have doors with concealed hinges and have a flush type combination lock and catch or a multiple point contact catch. Each lock shall be provided with two keys. All panelboards shall be keyed alike. Furnish and install a typed index identifying the panelboard and indicating the circuit number with the description or function of the associated branch circuit. Index shall be mounted under a clear glass or plastic protective cover. Trim shall be cleaned, and given a prime coat of paint and at least one finished coat of gray enamel.

    All lugs shall be of the solderless type.

    All panelboards shall include an equipment ground bus.

    Provide isolated ground bus, as called out in the panelboard schedule.

    All panelboards shall have engraved nameplates identifying panelboards as indicated by Owner. All panelboard switches and circuit breakers shall be labeled as directed by Owner.

    120/208 volt panels shall be equal to Square D type NQOD with type QOB (22000 AIC) bolt-on circuit breakers.

    The following are approved manufacturers: ABB, Siemens, and Square D.

15. Work in electrical panel shall include:

    Check and tighten all connections and wiring.

    Verify operation of all breakers.

    Circuit breakers shall be quick-make, quick-break, trip indicating type and ambient compensating. Circuit breakers shall be bolt on type, minimum interrupting shall be as noted on panel schedule.

    Breakers serving lighting circuits shall be rated for switch service.

    Breakers serving HVAC equipment shall be HACR rated.

    Provide "Lock-on" device at breakers serving cash register, night light/emergency, fire alarm equipment and time switch circuits, as indicated on the panel schedule.

    Provide panel directory, typed and installed behind clear plastic cover on inside of the door.

    Panel shall be circuited so that the load is distributed evenly across all three phases to within 10% per NEC or as directed by Landlord. This contractor shall revise circuiting noted on plans as required to accomplish proper panel balancing.

16. Safety and disconnect switches: Provide safety and disconnect switches, fused or non-fused, as called for on drawing and as required by code. Switches shall be heavy duty, load and horsepower rated. Equal to Square D type H, as manufactured by Square D, ABB or equal. Switch enclosure to be suitable for application. NEMA 1 for indoor dry locations, NEMA 3R for exterior and wet locations. NEMA 4X stainless steel when installed exposed in the food service area.

17. Fuses: Cartridge fuses shall be one time Bussmann "Low-peak" sized according to the load or as indicated on the drawings.

    Provide fuses in all switches requiring them. In addition, furnish to the Owner one set of each size and type fuse on the job.

18. Seismic restraints on electrical equipment: All electrical equipment shall be provided with seismic restraining services as required by local building Codes. Contractor shall have local building office review each piece of equipment when installed and the Contractor shall install all required tie down, anchors, straps or other devices required.

19. Telephone system: Make arrangements with the local utility for installation of telephone service.

    Conduit system for telephone distribution within tenants premises shall be provided as required by code or as indicated on the drawings. Telephone rough-in outlet boxes shall be 2-1/8" minimum with single device cover and telephone plate.

20. This owner shall make arrangements for temporary power and shall pay the cost for the utility connection and shall be responsible for the proper maintenance of the temporary work and for the removal of same.

    Owner shall pay all utility charges in connection with the temporary power.

    Contractor shall provide ground fault protection for all equipment used on the premises during construction.

21. This contractor shall perform all cutting, chasing, or channeling and patching required for any work herein specified. Any cutting shall have prior approval by the landlord.

    Contractor is responsible to take whatever measures are necessary including but not limited to those measures prescribed by the landlord in the exercise of its reasonable judgement to assure that coreboring will not damage landlord's structure, conduits, etc. or the work of other tenant's below. The cost of such tests or repair of any damage will be borne by this contractor.

    All sleeved, openings, etc. through fire rated walls and floors shall be sealed after conduit installation with sealer equal to or exceeding fire rating of floor or wall.

22. All electrical work shall be installed so as to be readily accessible for operating, servicing, maintaining and repair.

    Hangers shall include all miscellaneous steel, such as channels, rods, etc., necessary for the installation of work and shall be secured to the building structure, not to piping or ductwork.

    All conduit shall be concealed where possible. Exposed conduit shall be installed in straight lines parallel with or at right angles to column lines and separated at least 3" from water lines wherever they run along side or across such lines.

23. Lighting Fixtures: The contractor shall install a new lighting fixture of the type specified for each lighting outlet shown with complete lamps or tubes. All fixtures shall be hung and mounted in place, properly wired, tested and left ready for operation.

    Note! This contractor shall refer to architectural reflected ceiling plan, for fixture schedule and shall install fixtures as dimensioned on that plan.

    The General Contractor provides all lighting fixtures, complete with accessories and lamps. Refer to the light fixture schedule on Electrical drawings.

    Fixtures provided by Owner shall be shipped to the site for installation by the electrical contractor. The contractor shall survey the shipment to verify fixture quantities and damages. In the event that shipment is incomplete or damaged, this contractor shall inform Owner.

    After the shipment is verified and accepted, contractor shall move fixture to an area of safety for storage until they may be installed. He assumes responsibility for the fixtures until the project is turned over to the owner.

24. Painting of electrical conduits, etc,. if required, will be by general contractor.

25. Electrical contractor shall record all field changes in his work as the job progresses, and upon completion shall turn over to the tenant a record set of prints showing these changes.

26. At the completion of job, contractor shall replace any lamps that have burned out, new and existing, clean all fixtures, touch up any scratches and replace any fixtures that have been damaged.

27. Guarantee:

    Materials, equipment and installation shall be guaranteed for a period of one year from the date of acceptance. Defects which appear during that period shall be corrected at this contractor's expense.

    For the same period, electrical contractor shall be responsible for any damage to the premises caused by defects in workmanship or in the work or equipment furnished and/or installed by him.

    Warranty of all work for a period of one year from date of project close-out.

28. It is the intent that the foregoing work shall be complete in every respect and that any material or work not specifically mentioned or shown on the drawings, but necessary to fully complete the work shall be furnished.

29. The location of receptacles and fixtures shown on the drawing is approximate and the owner shall have the right to relocate any receptacles or fixtures before they are installed without additional cost.

ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
GC	GENERAL CONTRACTOR
EC	ELECTRICAL CONTRACTOR
MC	MECHANICAL CONTRACTOR
PC	PLUMBING CONTRACTOR
WP	WEATHERPROOF
AFF	ABOVE FINISHED FLOOR
UNO	UNLESS NOTED OTHERWISE
TTB	TELEPHONE TERMINAL BOARD
PROVIDE	FURNISH AND INSTALL COMPLETE
	CONDUIT RUN CONCEALED IN CEILING OR WALL. TICK MARKS INDICATE NUMBER OF #12 WIRES. LONG TICK REPRESENTS NEUTRAL CONDUCTOR, SHORT TICK REPRESENTS CURRENT CARRYING CONDUCTOR. ARC INDICATES ISOLATED GROUND. ALL CIRCUITS SHALL INCLUDE EQUIPMENT GROUNDING SIZED PER NEC.
J	JUNCTION BOX
	20A, 1P, 120V, GROUNDING TYPE DUPLEX RECEPTACLE (CEILING MOUNTED)
	20A, 1P, 120V, GROUNDING TYPE DUPLEX RECEPTACLE (+18" AFF UNO)
	20A, 1P, 120V, GROUNDING TYPE DOUBLE DUPLEX RECEPTACLE (+18" AFF UNO)
	20A, 1P, 120V, GROUNDING TYPE DUPLEX RECEPTACLE WITH ISOLATED GROUND (+18" AFF UNO), REFER TO PANEL SCHEDULE FOR CIRCUITS NOT INDICATED ON POWER PLAN
	20A, 1P, 120V, GROUNDING TYPE DOUBLE DUPLEX RECEPTACLE WITH ISOLATED GROUND (+18" AFF UNO), REFER TO PANEL SCHEDULE FOR CIRCUITS NOT INDICATED ON POWER PLAN
	20A, 1P, 120V, GROUNDING TYPE GROUND FAULT INTERRUPTION DUPLEX RECEPTACLE (+18" AFF UNO)
	20A, 1P, 120V, GROUNDING TYPE GROUND FAULT INTERRUPTION DOUBLE DUPLEX RECEPTACLE (+18" AFF UNO)
	SPECIAL RECEPTACLE: VERIFY CONFIGURATION WITH EQUIPMENT MANUFACTURER
5a OS	20A, 1P, 120V, STANDARD LIGHT SWITCH. '5a' INDICATES SWITCH DESIGNATION, 'OS' INDICATES OCCUPANCY SENSOR TYPE SWITCH (WATTSTOPPER WS-250) 'M' MOTOR RATED SWITCH 'D' DIMMING TYPE COMPATIBLE WITH FIXTURE DRIVER OR BALLAST
▽	SINGLE DATA OUTLET: EC TO PROVIDE 3/4" RIGID METALLIC CONDUIT WITH PULL-STRING, SEE SHEET E5-01 FOR ADDITIONAL INFORMATION.
▼	SINGLE TELEPHONE OUTLET: EC TO PROVIDE 3/4" RIGID METALLIC CONDUIT WITH PULL-STRING, SEE SHEET E5-01 FOR ADDITIONAL INFORMATION.
	PANELBOARD
F PL5a	LIGHTING FIXTURE SWITCHING DESIGNATION - LETTER 'F' INDICATES THE FIXTURE TYPE (SEE FIXTURE SCHEDULE) THE LETTERS AND NUMBER"PL5" INDICATE THE PANEL OF ORIGIN AND CIRCUIT, AND THE LOWER CASE LETTER 'a' INDICATES THE SWITCH LEG TO CONNECT THE FIXTURE TO.
F SD	DUCT SMOKE DETECTOR
SD	SMOKE DETECTOR
PC	PHOTO CELL
OS	OCCUPANCY SENSOR:
	SIGNAL PUSH BUTTON
S	SPEAKER

NOTE:
1. ALL SWITCHES, COVER PLATES, RECEPTACLE FINISHES SHALL BE AS DIRECTED BY CONSTRUCTION MANAGER.

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SEAL

STATE OF OHIO
MATTHEW RICHARD CASE
PE. 85398
REGISTERED PROFESSIONAL ENGINEER

07-12-2024

SHEET TITLE

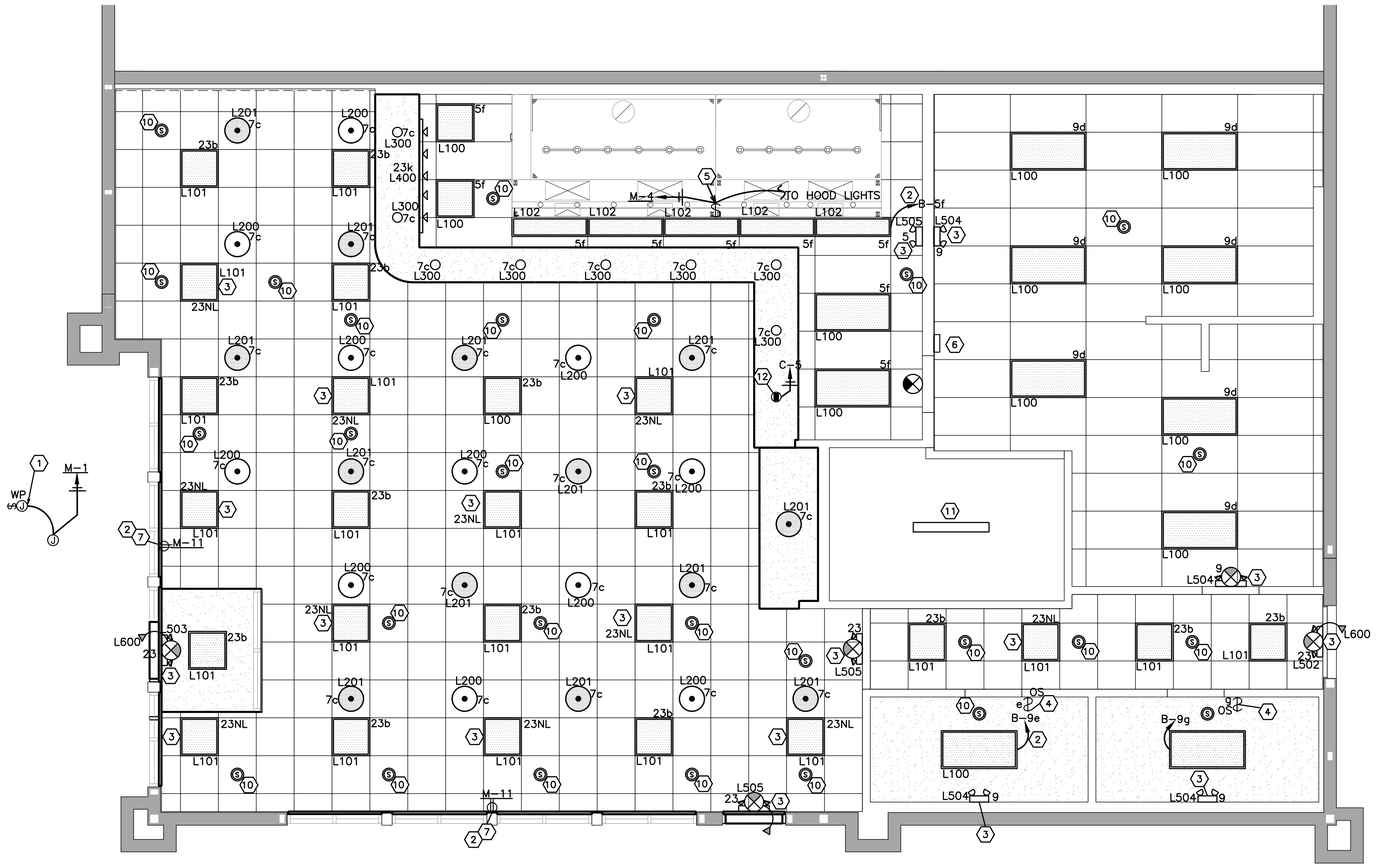
ELECTRICAL SPECIFICATIONS

SHEET NUMBER

E1.0

LIGHTING SCHEDULE

ITEM#	QTY	DESCRIPTION	MANUFACTURER	MODEL	FINISH	VOLTAGE/WATTS	LAMPS	MOUNTING HT	REMARKS
L100	12	2X4 LED LAY IN	ATTAIN	AT-PN-24-45-40-W	WHITE-BOH/RR	120/45	LED 4000K	ACT/LAYIN	USE DRYWALL FRAMING KIT IN GYP BD CLNG-METALUXDF-24-W
L101	28	2X2 LED LAY IN	ATTAIN	AT-PN-22-30-40-(W/B)	BLACK-DINING; WHITE-BOH/RR	120/30	LED 4000K	ACT/LAYIN	USE DRYWALL FRAMING KIT IN GYP BD CLNG-METALUXDF-22-W
L102	5	1X4 LED LAY IN	ATTAIN	TCP-FP-1-U-ZD-36-41K	WHITE-KITCHEN	120/30	LED 4000K	ACT/LAYIN	USE DRYWALL FRAMING KIT IN GYP BD CLNG-METALUXDF-22-W
L103	X	1X4 LED LAY IN	KASON	1801CES148L COOLER FIXTURE	WHITE	120	F33T8 FLUORESCENT	SURFACE MOUNT	ACCEPTS F32T8 LAMP
L200	12	WHITE PENDANT	NUVO LIGHTING	60-1294-GU24	WHITE	120/8	SATCO 8W SHATTERPROOF	8'-6" AFF	PENDANT
L201	14	RED PENDANT	NUVO LIGHTING	60-1295-GU24	FG RED-INSIDE & OUT	120/8	SATCO 8W SHATTERPROOF	8'-6" AFF	PENDANT
L300	8	RECESSED DOWNLIGHT	CREE	CR6-800L-40K-12-GU24W/RC6-GU24HOUSING	WHITE	120/12	LED 4000K	RECESSED	PROTECT HOUSING AS REQ'D BY CODE
L300	X	RECESS DOWNLIGHT-RETRO	HALO	RL560WH9940/RL56TRMWH TRIM	WHITE	120/12	LED 4000K	RECESSED	PROTECT HOUSING AS REQ'D BY CODE
L400	1	TRACK LIGHT	ATTAIN	TRACK: 16WH-6FT END: T38WH CURRENT LIMITER: TCLF 11 WH HEAD: AT-TR-WD-22-40-82-24-WH-J	WHITE	120/19W PER HEAD	LED 4000K	9'-6" AFF- WALL MOUNTED	
L500	X	EXIT SIGN	ASTRALITE	TP-U-R-W-EM	WHITE	120/2.5	LED	WALL OR CEILING, SEE RCP	
L501	1	EXIT SIGN	ASTRALITE	LG-150-R-W	WHITE	120/14W REMOTE HEAD	LED	WALL OR CEILING, SEE RCP	VERIFY W/LOCAL JURISDICTION QTY & LOCATION
L502	2	EXIT EMERGENCY COMBO	ASTRALITE	EEU-2-16-R-W	WHITE/BLACK	120/16W REMOTE HEAD	LED	WALL,ALIGN T/FIXT WITH T/WHITE WALL	VERIFY W/LOCAL JURISDICTION QTY & LOCATION
L503	3	EXIT EMERGENCY COMBO	ASTRALITE	EEU-2-16-R-B	WHITE/BLACK	120/16W REMOTE HEAD	LED	WALL OR CLNG,ALIGN B/FIXT WITH B/BLACK BAND	VERIFY W/LOCAL JURISDICTION QTY & LOCATION
L504	5	EMERGENCY LIGHT	BEST LIGHTING PRODUCT	LEDR-1	WHITE	120/4	(2)5.4W INCANDESCENT	WALL,ALIGN T/FIXT WITH T/WHITE WALL	VERIFY W/LOCAL JURISDICTION QTY & LOCATION
L505	5	EMERGENCY LIGHT	BEST LIGHTING PRODUCT	LEDR-1-B	BLACK	120/4	(2)5.4W INCANDESCENT	WALL,ALIGN B/FIXT WITH B/BLACK BAND	VERIFY W/LOCAL JURISDICTION QTY & LOCATION
L600	2	REMOTE HEAD	ASTRALITE	REM-4-1H-ODG-6-A (1 HEAD)	OUTDOOR GREY	6V/5.4 PER LAMP	5.4W INCANDESCENT	EXTERIOR WALL ABOVE DOOR	REMOTE HEAD
L601	X	2X4 LED LAY IN	ASTRALITE	REM-4-2H-ODG-6A (2 HEADS)	OUTDOOR GREY	6V/5.4 PER LAMP	5.4W INCANDESCENT	EXTERIOR WALL ABOVE DOOR	REMOTE HEAD
L602	X	GOOSENEXT	LSI ABOLITE	AD-200-10-WW-LED-GBK-LDS96WL/GB-U-3-GBK	BLACK	120V	11W	STOREFRONT OVER AWNINGS	
L603	X	EXTERIOR UP/DOWN	LUMIERE	904-UD-10LED4021-12-BK	BLACK	12V	10W 4000K LED		
L604	X	ILLUMINATED BOLLARD	LSI ABOLITE	VBR-ID-31CFL-CA-MT-BLK	BLACK	120V	32CFL		
L605	X	EXTERIOR WALL PACK	STREET WORKS	WKP-3B-LED-E-DFC-7040	BLACK		27W 4000K LED		
L606	X	EXTERIOR PENDANT-WHITE	LYCO		WHITE				
L607	X	EXTERIOR PENDANT-RED	LYCO		RED				
L700	X	MONARCH FAN	KICHLER	310103-WCP	COPPER/WALNUT	120V			



N ▶ 1 LIGHTING PLAN
1/4" = 1'-0"

GENERAL NOTES

1. ALL INTERIOR LIGHTING SHALL BE CIRCUITED FROM PANEL 'M', UNO.
2. ALL LIGHTING IN FOOD PREPARATION AREAS SHALL HAVE PROTECTIVE LENSES OR SHATTER RESISTANT LAMPS.
3. ALL RESET RELAY, TOUCHBLOCK, SWITCHES AND THERMOSTAT LOCATIONS MUST BE APPROVED BY CONSTRUCTION MANAGER PRIOR TO INSTALLATION.
4. ALL OUTLETS LOCATED ON BLACK PAINTED WALL SHALL BE BLACK WITH BLACK COVER.
5. VERIFY EXTERIOR SIGN AND LIGHTING OUTLET LOCATIONS WITH ARCHITECTURAL PLANS PRIOR TO ROUGH-IN.
6. REFER TO ELECTRICAL SYMBOLS LIST FOR ABBREVIATIONS AND ADDITIONAL PRODUCT INFORMATION.
7. NEW EXTERIOR EQUIPMENT, PIPING, CONDUITS, ETC. SHALL BE INSTALLED, SUPPORTED AND SCREENED AND PAINTED SIMILAR TO EXISTING CONSTRUCTION.
8. FIXTURES LABELED 'NL' ARE TO BE CONNECTED TO UNSWITCHED LEG OF LIGHTING CIRCUIT INDICATED SO THEY REMAIN ON 24 HOURS A DAY, 7 DAYS A WEEK.

LIGHTING FIXTURE SCHEDULE NOTES:
1. NATIONAL ACCOUNT FOR LIGHTING: SPECIALTY LIGHTING GROUP, EMAIL ORDERS THRU "5GUYS@SSLIGHTING.COM" ATTN: ANUSH KAZARIAN. PH: (508-922-0786), WORK EMAIL: AK@SSLIGHTING.COM
2. RESTROOMS TO HAVE OCCUPANCY OR VACANCY SENSOR.
3. ALL FIXTURES IN KITCHEN, DISH WASH AREA & FOOD SERVICE AREA TO BE LENSED OR HAVE SHATTER PROOF LAMPS. LAMPS TO BE SHATTER PROOFED WITH THE FOLLOWING: SATCO SHATTER RESISTANT BULBS, ORDER THROUGH VENDOR.
4. ORDER AN EXTRA CASE OF BULBS PER FIXTURE, BUYER TO ADD TO ORDER SHEET
5. EC SHALL PROVIDE LIGHT FIXTURES & MUST ORDER THROUGH FG VENDOR
6. BOLLARD LIGHTS MAY HAVE 6 WEEK LEAD TIME
7. EXIT SIGNS ARE CALLED OUT W/ RED LETTERS, GC TO VERIFY LOCAL REQUIREMENT AND ADJUST ORDER ACCORDINGLY.
8. GC TO COORDINATE WITH LOCAL JURISDICTION, QUANTITY AND LOCATION OF EMERGENCY LIGHTING. ADJUST ORDER ACCORDINGLY.
9. IF A RETURN AIR PLENUM IS UTILIZED FOR THE SPACE, ALL CONDUCTORS MUST BE PLENUM RATED OR IN CONDUIT AND ALL COMPONENTS WITHIN THE PLENUM MUST COMPLY WITH CITY CODE REQUIREMENTS FOR USE IN A PLENUM.
10. SEE RCP AND ELEVATIONS FOR MOUNTING HEIGHTS. VERIFY WITH TENANT PRIOR TO ROUGH-IN.

ORDERING INFORMATION:
THE ELECTRICAL CONTRACTOR SHALL REVIEW THE CONSTRUCTION DRAWINGS, BRANCH CIRCUIT VOLTAGE AND SUBMITTED LIGHTING FIXTURE SHOP DRAWINGS. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ORDERING THE APPROPRIATE LIGHTING FIXTURE FOR AVAILABLE VOLTAGE – NO EXCEPTIONS. INCORRECTLY SUBMITTED SHOP DRAWINGS AND FIXTURES ORDERS WITH THE INCORRECT FIXTURE VOLTAGE WILL NOT BE CAUSE FOR CONSTRUCTION DELAYS OR ADDITIONAL COSTS.

LIGHTING KEYED NOTES

1. EC TO PROVIDE 120 VOLT, POWER FOR SIGN. EC TO PROVIDE 20A, 120V TOGGLE SWITCH ABOVE ACCESSIBLE CEILING WITH A DEDICATED #10 COPPER GROUND WIRE FROM EQUIPMENT GROUND BUS IN PANEL FOR CIRCUIT SERVING SIGN. SIGN IS TO BE ON 24/7.
2. EC TO ROUTE THROUGH LIGHTING CONTROLS REFER TO DETAILS 3/E6.0 FOR MORE INFORMATION.
3. EC TO CONNECT EXIT/EMERGENCY/NIGHT LIGHT TO UNSWITCHED LEG OF CIRCUIT NOTED.
4. EC TO PROVIDE WALL MOUNTED OCCUPANCY SENSOR.
5. TOUCH SCREEN INSTALLED ON HOOD WALL FACE. COORDINATE EXACT REQUIREMENTS AND LOCATION WITH MANUFACTURER OF EQUIPMENT AND TENANT IN FIELD. FINAL ELECTRICAL CONNECTION TO HOOD LIGHTS BY EC.
6. EC TO LOCATE SWITCH BANK NEAR KITCHEN/PREP ROOM DOOR. COORDINATE EXACT LOCATION WITH OTHER TRADE'S EQUIPMENT. REFER TO SWITCH BANK DETAIL 4/E6.0
7. EC TO PROVIDE WALL MOUNTED RECEPTACLE TO MEET NEC 210.62 SHOW WINDOW REQUIREMENTS.
8. EC TO PROVIDE RECEPTACLE IN THE VERTICAL WALL ABOVE THE HEADER FOR INTERIOR SIGNAGE. VERIFY EXACT LOCATION PRIOR TO INSTALLATION.
9. MOUNT RECEPTACLE FLUSH IN CEILING FOR FUTURE DIGITAL MENU BOARD. PROVIDE ONE CAT 6 CABLE AND HAVE ONE FUTURE OUTLET LIVE FOR CUSTOMER WFI. COORDINATE EXACT LOCATION WITH OWNER.
10. EC TO PROVIDE (1) 3/4" CONDUIT WITH PULL STRING TO 6" ABOVE CEILING WHERE NEEDED. EC TO COORDINATE SPEAKER INSTALLATION WITH MUSIC SYSTEM PROVIDER. SEE MUSIC SYSTEM PROVIDER SHEETS FOR MORE INFORMATION.
11. LIGHTING FIXTURES FURNISHED LOOSE BY THE WALK IN COOLER MANUFACTURER SHALL BE INSTALLED AND CONNECTED BY THE EC.
12. MOUNT RECEPTACLE FLUSH IN CEILING FOR SIGN DISPLAY. TIE INTO AUTOMATIC LIGHTING CONTROLS AND COORDINATE EXACT LOCATION WITH OWNER.

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FGE PROJECT NUMBER: 24-XXX

ISSUE DATE

REV	ISSUE	DATE
	PERMIT LL BID	07-12-2024

SEAL

07-12-2024

SHEET TITLE

FLOOR PLAN - LIGHTING

SHEET NUMBER

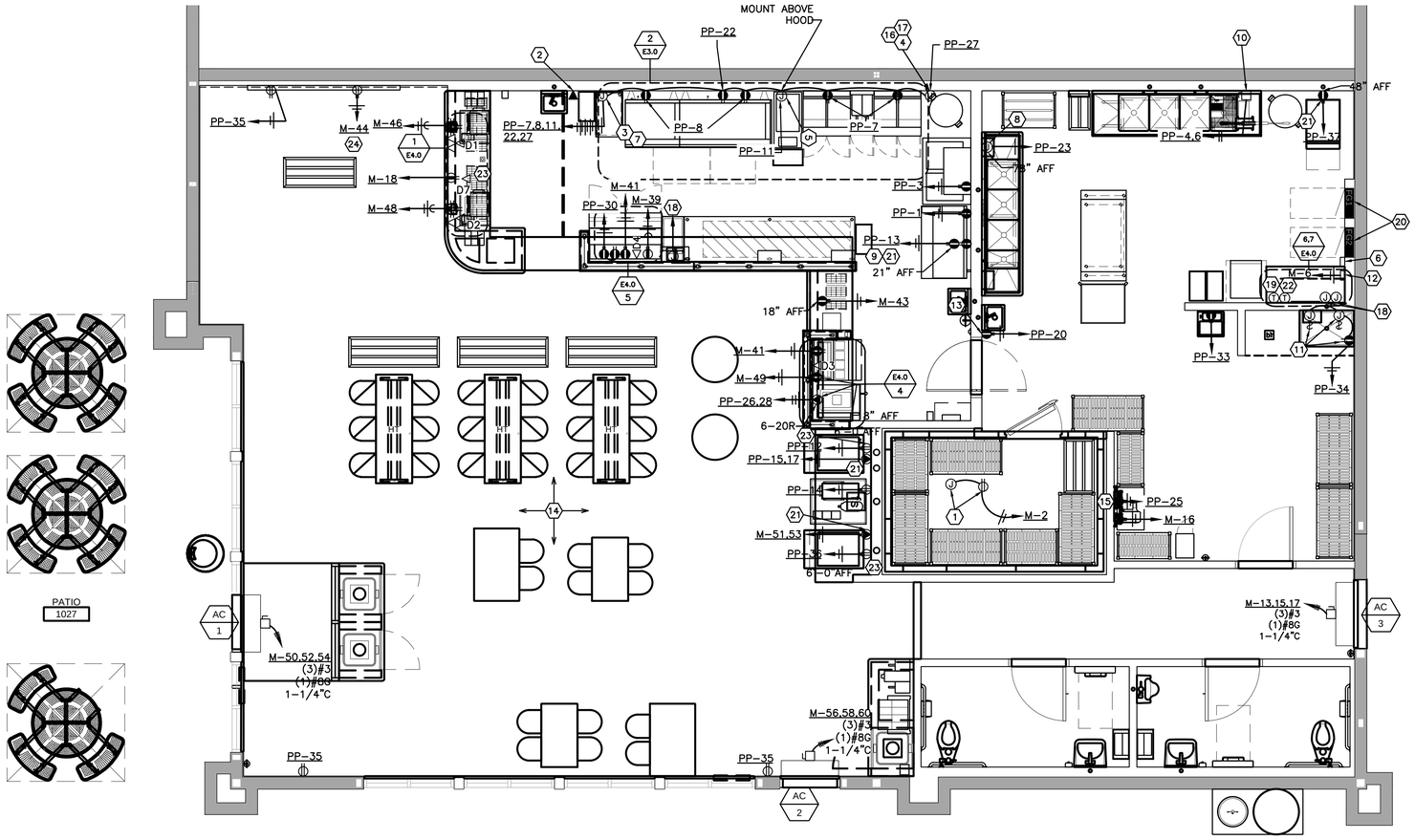
E2.0

KEYED NOTES

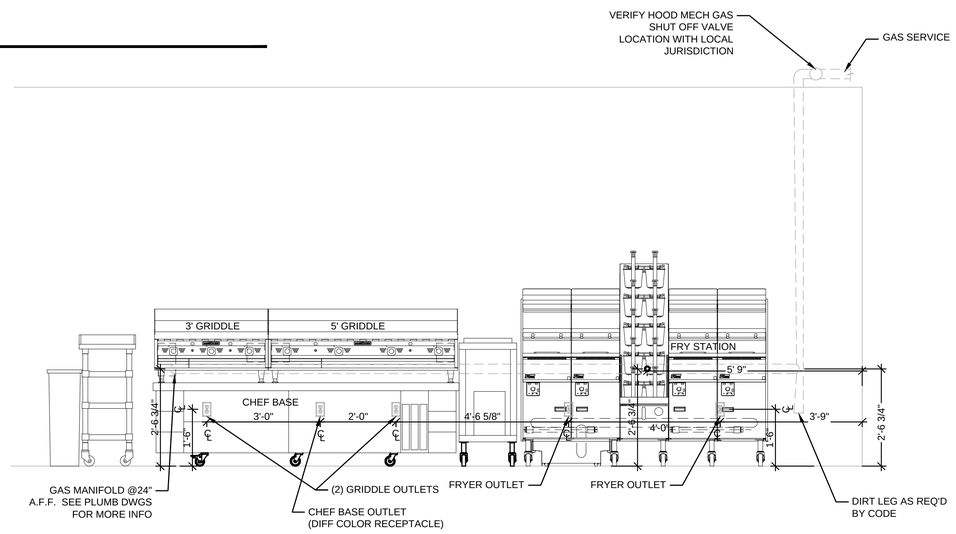
1. PROVIDE JUNCTION BOX AND WEATHER PROOF WHILE IN USE COVER FOR LIGHTING AND RECEPTACLE PROTECTED BY A 30mA GFI BREAKER FOR EVAPORATOR CONDENSATE LINE HEAT TRACE, COORDINATE LOCATION IN FIELD.
2. PROVIDE TELEPHONE JACK AT 60"AFF AND 10" FROM COUNTER, WITH STAINLESS STEEL MOUNT PLATE FOR WALL PHONE.
3. PROVIDE JUNCTION BOX TO CONNECT ALL THE DEVICES INSTALLED ON THE HOOD'S BACK WALL. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH MANUFACTURER OF EQUIPMENT PRIOR TO INSTALLATION.
4. PROVIDE JUNCTION BOX FOR GAS SOLENOID VALVE CONNECTION. UNIT SHALL BE INTERLOCKED WITH HOOD FIRE SUPPRESSION CONTROL PANEL CONTACTOR FOR GAS SHUT-OFF WHEN HOOD FIRE SUPPRESSION SYSTEM IS ACTIVATED. FINAL CONNECTION BY EC. REFER TO MECHANICAL HOOD DRAWINGS FOR ADDITIONAL INFORMATION.
5. PROVIDE MANUAL PULL STATION AND JUNCTION BOX FOR HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL CONNECTION. COORDINATE EXACT REQUIREMENTS AND LOCATION WITH MANUFACTURER OF EQUIPMENT. SEE MECHANICAL HOOD DRAWINGS MH1-01 FOR ADDITIONAL INFORMATION.
6. LOCATION OF GFCI DEAD-FRONT DEVICES. REFER TO DETAIL 7/E6.0
7. CIRCUITS AS INDICATED IN 1" CONDUIT. CIRCUITS SHALL NOT SHARE NEUTRAL CONDUCTORS. ALL CIRCUIT CONDUCTORS TO BE #10 COPPER.
8. PROVIDE JUNCTION BOX AT 78"AFF AND 120V CIRCUIT FOR HEAT TAPE ON EXHAUST FAN GREASE DRAIN LINE. CONNECTION AS PER MANUFACTURER OF EQUIPMENT.
9. EC TO PROVIDE (2) RECEPTACLES MOUNTED HORIZONTALLY AT 2'-1"AFF FOR DELIVERY TABLE/HEATED SHELF. FIELD VERIFY EXACT MOUNTING LOCATION.
10. EC SHALL PROVIDE 2 GANG ELECTRICAL BOX WITH COVER PLATE AND 1/2" CONDUIT WITH PULL STRING RUN TO 6" ABOVE CEILING FOR ELECTRICAL CONNECTION. ELECTRICAL BOX ROUGH-IN IS REQUIRED AT THE 4-COMPARTMENT SINK AND SHALL BE INSTALLED 8-5/8" A.F.F. UNDER THE POTATO CUTTER SIDE DRAINBOARD. PROVIDE 208V, 30A, 2P, NF NEMA 4X STAINLESS STEEL DISCONNECT FOR POWER SOAK UNIT. COORDINATE SWITCH LOCATION WITH SINK INSTALLER.
11. PROVIDE 20A PILOT LIGHT DISCONNECT SWITCH FOR TANKLESS WATER HEATERS AND RECEPTACLE FOR RECIRCULATION PUMP. RECEPTACLE IS TO BE CONNECTED ON THE LINE SIDE OF THE SWITCH. COORDINATE LOCATION AND EXACT REQUIREMENTS WITH MANUFACTURER AND PLUMBING CONTRACTOR.
12. PROVIDE NEW TIME SWITCH AND PHOTOCELL. SEE DETAIL #3 ON E6.0
13. DEDICATED OUTLET FOR BUG LIGHT, MOUNT RECEPTACLE AT 8'-2"AFF.
14. PROVIDE (6) JUNCTION BOXES FOR FUTURE SECURITY CAMERAS WITH 1" CONDUITS AND PULL STRINGS ROUTED TO MANAGER'S DESK. LOCATION QUANTITIES SHALL BE DETERMINED BY SECURITY CONTRACTOR PRIOR TO ROUGH-IN.
15. WATER BOOSTER UNIT TO BE INSTALLED ABOVE THE BAG-N-BOX AS INDICATED ON ARCHITECTURAL DRAWINGS.
16. RECEPTACLES IN THIS AREA SHALL BE FLUSH WITH HOOD BACK WALL. DEVICES ARE PRE-WIRED WITH CONDUIT EXTENDED ABOVE HOOD WITH 25' COILED WIRE TO ALLOW THE ELECTRICAL CONNECTION THRU A JUNCTION BOX OUTSIDE THE HOOD AREA. RECEPTACLES THAT ARE SHUNT TRIPPED TO BE GFCI PROTECTED. PROVIDE INTERMATIC #WP101MC COVER FOR THESE RECEPTACLES.
17. HOOD FIRE SUPPRESSION SYSTEM SHALL BE INTERLOCKED WITH MECHANICAL GAS SOLENOID VALVE BY CAPTIVE AIR. ALL WIRING PROVIDED BY EC.
18. PROVIDE 1-1/4" CONDUIT FOR TELE/DATA CABLING. PROVIDE 1-1/4" CONDUIT TO NEAREST WALL AND ABOVE CEILING TO THE MANAGER'S DESK. VERIFY EXACT LOCATION IN THE FIELD. AT THE MANAGER'S DESK WALL, THE CONDUIT SHALL BE ROUTED DOWN FROM THE CEILING TO A PULL BOX BEHIND THE SERVER LOCATION. REFER TO ARCHITECTURAL DETAILS ON MANAGERS DESK ELEVATION.
19. PROVIDE TELEPHONE CABLING BACK TO TELEPHONE BACKBOARD. COORDINATE LOCATION WITH TENANT IN FIELD. REFER TO DETAILS ON SHEET 5/E6.0 FOR ADDITIONAL INFORMATION.
20. EXISTING ELECTRICAL EQUIPMENT TO REMAIN. SEE 3/E5.0.
21. COORDINATE PLUG CONFIGURATION WITH EQUIPMENT PRIOR TO BID AND ROUGH-IN.
22. PROVIDE 4X4" JUNCTION BOX WITH (2) 1" CONDUITS TO STUB UP ABOVE CEILING. PROVIDE (1) DATA OUTLET AND (1) RECEPTACLE FOR MUSIC SYSTEM.
23. EC TO PROVIDE DUPLEX OUTLET MOUNTED @ 5'-4" AND OVERSIZED SINGLE ROUND HDMI OUTLET MOUNTED AT 5'-8" FOR DISPLAY MONITOR. FIELD VERIFY EXACT MOUNTING LOCATION.
24. RECEPTACLE FOR SURFACE MOUNTED INTERIOR SIGNAGE. FIELD VERIFY EXACT MOUNTING HEIGHTS AND REQUIREMENTS. CIRCUIT TO TIME SWITCH SEE DETAIL 3/E6.0 FOR ADDITIONAL INFORMATION.

GENERAL NOTES

1. PROVIDE CONDUITS AND JUNCTION BOXES FOR SECURITY SYSTEM WHEN APPLICABLE. COORDINATE REQUIREMENTS PRIOR TO BID.
2. PANELBOARDS AND ELECTRICAL DEVICES TO BE FLUSH MOUNTED.
3. ALL SINGLE PHASE RECEPTACLES 50A AND LESS AND THREE PHASE RECEPTACLES 100A AND LESS THAT ARE 150V TO GROUND OR LESS IN THE KITCHEN AND FOOD PREP AREAS SHALL BE GFCI PROTECTED BY A 5mA GFCI BREAKER IN PANELS 'M' AND 'PP1' UNLESS OTHERWISE NOTED.
4. PROVIDE RIGID METALLIC CONDUIT AND WIRING FOR TELE/DATA.LOW VOLTAGE CABLING. CONDUIT SIZE SHALL BE 3/4" MINIMUM.
5. ALL OUTLETS LOCATED ON BLACK PAINTED WALL SHALL BE BLACK WITH BLACK COVER.
6. ALL OUTLET COVER PLATES IN KITCHEN SHALL BE STAINLESS STEEL. COORDINATE WITH TENANT.
7. ALL RESET RELAY, TOUCHBLOCK, SWITCHES AND THERMOSTAT LOCATIONS MUST BE APPROVED PRIOR TO INSTALLATION.
8. NEW EXTERIOR EQUIPMENT, PIPING, CONDUITS, ETC. SHALL BE INSTALLED, SUPPORTED, AND SCREENED AND PAINTED SIMILAR TO EXISTING CONSTRUCTION.



1 POWER & DATA PLAN
1/4" = 1'-0"



2 HOOD WALL DETAIL
1/4" = 1'-0"

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SEAL

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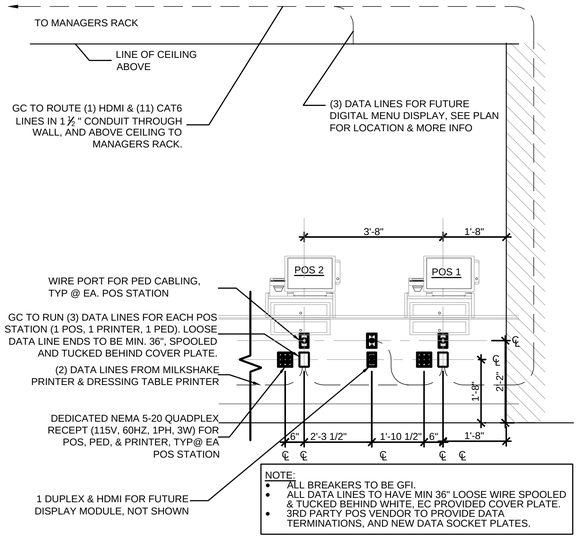
SHEET TITLE

FLOOR PLAN - POWER

SHEET NUMBER

E3.0



1 POS ELEC/DATA DTL-MIN SPACING

1/2" = 1'-0"

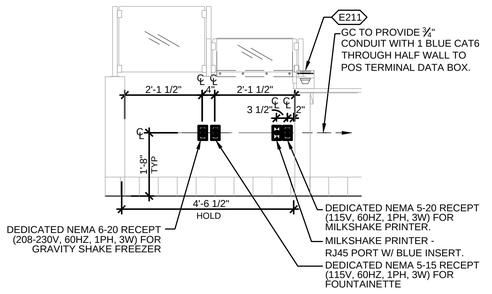
POWER & DATA DIAGRAM NOTES

- PROVIDE CONDUIT FOR DATA WHERE REQUIRED BY CODE.
- ALL CONDUIT IS TO BE METALLIC.
- IF CONDUIT IS TO BE ROUTED THROUGH THE FLOOR SLAB, ALL CONDUIT IS TO BE GALVANIZED RIGID METAL CONDUIT.
- CONDUIT ROUTING IS DIAGRAMMATIC. GC TO DETERMINE EXACT ROUTING IN FIELD.
- TRENCHING MAY BE REQUIRED. GC TO DETERMINE PRIOR TO BID.
- ALL DATA CABLES TO BE TERMINATED PER DETAIL 3/E6-02.

T-568-B WIRING		
PAIR #	WIRE	PIN #
1 - WHITE/BLUE	WHITE / BLUE	5
	BLUE / WHITE	4
2 - WHITE/ORANGE	WHITE / ORANGE	1
	ORANGE / WHITE	2
3 - WHITE/GREEN	WHITE / GREEN	3
	GREEN / WHITE	6
4 - WHITE/BROWN	WHITE / BROWN	7
	BROWN / WHITE	8

3 TERMINATION DETAIL T-568-B

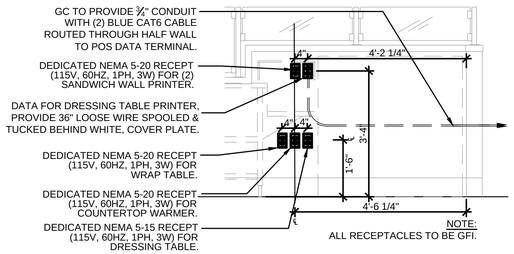
1/2" = 1'-0"



4 MILKSHAKE ELEC/DATA DETAIL

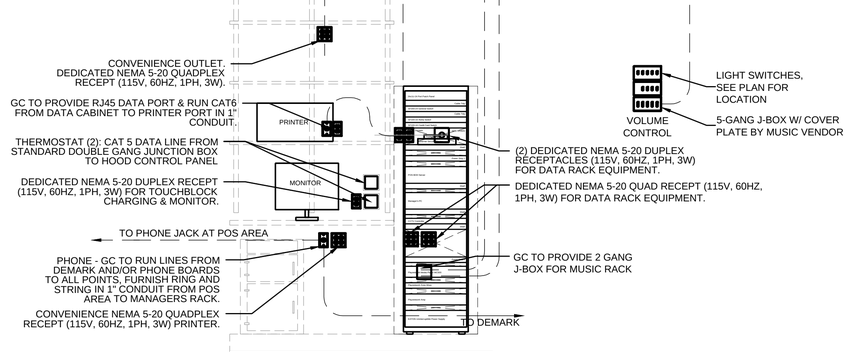
1/2" = 1'-0"

NOTES:
- ALL BREAKERS TO BE GFI.
- 3RD PARTY POS VENDOR TO PROVIDE DATA TERMINATIONS, AND NEW DATA SOCKET PLATES.



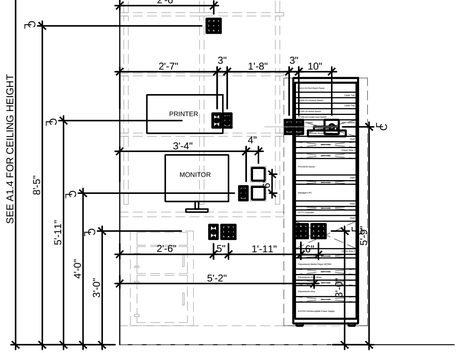
5 SANDWICH WALL DATA DETAIL-SGK

1/2" = 1'-0"



6 MANAGER RACK DATA DETAIL

1/2" = 1'-0"



7 MANAGER RACK HEIGHT DETAIL

1/2" = 1'-0"

POWER & DATA @KITCHEN CEILING

EC TO PROVIDE CEILING MOUNTED RECEPTACLES/JUNCTION BOXES FOR FUTURE MENU BOARDS
- (1) RECEPT CLOSEST TO "DINING AREA" SHALL BE ENERGIZED
- (2) J-BOXES SHALL HAVE WHITE COVER PLATES FOR FUTURE RECEPTACLES
- (3) DATA BOXES WITH (2) DATA LINES EACH SHALL HAVE A MIN 36" OF LOOSE LINE SPOOLED AND TUCKED BEHIND WHITE COVER PLATES.
- ALL DATA TERMINATIONS TO BE INSTALLED BY A 3RD PARTY VENDOR
- EC TO COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALL

POWER & DATA DIAGRAM NOTES

- PROVIDE CONDUIT FOR DATA WHERE REQUIRED BY CODE.
- ALL CONDUIT IS TO BE METALLIC.
- IF CONDUIT IS TO BE ROUTED THROUGH THE FLOOR SLAB, ALL CONDUIT IS TO BE GALVANIZED RIGID METAL CONDUIT.
- CONDUIT ROUTING IS DIAGRAMMATIC. GC TO DETERMINE EXACT ROUTING IN FIELD.
- TRENCHING MAY BE REQUIRED. GC TO DETERMINE PRIOR TO BID.
- ALL DATA CABLES TO BE TERMINATED PER DETAIL 3/E4.0

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SEAL

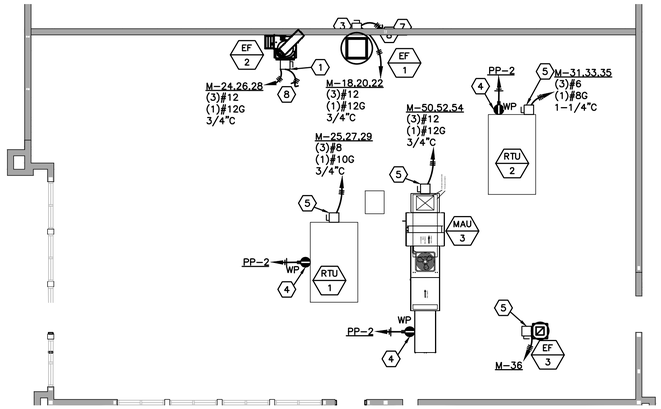
07-12-2024

SHEET TITLE

POWER & DATA DETAILS

SHEET NUMBER

E4.0



1 E5.0 HVAC ROOF PLAN
1/8"=1'

ROOF TOP KEYED NOTES

1. EC TO PROVIDE, 30A,3P,NF NEMA 3R, DISCONNECT SWITCH ON EF-1.
2. PROVIDE 30A, 120V, 1P NON-FUSED WEATHER PROOF DISCONNECT. TO BE INTERLOCKED WITH RTU THERMOSTAT SO FAN RUNS CONTINUOUSLY DURING OCCUPIED MODE.
3. EC TO PROVIDE 30A,3P,NF,NEMA 3R DISCONNECT SWITCH, COMPLETE FINAL ELECTRICAL CONNECTION. STARTER PROVIDED WITH HOOD CONTROL PACKAGE.
4. MC PROVIDED GFCI RECEPTACLE. EC PROVIDE WEATHER PROOF COVER AND PROVIDE POWER SUPPLY AND FINAL CONNECTION.
5. FACTORY INSTALLED DISCONNECT SWITCH. EC TO PROVIDE FINAL CONNECTION.
6. MC PROVIDED DUCT SMOKE DETECTOR IN RETURN DUCT. EC TO PROVIDE FINAL ELECTRICAL CONNECTION TO SHUT DOWN UNITS UPON ACTIVATION. PROVIDE TEST/RESET SWITCH AND REMOTE ANNUNCIATOR ALARM LED MOUNTED AT TEST STATION AT MANAGERS DESK OR AS DIRECTED BY AHJ. EC TO PROVIDE ALL REQUIRED INTERLOCK WIRING.
7. EC TO ROUTE ROOF MOUNTED EQUIPMENT THROUGH TERMINAL BLOCK AT HOOD CONTROL PANEL. SEE HOOD DRAWINGS FOR DETAILS.
8. EC TO INTERLOCK EF-1 &2 WITH MAU-1, FIRE SUPPRESSION, AND HOOD CONTROLS. PROVIDE ALL CONDUIT AND WIRING AS REQUIRED.
9. PROVIDE NEMA 3R 30A, 2P NON-FUSED DISCONNECT SWITCH FOR REMOTE COOLER CONDENSER.

GENERAL NOTES

1. EC TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO BID.
2. EC TO PROVIDE ALL ASSOCIATED MATERIAL/COMPONENTS NECESSARY TO COMPLETE A FULLY FUNCTIONING ELECTRICAL SERVICE.
3. PROVIDE 3/4" CONDUIT FOR ALL HVAC CONTROL WIRING. PROVIDE 3/4" CONDUIT FOR INTERCONNECTION BETWEEN RTU CONTROLLER AND MUA. PROVIDE CONTACTORS AND 24V STEP DOWN TRANSFORMER AS REQUIRED FOR CONTROL WIRE SIGNALING. COORDINATE ALL CONTROL WIRING WITH CONTROLS CONTRACTOR. REFER TO SEQUENCE OF OPERATION FOR ADDITIONAL INFORMATION.
4. WHEN FRYERS AND GRIDDLES ARE TURNED ON, MAKE UP AIR UNIT AND THE KITCHEN EXHAUST HOOD ARE TO BE TURNED ON. MAKE UP AIR IS TO CONTINUALLY CHECK IF RTU IS IN ECONOMIZER MODE. WHEN RTU SWITCHES TO ECONOMIZER MODE WHILE MAKE UP AIR UNIT IS RUNNING, MAKE UP AIR OF ECONOMIZER MODE. THIS SEQUENCE IS TO KEEP A NEGATIVE PRESSURE WITHIN THE SPACE WHILE THE RTU IS IN ECONOMIZER MODE.
5. ALL POWER FOR HVAC SYSTEM IS PROVIDED AND INSTALLED BY THE EC. VERIFY ALL REQUIREMENTS PRIOR TO INSTALLATION. REFER TO THE MECHANICAL PLANS FOR CONTROL WIRING INFORMATION.
6. DUCT SMOKE DETECTORS PROVIDED BY THE MC FOR RTU'S. VERIFY CONNECTION POINTS OF ALL HVAC EQUIPMENT PRIOR TO INSTALLATION. DUCT MOUNTED SMOKE DETECTOR SHALL BE CONNECTED INTO SEPARATE CIRCUIT ON FIRE ALARM CONTROL PANEL. SMOKE DETECTOR IN RETURN AIR DUCTWORK SHALL DE-ENERGIZE FAN MOTOR AND SHUT OUTSIDE DAMPERS WHEN SMOKE IS DETECTED. DUCT SMOKE DETECTORS SHALL BE ZONED SEPARATELY ON THE FIRE ALARM CONTROL PANEL, IF FIRE ALARM PANEL IS REQUIRED. SMOKE DETECTORS SHALL BE MONITORED FOR ALARM AND NOT AS SUPERVISORY.
7. VERIFY ALL DISCONNECT SIZES AND TYPES WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
8. REFER TO MECHANICAL PLANS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT AND THERMOSTATS. PROVIDE RACEWAY SYSTEM FOR ALL CONTROL WIRING.
9. PROVIDE HANDLE TIES AS REQUIRED BY NEC ART. 210.4B.
10. ALL ELECTRICAL WORK ASSOCIATED WITH MECHANICAL EQUIPMENT SHALL BE COORDINATED WITH MECHANICAL CONTRACTOR.
11. PROVIDE PROTECTION FROM PHYSICAL DAMAGE FOR SWITCHBOARDS, PANEL BOARDS.

PANEL BOARD M — RECESSED MOUNTED — 22K A.I.C. SERIES RATED
120/208 VOLTS — 3 PHASE — 4 WIRE — 400 AMP. BUS
CIRCUIT BREAKER TYPE 400 MCB — 100% RATED — FED FROM DISCONNECT

	CKT. NO.	TRIP AMP	NO. POLE	LOAD SERVED	LOAD- V. A. Aø	LOAD- V. A. Bø	LOAD- V. A. Cø	LOAD SERVED	NO. POLE	TRIP AMP	CKT. NO.	
	L/O	1	20	1	STOREFRONT SIGN	1200 1000			COOLER LTG HEAT TRACE	1	20	2	GFI
C2	L/O	3	20	1	SPARE		0 1260		HOOD LGT/CONTROL PNL	1	20	4	L/O
C2	L/O	5	20	1	KITCHEN/EM LTG.			240 500	TIME SWITCH	1	20	6	L/O
	C2	7	20	1	DINING LTG.	236 1529			COOLER COMPRESSOR	2	30	8	
C2	L/O	9	20	1	PREP/EM LTG.		450 1529					10	
	C3	11	20	1	SHOW WINDOW			540 0	SPARE	1	20	12	
		13	40	1	AC-3	3333 360			MGR STA SECURITY SYS	1	20	14	D
		15					3333 1200		BLENDER	1	20	16	GFI
		17						3333 600	HDMI REC	1	20	18	
		19	20	1	OPEN SIGN	1000 936			EF-1	3	20	20	
	C3	21	20	1	SPARE		0 936		7.8 MCA			22	
C2	L/O	23	20	1	DINING AREA LTG			630 936				24	
		25	80	3	RTU-1	7320 936			EF-2	3	20	26	
		27			61 MCA		7320 936		7.8 MCA			28	
		29						7320 936				30	
		31	50	3	DOAS-2	5160 0			SPARE	1	20	32	
		33			43 MCA		5160 0		SPARE	1	20	34	
		35						5160 0	SPARE	1	20	36	
GFI		37	20	1	FUTURE EQUIPMENT	500 696			EF-3	1	20	38	
GFI		39	20	1	SANDWICH WRAP TABLE		360 0		SPARE	1	20	40	
GFI		41	20	1	PRINTER			600 0	SPARE	1	20	42	
GFI		43	20	1	UC FRIDGE	500 500			INTERIOR SIGN	1	20	44	
		45	20	1	SMOKE DETECTOR		180 900		POS RECEPTACLE	1	20	46	D
		47	20	1	MILKSHAKE SIGN			1200 900	POS RECEPTACLE	1	20	48	D
GFI		49	20	1	FOUNTAINETTE	1200 3333			AC-1	3	20	50	
GFI		51	20	2	ICE MAKER		1035 3333					52	
		53						1035 3333				54	
		55	20	3	MAU-1	1320 3333			AC-2	3	20	56	
		57			11 MCA		1320 3333					58	
		59						1320 3333				60	
						10884			PANEL PP	3	200		
							10864						
								7931					
						45276	43493	9847	TOTAL VA PER PHASE				
						128572			TOTAL VA				

LOAD DESCRIPTION	DEMAND FACTOR D.F.	VOLT – AMPS CONNECTED	VOLT – AMPS DEMAND
LIGHTING	1.25	9016	11270
RECEPTACLE	N.E.C. 10K+50% REMAINING	9140	9140
MISC	N.E.C	4964	4964
KITCHEN EQUIPMENT	N.E.C. 0.65%	24185	15720
WATER HEATER	1.25	500	625
HVAC EQUIPMENT	1.00	80767	80767
	TOTAL=	128572	122486

PANELBOARD LOAD = 122486
FULL LOAD AMPS = 340.2

PANEL BOARD PP — RECESSED MOUNTED — 22K A.I.C. SERIES RATED
120/208 VOLTS — 3 PHASE — 4 WIRE — 225 AMP. BUS
CIRCUIT BREAKER TYPE MLO — FED FROM PANEL M

	CKT. NO.	TRIP AMP	NO. POLE	LOAD SERVED	LOAD- V. A. Aø	LOAD- V. A. Bø	LOAD- V. A. Cø	LOAD SERVED	NO. POLE	TRIP AMP	CKT. NO.	
GFI		1	20	1	FRYER STN. WARMER/LT.	1800 500			CONV. REC.	1	20	2	
DF/C2		3	20	1	FRYER STN. WARMER/LT.		1800 540		POWER SOAK	2	15	4	
		5	20	1	SPARE			0 540				6	
DF/C2		7	20	1	GAS FRYERS	1000 680			GAS GRIDDLES	1	20	8	DF/C2
		9	20	1	SPARE		0 0		SPARE	1	20	10	
L/O		11	20	1	HOOD FIRE SUPP. SYS.			1000 720	COCA COLA DIS.	1	20	12	GFI
GFI		13	20	1	HEATED SHELF	480 600			TEA DISPENSER	1	20	14	GFI
GFI		15	20	2	ICE MAKER		1035 1100		COOLER EVAPORATOR	2	20	16	
GFI		17						1035 1100				18	
D		19	20	1	MGR. STA. REC	1200 800			BUG LIGHT	1	20	20	GFI
D		21	20	1	MGR. STA. REC		1200 389		CHEF BASE	1	20	22	DF/C2
GFI		23	20	1	HEAT TAPE			200 0	SPARE	1	20	24	
GFI		25	20	1	WATER BOOSTER	844 1300			GRAVITY SHAKE	2	20	26	GFI
C2		27	20	1	GAS SOLENOID		1200 1300					28	
		29	20	1	SPARE			0 516	FOOD PREP TABLE	1	20	30	GFI
D		31	20	1	MANAGER DESK MONITOR	420 0			SPARE	1	20	32	
GFI		33	20	1	GREASE CADDY		500 500		GWH/PUMP	1	20	34	
		35	20	1	CONVENIENCE REC			600 720	COCA COLA DISPENSER	1	20	36	GFI
GFI		37	20	1	ICE STORAGE BIN	1080 180			MANAGERS PRINTER	1	20	38	D
D		39	20	1	MGR STA SOUND SYSTEM		800 500		FUTURE MENU BOARD	1	20	40	D
D		41	20	1	MGR. STA. REC			1200 300	MGR STA POS SYSTEM	1	20	42	D
						10884	10864	7931	TOTAL VA PER PHASE				
						29679			TOTAL VA				

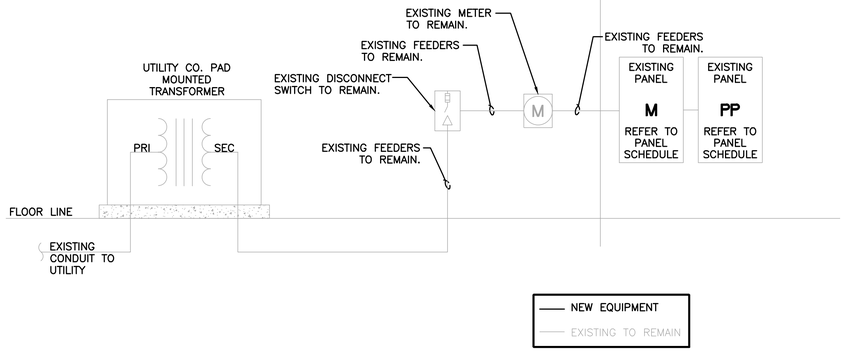
LOAD DESCRIPTION	DEMAND FACTOR D.F.	VOLT – AMPS CONNECTED	VOLT – AMPS DEMAND
LIGHTING	1.25	1300	1625
RECEPTACLE	N.E.C. 10K+50% REMAINING	5600	5600
MISC	N.E.C	3924	3924
KITCHEN EQUIPMENT	N.E.C. 0.65%	18355	11931
WATER HEATER	1.25	500	625
HVAC EQUIPMENT	1.00	--	--
	TOTAL=	29679	23580

PANELBOARD LOAD = 23580
FULL LOAD AMPS = 65.5

L/O- LOCK ON BREAKER
C2- CONTACTOR #
D- PROVIDE DEDICATED GROUND CONDUCTOR
GFI- GROUND FAULT TYPE CIRCUIT BREAKER
T/S- CIRCUIT VIA TIMESWITCH
30mAGFI- 30 MILLIAMP GFI FOR EQUIPMENT PROTECTION
DF- DEAD FRONT GFI DEVICE INSTALLED IN ACCESSIBLE LOCATION FOR GFCI PROTECTION OF CIRCUIT

PANEL NOTES:

1. EC TO PROVIDE HANDLE TIE ON ALL MULTIWIRE BRANCH CIRCUITS PER NEC 210.4(B).
2. ALL SPARE CIRCUIT BREAKERS AND DISCONNECT SWITCHES SHALL BE LEFT IN THE OFF POSITION.
3. ALL PANELS SHALL BE LABELED TO IDENTIFY THE AVAILABLE FAULT CURRENT AT THE PANEL AND THE ARC FLASH HAZARD AT THE PANEL IN ACCORDANCE WITH NEC REQUIREMENTS.
4. EC TO PROVIDE 20A CIRCUIT ON BREAKER M-37 FOR ANY FUTURE EQUIPMENT TO BE ADDED.
5. FOR ALL CIRCUITS THAT START WITH MGR., REFER TO MANAGER RACK DETAIL 6 AND 7 ON SHEET 4.



3 E5.0 ONE LINE DIAGRAM
NTS

ALL INFORMATION REGARDING CURRENT CONDITIONS OF THE ELECTRICAL SERVICE ARE VIA SECOND PARTY FIELD SURVEY. EC IS RESPONSIBLE FOR FIELD VERIFICATION OF SITE CONDITIONS AND REPORTING ANY DIFFERENCES OR DISCREPANCIES TO OWNERS REPRESENTATIVE PRIOR TO BID. NO EXTRAS OR CHANGE ORDERS SHALL BE GIVEN FOR CONTRACTOR'S FAILURE TO VERIFY SITE CONDITIONS PRIOR TO BIDDING.

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6920 CENTRAL AVENUE
TOLEDO, OH 43617
FGE PROJECT NUMBER: 24-XXX

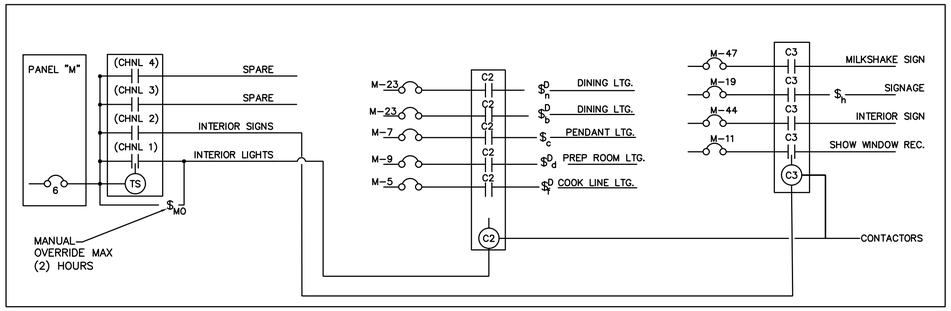
ISSUE DATE

REV	ISSUE	DATE
	PERMIT LL BID	07-12-2024

SEAL
STATE OF OHIO — MATTHEW RICHARD CASE — PE.85398 — REGISTERED PROFESSIONAL ENGINEER
07-12-2024

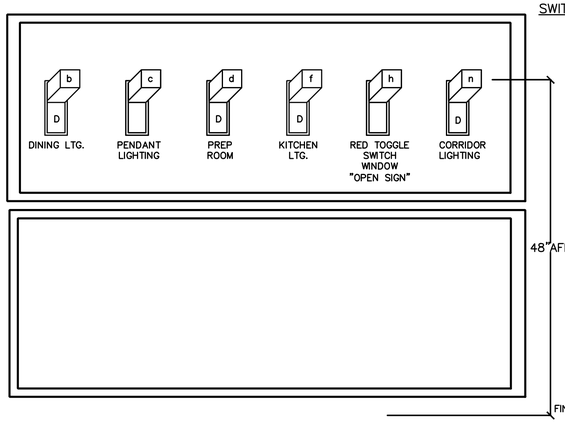
SHEET TITLE
ROOF TOP/ PANEL/ ONE LINE

SHEET NUMBER
E5.0



1. PROVIDE NEW 4 CHANNEL TORK MODEL DZS400BP TIME SWITCH. PROVIDE NEW CONTACTORS FOR LIGHTING CONTROLS AS INDICATED, USE SQUARE-D OR EQUIVALENT AND PHOTOCELLS.
2. STOREFRONT SIGNAGE TO OPERATE 24/7.
3. SEE LIGHT FIXTURE SCHEDULE FOR REQUIRED DIMMER.

3 LIGHTING CONTROL DETAIL
NTS



SWITCH BANK DETAIL NOTES

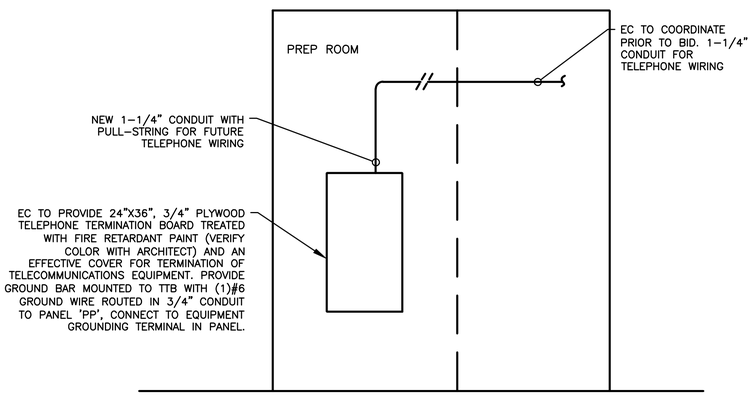
1. SWITCH "h" IS WIRED TO STORE FRONT RECEPTACLE(S) FOR CONTROL OF WINDOW "OPEN" SIGNAGE. SEE SHEET E2-01 FOR RECEPTACLE LOCATION AND MORE INFORMATION.
2. LABEL SWITCHES WITH P-TOUCH LABEL.
3. 'D' PROVIDE DIMMER SWITCH COMPATIBLE WITH FIXTURE TYPE

4 SWITCH BANK DETAIL
NTS

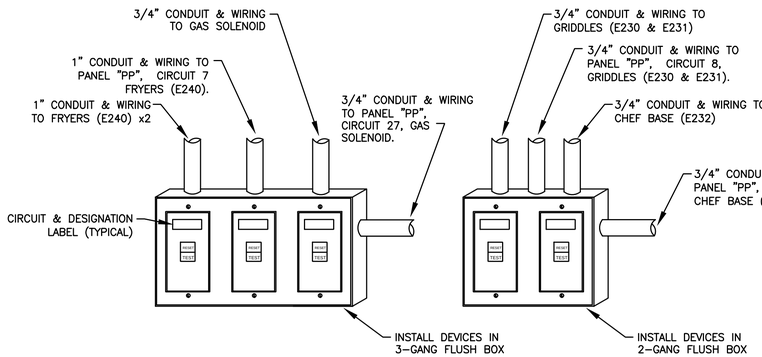
NOTES

1. TELEPHONE AND DATA DETAILS 6 & 7 ARE SHOWN FOR REFERENCE. DETAILS MY NOT INCLUDE EVERY TELEPHONE AND DATA RECEPTACLE LOCATION. REFER TO SHEET E3-01 AND ARCHITECTURAL PLANS FOR EXACT TELEPHONE AND DATA RECEPTACLE LOCATIONS.
2. PROVIDE 3/4" CONDUIT MINIMUM WHEN NOT SPECIFIED ON PLANS.

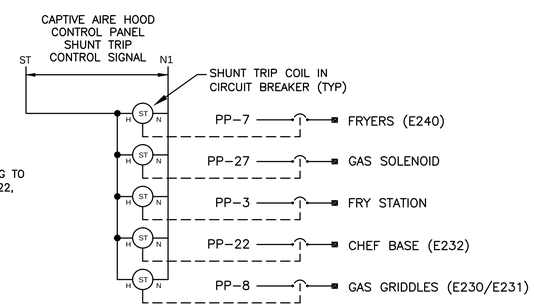
6 TELEPHONE DETAIL
NTS



5 TELEPHONE ONE LINE DIAGRAM
NTS



7 GFCI DEAD-FRONT DEVICE DETAIL
NTS



8 SHUNT-TRIP WIRING DETAIL
NTS

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SEAL

07-12-2024

SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E6.0

COM*check* Software Version COMcheckWeb

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Five Guys - Toledo, OH
Project Type: Alteration

Construction Site:
6920 CENTRAL AVENUE
TOLEDO, Ohio 46317

Owner/Agent:

Designer/Contractor:

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-Dining: Bar Lounge/Leisure	2407	0.90	2166
		Total Allowed Watts =	2166

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
Dining: Bar Lounge/Leisure (2407 sq.ft.)				
LED: L100: 2x4: Other:	1	11	45	495
LED: L101: 2x2: Other:	1	27	30	810
LED: L200/L201: Pendant: Other:	1	24	8	192
LED: L102: 1x4: Other:	1	5	30	150
LED: L300: Downlight: Other:	1	8	12	96
Track Lighting: L400: Track: Wattage based on total luminaires Exemption:Advertising/directional signage	0	0	95	Exempt
			Total Proposed Watts =	1743

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COM*check* Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title _____ Signature _____ Date _____

COM*check* Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2018 IECC

Requirements: 100.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2.2 [EL22][1]	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.2.1, C405.2.1.1 [EL18][1]	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.2.1.2 [EL19][1]	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.2.1.3 [EL20][1]	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.2.2, C405.2.2.1, C405.2.2.2 [EL21][2]	Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3, C405.2.3.1, C405.2.3.2 [EL23][2]	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.2.4 [EL26][1]	Separate lighting control devices for specific uses installed per approved lighting plans.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.2.4 [EL27][1]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.3 [EL6][1]	Exit signs do not exceed 5 watts per face.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.6 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.7 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.8.2, C405.8.2.1 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.9 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [FI17][3]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.4.1 [FI18][1]	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Interior Lighting fixture schedule for values.*
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.1 [FI16][3]	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.3 [FI33][1]	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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SEAL

07-12-2024

SHEET TITLE

LIGHTING COMCHECK

SHEET NUMBER

E7.0

DIVISION 15 - PLUMBING SPECIFICATIONS

GENERAL

A. THE GENERAL CONDITIONS OF THE GENERAL SPECIFICATIONS, ALONG WITH ALL APPLICABLE INSTRUCTIONS TO BIDDERS SHALL FORM A PART OF THIS SECTION OF THE SPECIFICATIONS.

B. REFERENCE IS MADE TO REQUISITES FOR BIDDERS AND CONTRACTORS UNDER OTHER SECTIONS OF THESE SPECIFICATIONS, WHICH SHALL BE CONSIDERED BINDING, UNLESS OTHERWISE NOTED UNDER THIS SECTION.

SCOPE

EACH CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE CONSTRUCTION DETAILS, BOTH AS ON TENANT CONSTRUCTION DRAWINGS AND LANDLORD'S AS REFERRED TO, BEFORE SUBMITTING HIS BID AS NO ALLOW-ANCES WILL BE MADE BECAUSE OF THE CONTRACTOR'S UNFAMILIARITY WITH THESE DETAILS. ALL PERFORMANCE OF CONSTRUCTION SHALL BE AS REQUIRED BY THE PACE OF THE GENERAL CONSTRUCTION.

INSPECTION OF SITE

ALL PROPOSALS SHALL PRECLUDE THAT CONTRACTOR IS FAMILIAR WITH JOB SITE CONDITIONS AND UTILITY LOCATIONS AND THE LACK OF SPECIFIC INFORMATION ON THE DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY.

PERMITS

ALL PERMITS AND LICENSES NECESSARY FOR THE PROPER EXECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE SUBCONTRACTOR INVOLVED.

CODE REQUIREMENTS

ALL WORK UNDER THIS CONTRACT SHALL COMPLY WITH THE PROVISIONS OF THE SPECIFICATIONS, DRAWINGS OR AS DIRECTED BY THE OWNER, AND SHALL SATISFY ALL APPLICABLE CODES, ORDINANCES, OR REGULATIONS OF THE GOVERNING BODIES, WHETHER SO SHOWN OR NOT, AND ALL MODIFICATIONS REQUIRED BY SUCH AUTHORITIES SHALL BE MADE BY THE CONTRACTOR WITHOUT ANY ADDITIONAL COST TO THE OWNER.

MATERIALS AND WORKMANSHIP

1. ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURERS, AND UNLESS OTHER-WISE SPECIFIED SHALL BE NEW, AND FREE FROM ANY DEFECTS. ALL LIKE MATERIALS USED SHALL BE OF THE SAME MANUFACTURE AND QUALITY UNLESS OTHERWISE SPECIFIED.
2. ALL WORK UNDER THIS CONTRACT SHALL BE PERFORMED BY COMPETENT WORKMEN AND EXECUTED IN A NEAT AND WORKMANLIKE MANNER. WORK SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION, AND ON COMPLETION, THE INSTALLATION SHALL BE THOROUGHLY CLEANED AND ALL DEBRIS PRESENT AS A RESULT OF THIS CONTRACT SHALL BE REMOVED FROM THE PREMISES, DO NOT JUST ABANDON .

CODES AND REGULATIONS

EACH SUBCONTRACTOR SHALL COMPLY WITH ALL LAWS, ORDINANCES, RULES AND REGULATIONS BEARING ON THE CONDUCT OF THE WORK AS DRAWN OR SPECIFIED. IF A SUBCONTRACTOR OBSERVES THAT THE DRAWINGS AND SPECIFICATIONS ARE AT A VARIANCE, HE SHALL PROMPTLY NOTIFY THE GENERAL CONTRACTOR AND THE TENANT IN WRITING. IF ANY SUBCONTRACTOR PERFORMS ANY WORK KNOWING IT TO BE CONTRARY TO LAWS, ORDINANCES, RULES AND REGULATIONS AND WITHOUT GIVING SUCH NOTICE, THE SUBCONTRACTOR SHALL BEAR ALL COSTS ARISING THEREFROM.

PROTECTION OF WORK AND PROPERTY

1. EACH SUBCONTRACTOR SHALL CONTINUOUSLY MAINTAIN ADEQUATE PROTECTION OF ALL HIS WORK FROM DAMAGE AND SHALL PROTECT THE OWNER'S PROPERTY FROM INJURY OR LOSS ARISING FROM HIS WORK. HE SHALL MAKE GOOD ANY SUCH DAMAGE, INJURY, OR LOSS, EXCEPT SUCH AS MAY BE DIRECTLY DUE TO CAUSES BEYOND HIS CONTROL AND NOT TO HIS FAULT OR NEGLIGENCE. HE SHALL ADEQUATELY PROTECT ADJACENT PROPERTY AS WELL.

2. EACH SUBCONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF THEIR EMPLOYEES ON THE WORK AND SHALL COMPLY WITH ALL PROVISIONS OF FEDERAL, STATE AND LOCAL BUILDING CODES AND SAFETY LAWS TO PREVENT ACCIDENTS OR INJURY TO PERSONS ON OR ADJACENT TO THE PREMISES WHERE THE WORK IS BEING PERFORMED. EACH SUBCONTRACTOR SHALL MAINTAIN ALL INSURANCE REQUIRED TO PROTECT HIMSELF, OWNER AND TENANT FOR THE DURATION OF THE WORK AGAINST PROPERTY DAMAGE AND PUBLIC LIABILITY.

CHANGES IN THE WORK

THE TENANT, WITHOUT INVALIDATING THE CONTRACT, MAY ORDER EXTRA WORK OR MAKE CHANGES BY ALTERING, ADDING TO OR DEDUCTING FROM THE WORK, THE CONTRACT SUM BEING ADJUSTED ACCORDINGLY.

COOPERATION

ALL WORK UNDER THESE SPECIFICATIONS SHALL BE ACCOMPLISHED IN CON-JUNCTION WITH OTHER CONTRACTORS AND TRADES OF THIS PROJECT IN A MANNER WHICH WILL ALLOW EACH CONTRACTOR AND TRADE ADEQUATE TIME AT THE PROPER STAGE OF CONSTRUCTION TO FULFILL HIS CONTRACTS. REFERENCE SHALL BE MADE TO THE OWNER FOR INSTRUCTIONS SHOULD ANY QUESTIONS ARISE BETWEEN TRADES AS TO THE PLACING OF LINES, DUCTS, CONDUITS, FIXTURES, OR EQUIPMENT, OR SHOULD IT APPEAR DESIRABLE TO REMOVE ANY GENERAL CONSTRUCTION WHICH WOULD AFFECT THE APPEARANCE OR STRENGTH OF THE STRUCTURE.

SUBSTITUTION OF MATERIALS

MANUFACTURER'S NAMES ARE LISTED HEREIN TO ESTABLISH A STANDARD. THE PRODUCTS OF OTHER MANUFACTURERS WILL BE ACCEPTABLE, IF IN THE OPINION OF THE TENANT, THE SUBSTITUTE MATERIAL IS OF A QUALITY AS GOOD OR BETTER THAN THE MATERIAL SPECIFIED, AND WILL SERVE WITH EQUAL EFFICIENCY AND DEPENDABILITY, THE PURPOSE FOR WHICH THE ITEMS SPECIFIED WERE INTENDED.

SHOP DRAWINGS

SHOP DRAWINGS AND CATALOG DATA ON ALL MAJOR ITEMS OF EQUIPMENT AND SYSTEMS, AND SUCH OTHER ILLUSTRATIVE MATERIAL AS MAY BE CONSIDERED NECESSARY BY THE TENANT, SHALL BE SUBMITTED BY THIS CONTRACTOR IN ADEQUATE TIME TO PREVENT DELAY AND CHANGES DURING CONSTRUCTION.

DRAWINGS AND SPECIFICATIONS

A. THE DRAWINGS SHOW DIAGRAMMATICALLY THE LOCATIONS OF THE VARIOUS LINES, DUCTS, CONDUITS, FIXTURES, AND EQUIPMENT AND THE METHOD OF CONNECTING AND CONTROLLING THEM. IT IS NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL AND ALL FITTINGS REQUIRED FOR A COMPLETE SYSTEM.

B. SHOULD ANY CHANGES BE DEEMED NECESSARY BY THE CONTRACTOR IN ITEMS SHOWN ON CONTRACT DRAWINGS, THE SHOP DRAWINGS, DESCRIPTIONS, AND THE REASON FOR THE PROPOSED CHANGES SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL.

RESPONSIBILITY

A. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE SATISFACTORY AND COMPLETE EXECUTION OF ALL WORK INCLUDED IN HIS CONTRACT. HE SHALL PRODUCE COMPLETE FINISHED OPERATING SYSTEMS AND PROVIDE ALL INCIDENTAL ITEMS REQUIRED AS PART OF HIS WORK, REGARDLESS OF WHETHER SUCH ITEM IS PARTICULARLY SPECIFIED OR INDICATED.

B. CONTRACTOR SHALL SUPPLY TO LANDLORD AND TENANT A CERTIFIED BALANCE REPORT AT COMPLETION OF PROJECT. THIS IS REQUIRED FOR BOTH REMODELED AND NEW STORES.

GENERAL PROVISIONS

1. SCOPE: PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE ACCOMPANYING DRAWINGS TO PROVIDE A COMPLETE AND PROPERLY OPERATING PLUMBING SYSTEM FOR THE BUILDING. OBTAIN WATER, SEWER, GAS TAPS, AND ANY OTHER REQUIRED UTILITIES AND EXTEND SERVICE FROM SAME TO BUILDING AS SHOWN ON DRAWINGS. VISIT THE SITE FOR UNDERSTANDING OF THE WORK TO BE DONE BEFORE SUBMITTING BID. COORDINATE THIS WORK WITH THE WORK OF THE OTHER TRADES ON THE PROJECT. ALL PLUMBING IS TO BE ROUGHED IN WHILE THE BUILDING IS BEING CONSTRUCTED AT SUCH TIMES AS NOT TO DELAY THE GENERAL CONTRACTOR ON THE BUILDING.

2. GENERAL REQUIREMENTS: COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS, CODES, RULES, AND ORDINANCES GOVERNING WORK OF THIS CHARACTER. PAY FOR AND OBTAIN NECESSARY CONSTRUCTION PERMITS AND CERTIFICATES OF INSPECTION.

   A. DRAWINGS: THE LOCATION OF THE PIPING RUNS ARE APPROXIMATE AND THE CONTRACTOR MUST MAKE ANY NECESSARY CHANGES IN THE PIPING RUNS, ETC., AT NO ADDITIONAL COST TO THE OWNER. OUTLET LOCATIONS ARE CRITICAL AND MUST BE LOCATED EXACTLY ACCORDING TO THE PLUMBING PLAN. COORDINATE THIS WORK WITH THE INSTALLERS OF EQUIPMENT FURNISHED AND INSTALLED BY OTHERS. REFER TO THE OTHER DRAWINGS FOR DETAILS OF THE BUILDING CONSTRUCTION AND THE OTHER MECHANICAL, ELECTRICAL, AND EQUIPMENT FEATURES.

   B. COORDINATION AND WORKMANSHIP: SCHEDULE THIS WORK SO THAT IT WILL BE PROPERLY COORDINATED WITH ALL OTHER TRADES. WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE BEST PRACTICE FOR THE CLASS OF WORK INVOLVED. WORKMANSHIP SHALL ALLOW THE APPLIANCE TO OPERATE AS INTENDED AND BE INSTALLED TO BEST PROTECT THE PUBLIC AND OPERATORS FROM INJURY OR DAMAGE, AND TO PRESENT A NEAT, PLEASING, AND ORDERLY APPEARANCE.

MATERIALS AND PERFORMANCE

1. MATERIALS: ALL MATERIALS SHALL BE NEW AND OF THE QUALITY INDICATED BY THE SPECIFIED BRAND NAMES. SUBSTITUTIONS OF MATERIAL OF EQUAL QUALITY BY OTHER FIRST-LINE MANUFACTURERS MAY BE ACCEPTABLE PROVIDED A LIST OF SUCH SUBSTITUTIONS IS APPROVED IN WRITING. A SUBSTITUTIONS LIST SHALL BE SUBMITTED IN TRIPLICATE WITHIN FIVE (5) DAYS AFTER THE CONTRACT IS LET.

2. BACKFILLING: PERFORM ALL NECESSARY EXCAVATING AND BACKFILLING REQUIRED FOR THIS INSTALLATION. PREPARE A PROPER BED OF SAND OR GRAVEL OR EQUIVALENT IN ROCK SCREENINGS SO AS TO ELIMINATE SHIMMING AND VOID SPACES UNDER ANY OF THE UTILITY SERVICE PIPES. BENDING OF ANY HARD PIPE WILL NOT BE PERMITTED. WHERE A CHANGE IN DIRECTION IS NECESSARY ON PRESSURE PIPES, "COMPATIBLE" COUPLINGS OR EQUAL SHALL BE USED AND BENDS MAY NOT EXCEED 9O DEGREES. ALL EXCAVATION BELOW THE BOTTOM OF FOOTINGS SHALL BE BACKFILLED WITH 2000 PSI CONCRETE. OTHER BACKFILL SHALL CONSIST OF 2-3" OF SAND OR ROCK SCREENINGS AND EARTH TO A FINAL LEVEL EQUAL TO ITS ORIGINAL CONDITION. IN THE EVENT THE BACKFILL SHOULD SETTLE BEFORE THE FINAL TOP SURFACE IS APPLIED, APPLY ADDITIONAL BACKFILL TO SUSTAIN THE ORIGINAL LEVEL. CARE SHOULD BE TAKEN TO MINIMIZE THE DUST LEVEL WHEN EXCAVATING AND BACKFILLING SO AS TO COMPLY WITH FEDERAL AND STATE E.P.A. REGULATIONS RELATING TO THIS TYPE OF WORK (FUGITIVE DUST).

3. PIPING INSTALLATION: CLEANOUTS MUST BE INSTALLED ON MINIMUM DROP LINES EVEN THOUGH NOT SHOWN ON THE BLUEPRINTS. USE REDUCING FITTINGS IN MAKING REDUCTIONS IN SIZE OF PIPE. REAM ALL PIPE AFTER CUTTING, THEN TURN PIPES ON END AND KNOCK OUT ALL LOOSE DIRT AND SCALE BEFORE INSTALLING. MAKE CHANGES IN HORIZONTAL DIRECTION OF SOIL AND WASTE PIPES WITH LONG RADIUS FITTINGS OR WITH "Y" BRANCHES AND 1/8 OR 1/16 BENDS. CONNECT SOIL STACKS AT BASE TO HORIZONTAL RUNS WITH "Y" CONNECTIONS. WATER SUPPLY PIPES TO FIXTURES AND WASTE PIPES FROM FIXTURES SHALL BE CENTERED IN THE PROPER PLACE RELATIVE TO THE CENTER LINE OF THE FIXTURE. NO OFFSETS WILL BE ALLOWED. ALL PIPES SHALL BE RUN MECHANICALLY STRAIGHT AND SQUARE WITH BUILDING LINES, EXCEPT FOR REQUIRED PITCH ON HORIZONTAL LINES, AND ALL CHANGES IN DIRECTION SHALL BE MADE WITH FITTINGS. WATER PIPING TO BE ROUTED IN WALLS, UNDER THE FLOOR SLAB, AND ABOVE SUSPENDED CEILINGS AS NOTED. WHERE WATER LINES ARE ROUTED UNDER THE FLOOR SLAB, NO MECHANICAL JOINTS SHALL BE MADE UNDER THE SLAB EXCEPT AS LISTED BELOW. WATER PIPING SHALL BE INSTALLED NOT TO EXERT VERTICAL NOR HORIZONTAL STRESSES ON THE SEATING OF UNIONS. UNIONS SHALL BE COPPER TYPE NIBCO #733 OR EQUAL. NO WAX, PUTTY, OR VARNISH WILL BE PERMITTED. CRACKED FITTINGS SHALL BE REMOVED AND REPLACED WITH NEW FITTINGS. MAKE THREADED JOINTS IN BRASS PIPE AND FITTINGS WITH PIPE THREADING TO THE SHOULDER OF THE FITTINGS. NO SLIP JOINTS OR COUPLING JOINTS IN BRASS PIPE WILL BE PERMITTED, EXCEPT ON THE FIXTURE SIDE OF THE TRAP.

4. NATURAL GAS PIPING: FOR ABOVE GROUND INSTALLATIONS, ALL FITTINGS TO BE JOINED WITH TEFLON TAPE SEAL OR OTHER SUITABLE SEAL AND MADE IN CONFORMANCE WITH THE BEST PRACTICES OF AGA AND NFPA 54. UNIONS SHALL BE CAST BLACK IRON AND INSTALLED IN A MANNER SUCH THAT NO STRESS WILL BE PLACED ON THE MALE-FEMALE SEALING SURFACES. PROPER ALIGNMENT WILL BE MADE AT TIME OF INSTALLATION. ALL JOINTS AND CONNECTIONS SHALL BE THOROUGHLY CLEANED OF OIL, THREAD CUTTINGS AND RESIDUALS TO ACCEPT ENAMEL PAINT. ROUGH OR SHARP EXPOSED THREAD SURFACES SHALL BE FILED SMOOTH. TESTING SHALL BE AS OUTLINED UNDER SECTION 15A, PARAGRAPH 11, TESTS.

5. WATER PIPE: JOINTS SHALL BE CLEANED AND DEBURRED AS RECOMMENDED BY THE MANUFACTURER AND FEDERAL, STATE, AND LOCAL CODES AND SOLDERED AS LISTED BELOW. FLUX SHALL BE NON-CORROSIVE. ABOVE GRADE - WHERE FITTINGS ARE SOLDERED BOTH FITTINGS AND TUBING SHALL BE CLEANED AS DESCRIBED ABOVE. UNDER NO CIRCUMSTANCES SHALL DISSIMILAR METALS COME INTO DIRECT CONTACT WITH COPPER TUBING; E.G., GALVANIZED STRAPPING, HANGERS, OR CLAMPS TO SECURE THE TUBING. BELOW GRADE, OR FLOOR SLAB ON EARTH OR STONE FILL - HIGH TEMPERATURE, SOLDER, 1200 DEG. F OR GREATER MELTING POINT. NOTE: WATER PIPE TO BE PROPERLY SECURED AND ALIGNED SO AS NOT TO EXERT VERTICAL OR HORIZONTAL STRESSES ON THE SEATING OF THE MATING (MALE AND FEMALE) SURFACES OF THE UNIONS.
   A. MATERIALS - UNDERGROUND: TYPE "K" COPPER TUBE, SOFT TEMPER
   B. MATERIALS - ABOVEGROUND: TYPE "L" COPPER TUBE, HARD DRAWN.
   C. INSULATION: INSULATION FOR HOT AND COLD WATER PIPING SHALL BE 1/2" (1" ON 1ST 8 FT. FROM TANK) THICK ARMAFLEX UL LABELED OR FIBERGLASS 25 WITH ASJ/SSL FOIL/VINYL JACKET OR EQUAL. INSULATE ALL PIPING AND FITTINGS.

6. GAS PIPING A. GAS PIPING ABOVE GROUND: ASTM A53, SCHEDULE 40 BLACK STEEL WITH 125 POUND BLACK MALLEABLE IRON SCREWED FITTINGS. INSTALL MOISTURE TRAPS ON HVAC UNITS AND KITCHEN EQUIPMENT. B. GAS PIPING COMPOUND AT JOINTS; IN COMPLIANCE WITH NFPA BULLETIN #54 AND LOCAL APPLICABLE CODES AND SUITABLE FOR NATURAL GAS SERVICE.

7. WASTE PIPING: INSTALL HORIZONTAL DRAIN AND WASTE PIPES WITH MIN. 1/8"/FT. SLOPE. MATERIALS: PVC SCH. 40, CAST IRON - HUB TYPE WITH NEOPRENE JOINTS - WITH STAINLESS STEEL CONNECTORS WHEN PVC IS NOT ALLOWED PER LOCAL CODE.

8. PIPE SLEEVES/ESCUTCHEONS: PROVIDE CHROME-PLATED ESCUTCHEONS ON ALL PIPES PASSING THROUGH WALLS, FLOORS, OR CEILINGS OF FINISHED ROOMS. ESCUTCHEONS TO BE BEATON & CADWELL, #10, 40, 6A OR EQUIVALENT WITH SET-SCREWS. PROVIDE ESCUTCHEONS ON ALL WASTE LINES FROM PLUMBING FIXTURES, WHETHER THROUGH WALLS, FLOORS, AND WHETHER CONCEALED BEHIND COUNTERS OR EXPOSED. PIPE SLEEVES SHALL BE PROVIDED WHEN PIPES PENETRATE FOUNDATION AND SHALL BE 1" LARGER THAN PIPE, SEAL SLEEVE W/CAULKING.

9. PLUMBING FIXTURES: FURNISH AND INSTALL PLUMBING FIXTURES AS SHOWN ON DRAWINGS WITH ALL ACCESSORIES AND TRIM AS LISTED. ALL FIXTURES SHALL BE PROTECTED THROUGH THE COURSE OF THE CONSTRUCTION. ANY FIXTURE DAMAGED SHALL BE REPLACED WITHOUT ADDITIONAL EXPENSE TO THE OWNER.

10. CONNECTION TO OTHER FIXTURES: CONNECT BUILDING SERVICE PIPING, INCLUDING BUT NOT LIMITED TO WATER, DRAIN, AND GAS PIPES TO FOOD SERVICE EQUIPMENT AS INDICATED IN EQUIPMENT SPECIFICATIONS. PROVIDE BACKFLOW PROTECTION ON ICE MACHINES AND BEVERAGE EQUIPMENT SUPPLY CONNECTIONS. CONTRACTOR SHALL PROVIDE TRAPS, VALVES AND ACCESSORIES FOR A COMPLETE SYSTEM.

11. TESTS:
    A. DRAINAGE AND VENT PIPING - DRAINAGE AND VENT PIPING SHALL BE TESTED BEFORE THE PLUMBING FIXTURES ARE INSTALLED BY CAPPING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER AND ALLOWING IT TO STAND THUS FILLED NOT LESS THAN ONE (1) HOUR. INSPECT WATER LEVEL TO DETERMINE IF PIPING IS TIGHT.
    B. WATER PIPING - THE WATER SUPPLY PIPING LINES SHALL BE TESTED BEFORE THE PLUMBING FIXTURES ARE CONNECTED BY FILLING THE ENTIRE SYSTEM WITH POTABLE WATER AND APPLYING HYDROSTATIC PRESSURE OF 100 PSI AND ALLOWING TO STAND FOR NOT LESS THAN FOUR (4) HOURS AT THIS PRESSURE TO PROVE PLUMBING INTEGRITY.
    C. GAS PIPING - IN LIEU OF LOCAL REQUIREMENTS, GAS PIPING SHALL BE FILLED WITH COMPRESSED AIR TO 150 PSI AND HELD FOR A PERIOD OF FOUR (4) HOURS. EACH JOINT SHALL BE CHECKED BY LIQUID SOAP OR SPECIAL LIQUID CHEMICAL FOR LEAKS. NOTE: REMOVE ALL GAS VALVES AND PROTECT FROM DAMAGE BEFORE TESTING SYSTEM.

13. DISINFECTION OF POTABLE WATER SYSTEM: UPON COMPLETION OF INSTALLATION DISINFECT THE WATER SYSTEM BY FILLING IT WITH SOLUTION CONTAINING 50 PARTS PER MILLION OF CHLORINE AND ALLOW IT TO STAND FOR NOT LESS THAN SIX (6) HOURS BEFORE FLUSHING THOROUGHLY AND RETURNING TO SERVICE. FURNISH CLEAN WATER SAMPLES TO THE LOCAL AUTHORITY FOR TESTING AFTER THE LINES HAVE BEEN DISINFECTED. THIS PROCEDURE TO BE IN ACCORDANCE WITH STATE PLUMBING CODE.

14. CLEANUP: CLEAN ALL PLUMBING FIXTURES AND EQUIPMENT THOROUGHLY BEFORE FINAL INSPECTION, LEAVING ALL READY FOR USE.

15. GUARANTEE: MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE. DEFECTIVE WORK AND ALL DAMAGES CAUSED THEREBY WHICH MAY OCCUR DURING THE TERM OF THE AFOREMENTIONED GUARANTEE WILL BE REPAIRED AND/OR REPLACED AT NO EXPENSE TO THE OWNER.

16. OWNER'S MANUAL: PROVIDE THE OWNER, AT THE COMPLETION OF THIS CONTRACT, WITH AN "OWNER'S MANUAL" SO LABELED. THE MANUAL SHALL CONSIST OF A THREE-RING LOOSE-LEAF BINDER CONTAINING ALL PRINTED MATTER SUCH AS: GUARANTEE CARDS, CLEANING INSTRUCTIONS, NOTICES TO OWNER, OPERATING MANUALS, AND MAINTENANCE INSTRUCTIONS THAT MAY BE CONTAINED IN THE SHIPPING CARTONS OR EQUIPMENT HOUSINGS.

WATER HEATER SCHEDULE

MARK	MFR	MODEL	STORAGE	GPM	°F. RISE	VOLT/PHASE	HEAT INPUT	REMARKS
P403	NAVIEN	NPE-240	-	5	100	120/1	199 MBH	-
P403	NAVIEN	NPE-240	-	5	100	120/1	199 MBH	

KITCHEN EQUIPMENT SCHEDULE

ITEM NUMBER	DESCRIPTION	MFR	MODEL	SUPP	INST
P200	FREESTYLE SODA DISPENSER	COCA-COLA	FREESTYLE	VENDOR	GC
P211	TEA DISPENSER (GOLDEN PEAK)	COCA-COLA	VARIETY TEA TOWER	VENDOR	GC
P220	ICE MACHINE	HOSHIZAKI	KM-660MAJ W/ HS-0239	OWNER	GC
E311	GAS GRIDDLE (36")	MAGIKITCH'N	FG-MKG36-STL	OWNER	GC
E315	GAS GRIDDLE (60")	MAGIKITCH'N	FG-MKG60-STL	OWNER	GC
E306	GAS FRYER	PITCO	FG-SGH50/FD/50/BT/50-2	OWNER	GC
E121	C02	CHART MVE	CARBO-MIZER 450	VENDOR	GC
E111	BAG-IN-BOX	MCCANN'S	15-3433	VENDOR	GC
E220	ICE MACHINE	HOSHIZAKI	KML451MAH, KM350MAJ	OWNER	GC
P511	OIL RECYCLING SYS - EXTERIOR	FRONTLINE	3072-NA-O	OWNER	GC
P520	OIL RECYCLING SYS - INTERIOR CADDY	FRONTLINE	LS-1-60GG	OWNER	GC
P100	HAND SINK WITH SIDE SPLASH	SOUTHERN STAINLESS	FG-007	OWNER	GC
P120	4 COMPARTMENT POWERSOAK SINK	UNIFIED BRANDS	PS-8146B-L (OR) R	OWNER	GC
P111	4 COMPARTMENT WAREWASH SINK WALL MOUNT PRE-RINSE ASSEMBLY DRAIN MASTER ROTARY DRAIN	SOUTHERN STAINLESS ENCORE ENCORE	FG-175-L (OR) R KLP53-10L4-AF4 DSS-8000	OWNER	GC
P130	MOP SINK & FAUCET (36"x24")	FIAT	36EFS: MSB-3624 AA 889 CC, & 832AA	GC GC	GC
P410	WATER BOOSTER	MCCANN'S	16-2172	VENDOR	GC
P421	WATER FILTER	3M	DIDF265-CL	OWNER	GC

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	SAN.	VENT	C.W.	H.W.	REMARKS
P300	LAVATORY, WALL MOUNTED ZURN MODEL Z5344	2"	2"	1/2"	1/2"	ZURN Z6915-XL-15CT FAUCET 1.5 GPM VANDAL RESISTANT AERATOR (CHROME PLATED), RIM. 34" MAX A.F.F.
P310	WATER CLOSET, FLUSH VALVE ZURN MODEL Z5665.214	4"	2"	1-1/2"	-	ZURN - SEAT- Z5955SS-EL, SEAT - 17" TO 19" A.F.F. Z5972-COMB WAX RING.
P312	URINAL, ZURN MODEL Z5755.196 (ADA)	2"	2"	3/4"	-	ZURN FLUSH VALVE MODEL Z6003AV-EWS (.5 GPF)
WCO	WALL CLEANOUT ZURN Z1446-3-VP	-	-	-	-	SQUARE OR RECTANGULAR FRAMES WITH HINGED LOCKED DOOR, FACE-OFF WALL TYPE
FD-1	FLOOR DRAIN ZURN ZS415S-3NH-SQ	3"	2"	-	-	HEAVY DUTY SQUARE SS STRAINER AND TRAP PRIMER.
AD-1	AREA DRAIN ZURN Z610-3NH-P	3"	2"	-	-	SQUARE TOP DRAIN, DURA-COATED CAST IRON BODY WITH TRAP PRIMER CONNECTION.
FS-1	FLOOR SINK ZURN Z1900-3NH	3"	2"	-	-	12"X12", 6" DEEP INDIRECT SANITARY WASTE DRAIN. A.R.E. LOOSE SET 1/2 GRATE
TMV-1	THERMOSTATIC MIXING VALVE ZURN 38-ZW3870XLT	-	-	3/8"	3/8"	PROVIDE 105° OUTLET TEMPERATURE
TMV-2	THERMOSTATIC MIXING VALVE ZURN ZW1070XL	-	-	1/2"	1/2"	PROVIDE 110° OUTLET TEMPERATURE
CP-1	CIRCULATING PUMP TACO MODEL 003	-	-	-	3/4"	115V, 3250 RPM, PROVIDE WITH AQUASTAT
BFP-1	BACKFLOW PREVENTER ZURN 12-760XLC (DUAL CHECK)	-	-	-	-	ASSE #1012, PRE RINSE (VERIFY WITH AHJ IF REQUIRED)
BFP-2	BACKFLOW PREVENTER ZURN 34-35XL (VACUUM BREAK)	-	-	-	-	ASSE #1001, MOP SINK
BFP-3	BACKFLOW PREVENTER ZURN 12-375XL (RPZBFP)	-	-	-	-	ASSE #1013, CHEMICAL FEED, DOMESTIC SERVICE
BFP-4	BACKFLOW PREVENTER ZURN MODEL 740 (DUAL CHECK)	-	-	-	-	ASSE #1022, SODA MACHINE
BFP-5	BACKFLOW PREVENTER ZURN MODEL 975XLST (RP BACKFLOW)	-	-	-	-	ASSE #1013, STAINLESS STEEL, TEA DISPENSER, ICE MACHINE
TD-1	TRENCH DRAIN ZURN Z883	3"	2"	-	-	30" LONG, PROVIDE FABRICATED STAINLESS STEEL SLOTTED GRADE - CLASS A
HB-1	HOSE BIB WOODFORD MODEL B65	-	-	3/4"	-	FREEZELESS WALL HYDRANT WITH SINGLE CHECK HOSE CONNECTION ANTI-SIPHON VACUUM BREAKERS AND TEE KEY. ASSE STANDARD 1019-B.

GENERAL PLUMBING NOTES

1. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF THE WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS, AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY THE ARCHITECT OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.

2. FURNISH A CONSTRUCTION RECORD SET OF "AS-BUILT" DOCUMENTS TO THE OWNER REFLECTING ANY VARIANCES OF INSTALLED PIPING LOCATIONS OR EQUIPMENT CONTRARY TO THE CONSTRUCTION DOCUMENTS PREPARED BY THE ENGINEER-OF-RECORD AFTER FINAL INSPECTION OF INSTALLED PLUMBING SYSTEMS.

3. FURNISH TO THE OWNER A COPY OF INSPECTION REPORTS AND APPROVAL CERTIFICATES FROM THE LOCAL AND STATE INSPECTIONS.

4. PLANS AND SPECIFICATIONS GOVERN WHERE THEY EXCEED CODE REQUIREMENTS.

5. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF PLUMBING FIXTURES.

6. DO NOT SCALE FLOOR PLANS FOR EXACT HORIZONTAL LOCATION OF PIPE ROUTING.

7. VALVES SHALL BE LINE SIZE UNLESS OTHERWISE NOTED AND INSTALLED AT EVERY FIXTURE SUPPLY AND GROUPING TO ALLOW FOR MAINTENANCE. VALVES ARE NOT ALL SHOWN ON PLAN. COORDINATE IN FIELD.

8. PIPING IN FINISHED AREAS SHALL BE ROUTED CONCEALED; EXPOSED PIPING, WHERE NECESSARY, SHALL BE ROUTED AS HIGH AS POSSIBLE AND TIGHT TO WALLS.

9. COORDINATE ALL WITH WITH OTHER TRADES AND CONTRACTORS.

10. COORDINATE PIPING INSTALLATION WITH STRUCTURAL GRADE BEAMS, FOOTINGS, COLUMN PIERS, ETC. SLEEVE PIPING THROUGH GRADE BEAMS, FOOTING, ETC. WHERE REQUIRED AND AS NOTED ON PLANS. COORDINATE SLEEVE INSTALLATIONS WITH THE ARCHITECT, STRUCTURAL ENGINEER, STRUCTURAL CONTRACTOR, AND GENERAL CONTRACTOR BEFORE CONCRETE IS INSTALLED.

11. CLEAN FAUCET AERATORS AND PIPE STRAINERS PRIOR TO TURNING BUILDING OVER TO THE OWNER.

12. PROVIDE TRAP PRIMERS WHERE REQUIRED BY LOCAL AUTHORITIES.

13. COORDINATE PIPE ROUTING AWAY FROM ELECTRICAL PANELS. DO NOT ROUTE PIPING OVER ELECTRICAL PANELS.

14. PAINT ALL EXPOSED GAS PIPING USING RUST INHIBITOR PAINT. PAINT AND COLOR SHALL BE COORDINATED WITH THE ARCHITECT AND / OR OWNER.

15. COORDINATE ALL ROOF PENETRATIONS WITH OTHER TRADES. MAINTAIN 10' MINIMUM CLEARANCE FROM ALL AIR INTAKES. MAINTAIN 2' CLEARANCE FROM ALL OTHER EQUIPMENT.

16. INSULATE PIPING ROUTED IN EXTERIOR BUILDING WALLS WITH MINIMUM 2" BATT INSULATION TO PREVENT FREEZING. ALL OTHER COLD AND HOT WATER LINES SHALL BE INSULATED WITH MINIMUM OF 3/4" FIBERGLASS INSULATION.

17. PROVIDE SHIELDED ADAPTER COUPLINGS FOR CONNECTION OF PVC DWV TO CAST IRON AT SLAB ON GRADE. SEE DIVISION 15 SPECIFICATION SECTION "DRAINAGE AND VENT SYSTEMS" FOR MORE INFORMATION.

18. WATER HAMMER ARRESTORS SHALL BE SIZE "A" UNLESS NOTED OTHERWISE AND PROVIDED ON ALL FIXTURES..

19. PROVIDE CHECK VALVES IN HOT AND COLD WATER SUPPLIES FOR MOP SINK FAUCETS DOWNSTREAM OF SHUTOFF VALVES.

20. AIR PIPING MUST BE BLED THOROUGHLY PRIOR TO CONNECTING TO TOOLS OR EQUIPMENT.

PLUMBING SYMBOLS LEGEND

— G —	GAS PIPING
— CD —	CONDENSATE DRAIN PIPING
— - —	COLD WATER PIPING
—- - —	HOT WATER PIPING (140°)
—- - - - —	HOT WATER RECIRCULATING PIPING
—SAN—	SANITARY WASTE PIPING
—FW—	FILTERED WATER PIPING
—140°—	140° WATER PIPING
—GW—	GREASE WASTE PIPING
- - - - - -	SANITARY VENT PIPING
VTR	VENT THROUGH ROOF
——⊃○	PLUMBING TRAP
——⊃	PIPE TURNING DOWN
——○	PIPE TURNING UP
—N—	CHECK VALVE
—‖—	UNION
AFF	ABOVE FINISHED FLOOR
CO	CLEAN OUT
—○—	PRESSURE REGULATING VALVE (PRV) (50 PSI)
—●—	BALL VALVE
∅	BALANCE VALVE
EWF	ELECTRIC WATER FOUNTAIN
GCO	GRADE CLEAN OUT
⊥	CIRCUIT SETTER BALANCE VALVE
⊗	POINT OF CONNECTI0N

MUNICIPAL APPROVAL STAMPS

ARCHITECT OF RECORD

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CERTIFICATE OF AUTHORITY NO. 5613

TOLEDO, OH
6920 CENTRAL AVENUE
TOLEDO, OH 43617
FGE
PROJECT NUMBER: 24-XXX

ISSUE DATE

REV	ISSUE	DATE
	PERMIT LL BID	07-12-2024

SEAL

STATE OF OHIO
MATTHEW RICHARD CASE
PE.85398
REGISTERED PROFESSIONAL ENGINEER
07-12-2024

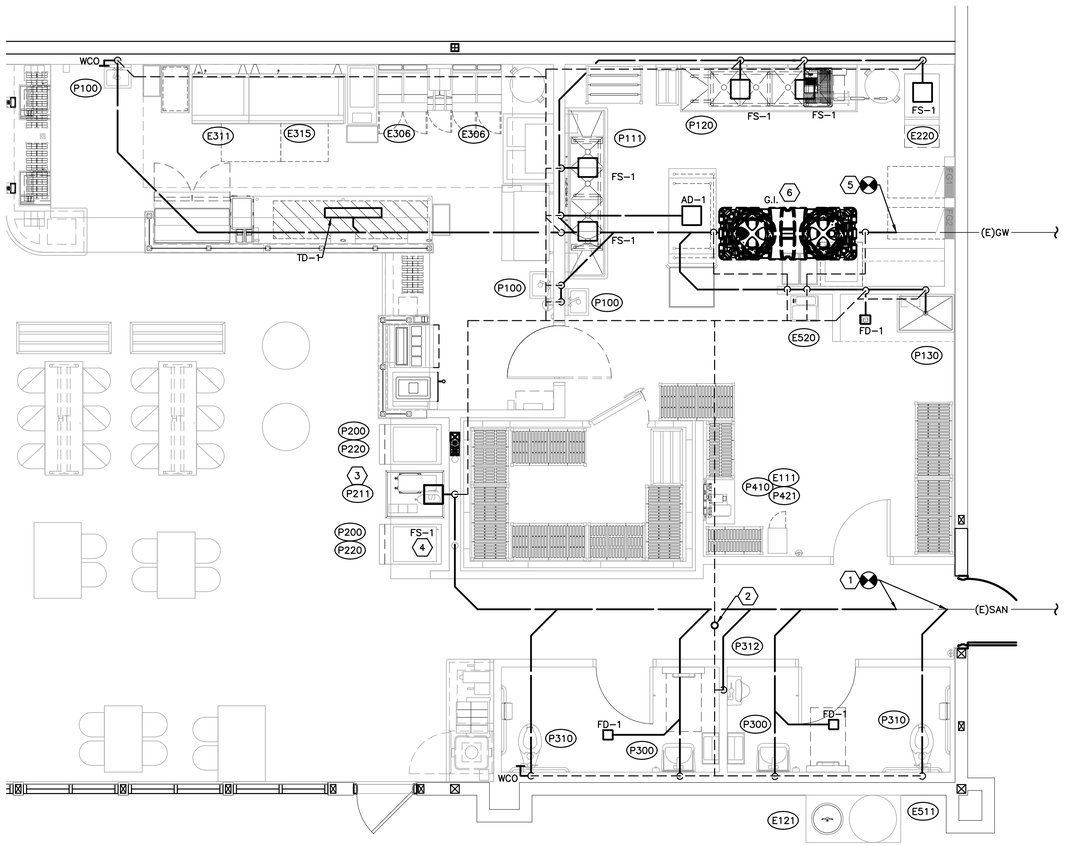
SHEET TITLE

PLUMBING SPECS, SCHED'S. & DETAILS

SHEET NUMBER

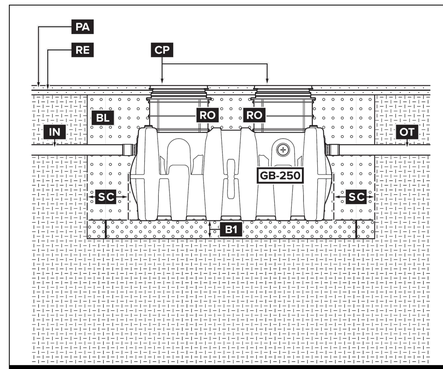
P1.0

KITCHEN EQUIPMENT SCHEDULE	
ITEM NUMBER	DESCRIPTION
P200	FREESTYLE SODA DISPENSER
P211	TEA DISPENSER (GOLDEN PEAK)
P220	ICE MACHINE
E311	GAS GRIDDLE (36")
E315	GAS GRIDDLE (60")
E306	GAS FRYER
E121	C02
E111	BAG-IN-BOX
E220	ICE MACHINE
P511	OIL RECYCLING SYS - EXTERIOR
P520	OIL RECYCLING SYS - INTERIOR CADDY
P100	HAND SINK WITH SIDE SPLASH
P120	4 COMPARTMENT POWERSOAK SINK
P111	4 COMPARTMENT WAREWASH SINK WALL MOUNT PRE-RINSE ASSEMBLY DRAIN MASTER ROTARY DRAIN
P130	MOP SINK & FAUCET (36"x24")
P410	WATER BOOSTER
P421	WATER FILTER
P300	LAVATORY
P310	WATER CLOSET
P312	URINAL
P403	WATER HEATER



1 PLUMBING FLOOR PLAN - SAN & VENT
SCALE: 1/4" = 1'-0"

TABLE TO CALCULATE DRAINAGE FIXTURE UNITS			
PLUMING FIXTURE	DRAINAGE FIXTURE UNITS	NUMBER OF FIXTURES	TOTAL DRAINAGE FIXTURE UNITS
WATER CLOSET	4	2	8
LAVATORIES	1	2	2
HAND SINKS	2	3	6
FLOOR/HUB DRAIN	5	1	5
EMERGENCY FLOOR DRAIN	0	2	0
FLOOR SINKS	5	6	30
MOP SINK	2	1	2
EMERGENCY AREA/TRENCH DRAINS	0	2	0
	TOTAL DRAINAGE UNITS		53
WASTE PIPE SIZE= 4"			



B1 6" minimum compacted base (clean aggregate 3/4" in size or smaller)

BL Backfill (clean aggregate 3/4" in size or smaller) - DO NOT COMPACT BACKFILL MECHANICALLY

CP Pedestrian rated bolted composite cover

IN 4" diameter inlet pipe

OT 4" diameter outlet pipe

PA Minimum 4" thick concrete pad with rebar required for pedestrian traffic or greenspace areas. Concrete to be 28 day compressive strength to 4,000 PSI.

RE No. 4 rebar, grade 60 steel

RO FCR2 field cut riser to grade

SC 12" clear all sides

DETAIL Five Guys - Toledo, OH — Indoors, Below Grade

GB-250 GREASE INTERCEPTOR 100 GPM / 200 GPM, 4" PLAIN/FPT CONNECTIONS, PEDESTRIAN RATED COMPOSITE COVERS

Disclaimer: this Detail represents manufacturer directed guidance regarding the grease interceptor system. The contents of this document are not a substitute for local jurisdiction requirements and plumbing code standards. Please follow all local ordinances when installing.

SCHIER
LIFETIME GUARANTEED
GREASE INTERCEPTORS
schierproducts.com

NOTE:

- 4-COMPARTMENT SINKS AND ICE MACHINE ARE INDIRECTLY PLUMBED, WITH CODE APPROVED AIR GAP.
- PIPING IN KITCHEN, DISH AREAS, SERVICE AREAS, AND MOP SINK AREAS MUST BE SPACED FROM WALLS/ FLOORS TO ALLOW CLEANING BEHIND THEM.

GENERAL NOTES

1. VENT LINE TO BE SLOPED AT 1%.
2. SANITARY LINE TO BE SLOPED AT 2% FOR PIPES 2-1/2" AND SMALLER, PIPES TO BE SLOPED AT 1% FOR 3 TO 6".
3. ALL THE PLUMBING MUST BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2010 FBC PLUMBING, IN THE PRESENCE OF THE PLUMBING INSPECTOR.
4. VENT TERMINAL INCREASER FITTING SHALL HAVE A DIAMETER AT LEAST ONE INCH GREATER THAN THAT OF THE STACK IT SERVES, BUT NOT LESS THAN THREE INCHES IN DIAMETER.
5. THE USE OF VISIBLE COLORED PRIMER FOR ALL PVC GLUED JOINTS IS REQUIRED.
6. FOR PVC PIPE FOR SEWER, CLEAN GRAVEL OR OTHER APPROVED MATERIAL SHALL BE USED AS BEDDING AND BACKFILL. A MINIMUM OF 4 INCHES OF BEDDING MATERIAL SHALL BE PLACE IN THE TRENCH THROUGHOUT THE ENTIRE LENGTH OF THE SEWER BEFORE ANY PIPE IS INSTALLED. AFTER INSPECTION APPROVAL, 12 INCHES OF BACKFILL MATERIAL SHALL BE REQUIRED OVER THE TOP OF THE PIPE.
7. HANGERS, ANCHORS, AND SUPPORTS SHALL BE SECURELY ATTACHED TO THE BUILDING STRUCTURE AT INTERVALS AS REQUIRED BY CODE.
8. CONTACT CITY OFFICIAL TO INSPECT EXTERIOR CLEAN-OUT ASSEMBLY, PRIOR TO BACK FILL THEN AFTER ITS CONCRETE IS IN PLACE.
9. PLEASE CONTACT CITY OFFICIAL TO COORDINATE AN INSPECTION OF THE INSTALLED FIXTURES (AS DESIGNATED IN THE PLUMBING FIXTURE SCHEDULE) THAT ARE TO BE CONNECTED TO THE GREASE WASTE AND SANITARY PIPING.
10. PRIOR TO MAKING ANY REVISIONS TO FIXTURES CONNECTED TO THE GREASE WASTE PIPING, PLEASE CONTACT CITY OFFICIAL FOR PRIOR APPROVAL.
11. FAILURE TO CONTACT CITY OFFICIAL FOR AN INSPECTION OF THE KITCHEN FIXTURES, GREASE TRAP AND EXTERIOR CLEAN OUT, AS NOTED IN ITEM 8 AND 9 ABOVE, WILL RESULT IN NOT SIGNING OFF ON ITS END OF THE C OF O.
12. CHEMICAL FEED FOR THE MOP SINK TO BE CONNECTED TO COLD WATER LINE. CHEMICAL FEED FOR TRIPLE COMPARTMENT SINK TO BE CONNECTED TO TEMPERED WATER LINE.
13. SURFACE MOUNTED PIPING IS NOT ACCEPTABLE. PIPING AND CONDUITS OF ALL PIPES MUST BE CONCEALED WITHIN WALLS, FLOORS AND CEILINGS.
14. VENTING ABOVE HIGH RIM, 6" MINIMUM.

GREASE INTERCEPTOR CALCULATIONS

Reference No. 69884 — Project Name: Five Guys - Toledo, OH

Step 1: Flow rate to grease interceptor

Fixture flow rate: (cu in / 231) = gal x 0.75 / 2 min = 2 min flow rate

NAME	TYPE	DIMENSIONS	QTY	CU IN	FLOW RATE
4 Compartment Sink	4 Compartment Sink	21" x 21" x 14" (4)	2	49,392	80.18 GPM
Floor Drain Emergency	Floor Drain Emergency	N/A	1	N/A	0 GPM
Floor Sink	Floor Sink	N/A	6	N/A	0 GPM
Hand Sink	Hand Sink	10" x 14" x 5"	3	2,100	3.42 GPM
Ice Machine (with drain)	Ice Machine (with drain)	N/A	1	N/A	0.5 GPM
Mop Basin	Mop Basin	24" x 24" x 10"	1	5,760	9.35 GPM
Total					**93.44 GPM**

Flow rate used to size interceptor (less of fixture or pipe size)
Pipe size (4 in):
Pipe Size flow rate per Manning's Formula **75 GPM**

Step 2: Grease Production

Servings per day x Grease production value x Days between pump-outs = Grease output

Servings per day: 350
Grease production value: 0.035 lbs per serving (Fast Food - Full Prep: High / No flatware)
Days between pump-outs: 90 days

350 x 0.035 x 90 = 1102.5 lbs of FOG

SCHIER MODEL	
GB-250	**Description:** GREASE INTERCEPTOR 100 GPM / 200 GPM, 4" PLAIN/FPT CONNECTIONS, PEDESTRIAN RATED COMPOSITE COVERS **Dimensions:** Length: 87", Width: 33", Height: 44" **Flow Rate/Grease Capacity:** 100 GPM / 1895 lbs **Liquid Capacity:** 277 gal

Specification Note: This Great Basin model has been sized to the flow rate and grease production requirements of the application and may not be substituted by liquid capacity alone. Any substitution requests must be approved by the specifying engineer and the authority having jurisdiction.

Please contact support@schierproducts.com for technical and procurement support for the specified Great Basin model.

PLUMBING KEYED NOTES

1. ROUTE TO CONNECT TO EXISTING SANITARY PIPING IN SPACE. VERIFY INVERT ELEVATION, LOCATION, SIZE AND DIRECTION OF FLOW PRIOR TO ANY WORK. CONTACT ENGINEER IF ANY DISCREPANCIES ARE DISCOVERED.
2. NEW SANITARY VENT PIPING THROUGH ROOF. MAINTAIN MINIMUM 10'-0" FROM OUTSIDE AIR INTAKES. VERIFY EXACT LOCATION IN FIELD.
3. PROVIDE CORROSION RESISTANT WASTE AND VENT PIPING FROM SODA DISPENSER FLOOR SINK TO THE TIE-IN WITH THE NEXT DOWNSTREAM FLUSHING FIXTURE AND VENT (DMV PVC IS COMMONLY USED FOR THIS PURPOSE).
4. ROUTE CONDENSATE FROM COOLERS TO INDIRECTLY DRAIN INTO FLOOR SINK.
5. ROUTE TO CONNECT TO EXISTING GREASE PIPING STUBBED TO SPACE. VERIFY EXACT LOCATION, INVERT ELEVATION, AND DIRECTION OF FLOW PRIOR TO ANY WORK.
6. NEW GB-250 SCHIER GREASE INTERCEPTOR. SEE CALCULATIONS AND INSTALLATION REQUIREMENTS ON THIS SHEET. FURNISHED AND INSTALLED BY LANDLORD. VERIFY EXACT LOCATION AND INVERT ELEVATION WITH OWNER AND LANDLORD PRIOR TO ANY WORK.

MUNICIPAL APPROVAL STAMPS

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TOLEDO, OH 43617
FGE PROJECT NUMBER 24-XXX

ISSUE DATE		
REV	ISSUE	DATE
	PERMIT LL BID	07-12-2024

SEAL

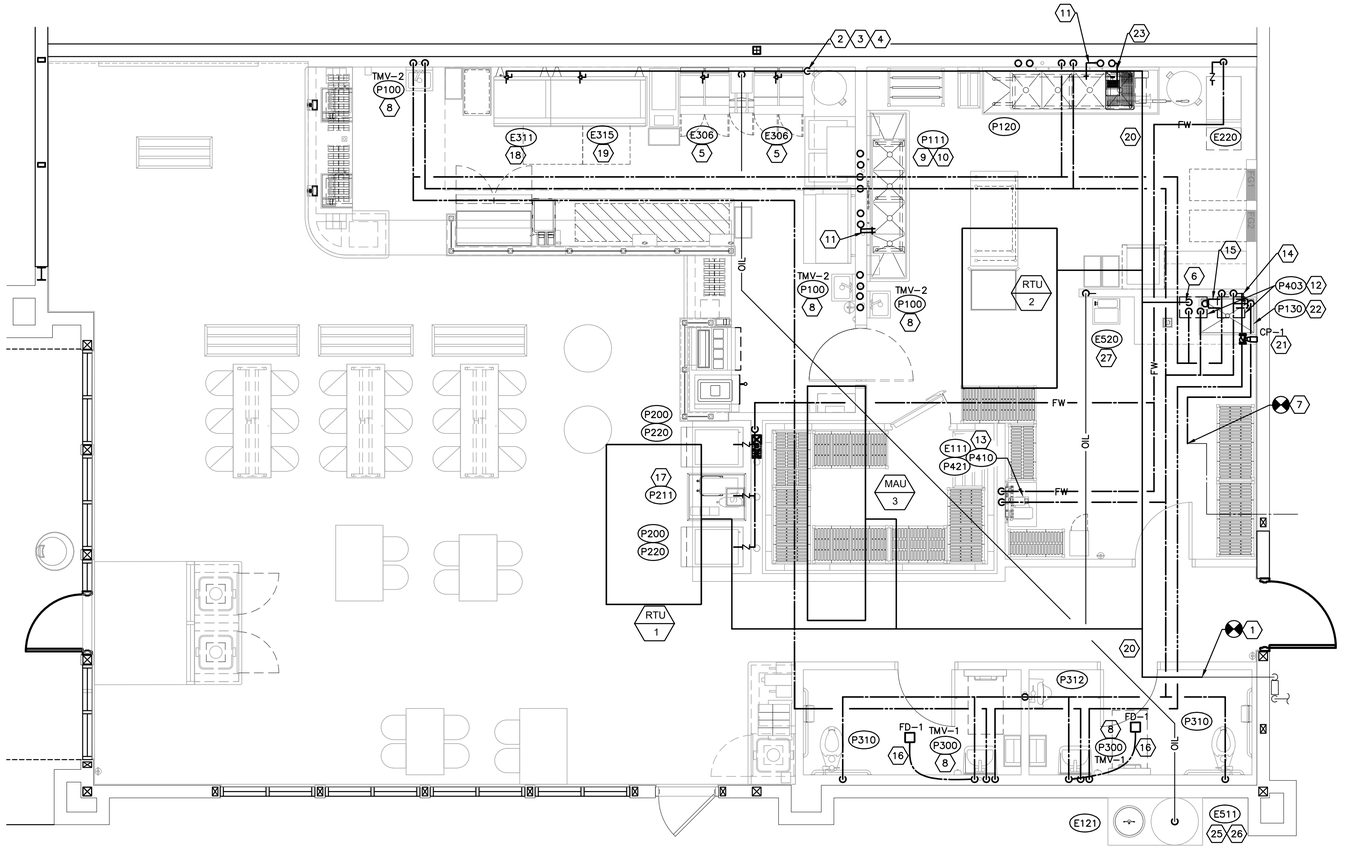
07-12-2024

SHEET TITLE

FLOOR PLAN- SAN & VENT

SHEET NUMBER

P2.1



1 PLUMBING FLOOR PLAN - CW, HW & GAS
SCALE: 1/4" = 1'-0"

NOTE:
SYSTEMS WHERE QUICK ACTING VALVES ARE INSTALLED SHALL BE PROVIDED WITH WATER HAMMER ARRESTORS AND SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO QUICK ACTING VALVES.

NOTE:
PLUMBING CONTRACTOR TO VERIFY GAS PRESSURE AT RTU'S, INSTALL GAS PRESSURE REGULATORS AS NEEDED AT UNITS IF NOT HANDLED AT METER.

NOTE:
ALL GAS ON ROOF MUST BE PAINTED YELLOW.

NOTE:
- PIPING IN KITCHEN, DISH AREAS, SERVICE AREAS, AND MOP SINK AREAS MUST BE SPACED FROM WALLS/ FLOORS TO ALLOW CLEANING BEHIND THEM.

NOTE:
- WATER IS SERVED FREE AT SODA DISPENSER.
- PLUMBING CONTRACTOR TO VERIFY THE NEED FOR A GAS PRESSURE REGULATOR IN FIELD PRIOR TO WORK
- PROVIDE DUAL CHECK VALVE (BFP-1) FOR 4-COMPARTMENT SINKS IF REQUIRED BY CODE/ LOCAL ORDINANCE.
- PC TO TEST WATER PRESSURE OF LL PROVIDED WATER SERVICE. PROVIDE WATER BOOSTER AS NEEDED.

KITCHEN EQUIPMENT SCHEDULE

ITEM NUMBER	DESCRIPTION
P200	FREESTYLE SODA DISPENSER
P211	TEA DISPENSER (GOLDEN PEAK)
P220	ICE MACHINE
E311	GAS GRIDDLE (36")
E315	GAS GRIDDLE (60")
E306	GAS FRYER
E121	C02
E111	BAG-IN-BOX
E220	ICE MACHINE
P511	OIL RECYCLING SYS - EXTERIOR
P520	OIL RECYCLING SYS - INTERIOR CADDY
P100	HAND SINK WITH SIDE SPLASH
P120	4 COMPARTMENT POWERSOAK SINK
P111	4 COMPARTMENT WAREWASH SINK WALL MOUNT PRE-RINSE ASSEMBLY DRAIN MASTER ROTARY DRAIN
P130	MOP SINK & FAUCET (36"x24")
P410	WATER BOOSTER
P421	WATER FILTER
P300	LAVATORY
P310	WATER CLOSET
P312	URINAL
P403	WATER HEATER

TABLE TO CALCULATE HOT WATER GPM

INCOMING WATER TEMPERATURE (AVERAGE GROUND WATER TEMP) =							61°
HOT WATER TEMPERATURE =							140°
TEMPERATURE RISE =							79°
PLUMBING FIXTURE	TOTAL FIXTURE OR FAUCET GPM	MIXED TEMPERATURE	HOT WATER GPM PER FIXTURE OR FAUCET	NO. OF FIXTURES OR FAUCETS	FULL HOT WATER FLOW (GPM)	ESTIMATED PERCENT USAGE	DESIGNED HOT WATER FLOW (GPM)
4-COMP SINK	2.0	140°	2.00	4	8.00	100%	8.00
HAND SINK	1.5	105°	0.84	3	2.51	30%	0.75
MOP SINK	3.0	140°	3.00	1	3.00	0%	0.00
LAVATORIES	1.2	105°	0.67	2	1.34	30%	0.40
FULL HOT WATER FLOW FOR ALL FIXTURES RUNNING =					14.84 GPM		
DESIGNED HOT WATER GALLONS PER MINUTE =							9.2 GPM

GAS LOAD SUMMARY

SYSTEM	DESIGNATION	EQUIPMENT	MBH
WATER HEATING	P330	WATER HEATER	199
	P330	WATER HEATER	199
		SUB-TOTAL	398
KITCHEN EQUIPMENT	KITCHEN	GAS FRYER (4)	320
	KITCHEN	GAS GRIDDLE 36"	90
	KITCHEN	GAS GRIDDLE 60"	150
		SUB-TOTAL	560
BUILDING HEAT	RTU-1	ROOFTOP UNIT	180
	RTU-2	ROOFTOP UNIT	180
	MAU-3	MAKE UP AIR UNIT	224
		SUB-TOTAL	584
TOTAL NATURAL GAS CONNECTED LOAD			
GAS METER REQUIREMENTS	MBH CAPACITY		1542
	TOTAL DEVELOPED LENGTH INCLUDING EQUIVALENT PIPE LENGTH FOR FITTING AND VALVE FRICTION LOSSES TO GAS METER.		90 FT X 1.2= 120 FT
	CONSULT GAS UTILITY COMPANY FOR REGULATOR RATING		

TABLE TO CALCULATE WATER FIXTURE UNITS

PLUMING FIXTURE	WATER FIXTURE UNITS	NUMBER OF FIXTURES	TOTAL WATER FIXTURE UNITS
WATER CLOSET	5	2	10
LAVATORIES	2	2	4
HAND SINKS	2	3	6
MOP SINK	3	1	3
4-COMPARTMENT SINK	4	2	8
SODA SYSTEM	1	3	3
ICE MACHINE	1	1	1
TOTAL WATER FIXTURE UNITS			35.0

25 GPM WATER PIPE SIZE= 1-1/2"

PLUMBING KEYED NOTES

1. ROUTE TO CONNECT TO EXISTING GAS METER. GAS METER'S DEMAND =1542 MBH, (FIELD VERIFY ACTUAL LOCATION). APPROXIMATE LENGTH FROM FURTHEST FIXTURE TO METER BANK 120'-0". CONTRACTOR TO VERIFY EXACT LENGTH, AVAILABLE PRESSURE AND INSTALLATION LOCATION IN FIELD. UPSIZE AS REQUIRED. VERIFY WITH GAS COMPANY FOR EXACT CONNECTION AND METER INSTALLATION GUIDELINES AND REQUIREMENTS PRIOR TO WORK.
2. MECHANICAL SHUTOFF VALVE BY CAPTIVEAIRE BELOW CEILING IN ACCESSIBLE LOCATION.
3. EMERGENCY SHUTOFF SOLENOID VALVE SWITCH WITHIN HOOD PROVIDED BY CAPTIVEAIRE. IF NOT, INSTALL IN ACCESSIBLE LOCATION RIGHT BELOW CEILING UPSTREAM OF MECHANICAL SHUTOFF VALVE.
4. GAS DOWN TO MANIFOLD LOCATED 24" A.F.F.
5. GAS TO FRYERS WITH SHUTOFF VALVE (160 MBH).
6. GAS DOWN TO WATER HEATER WITH SHUTOFF VALVE (398 MBH)
7. ROUTE TO CONNECT TO EXISTING COLD WATER TO SPACE. VERIFY ROUTING, DELIVERY PRESSURE, AND WATER METER INSTALLATION REQUIREMENTS WITH LANDLORD AND LOCAL WATER UTILITY COMPANY PRIOR TO ANY WORK. WATER PIPING SIZE BASED ON 65 PSI INCOMING RESIDUAL WATER PRESSURE. PROVIDE PRESSURE REDUCING VALVE IF PRESSURE IS OVER 80 PSI. CONTACT ENGINEER IMMEDIATELY IF LOW PRESSURE (BELOW 65 PSI) OR DISCREPANCIES ARE FOUND FOR PIPING CHANGES. CONFIRM WITH LANDLORD'S PROPERTY MANAGER WHETHER A WATER SUBMETER WILL BE REQUIRED AT OR NEAR POINT OF CONNECTION.
8. PROVIDE ASSE 1070 MIXING VALVE AT THE POINT OF USE. SEE PLUMBING FIXTURE SCHEDULE ON DRAWING P1.1. REFER TO THE RISER DIAGRAM ON P4.1 FOR ADDITIONAL INFORMATION.
9. PROVIDE LEVER HANDLE ON SINK, DISCHARGE TO FLOOR SINK.
10. PROVIDE ZURN DUAL CHECK VALVE ON PRE RINSE SPRAY. (BFP-1)
11. 3/4" 110°F TW DOWN TO CHEMICAL FEED LINE. PROVIDE ZURN BACKFLOW PREVENTER ON CHEMICAL FEED LINE. PROVIDE HOSE CONNECTIONS TO CHEMICAL FEED.
12. WATER HEATER T&P RELIEF IS TO BE PIPED WITHIN WALL TO BE HIDDEN, AND STUB OUT AND TERMINATE AT HUB DRAIN BELOW WATER HEATER.
13. AFTER FILTER THERE ARE (6) TAKE OFFS FROM THE FILTERED WATER LINE:
    (2) 1/2" LINE WITH A BACKFLOW PREVENTOR TO ICE MACHINES AT BEVERAGE AREA.
    (1) 1/2" LINE WITH A BACKFLOW PREVENTOR TO ICE MACHINE AT BACK OF HOUSE.
    (3) 1/2" LINE, BACKFLOW PREVENTOR TO SODA MACHINES AND TEA DISPENSER BY COKE.
14. COLD WATER DOWN TO CHEMICAL FEED. BACKFLOW PREVENTER TO BE SIZED FOR WATER SERVICE (BFP-3). PROVIDE 2 CONNECTIONS FROM CHEMICAL FEED.
15. INSTALL REDUCED PRESSURE ZONE ASSEMBLY BACKFLOW PREVENTOR ON WATER LINE TO FIVE GUYS SPACE. BACK FLOW PREVENTOR TO BE ZURN 375XL. SIZED FOR WATER SERVICE.
16. COLD WATER DOWN FROM TRAP PRIMER TO FLOOR DRAIN. SEE DETAIL ON DRAWING P5.1 FOR MORE INFORMATION.
17. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS.
18. GAS TO 3' GRIDDLE WITH SHUTOFF VALVE (90 MBH).
19. GAS TO 5' GRIDDLE WITH SHUTOFF VALVE (150 MBH).
20. LOW PRESSURE GAS PIPING ON ROOF.
21. PROVIDE CIRCULATING PUMP. SEE PLUMBING FIXTURE SCHEDULE ON DRAWING P1.0 FOR ADDITIONAL INFORMATION.
22. PROVIDE ZURN 34-35XL VACUUM BREAKER ON WATER LINES TO MOP BASIN AT 7'-6".
23. 3/4" COLD WATER PIPING WITH SHUT-OFFS, COORDINATE EXACT LOCATIONS WITH EQUIPMENT SPECIFICATIONS.
24. CONDENSATE PIPING TO DISCHARGE ONTO ROOF.
25. PROVIDE WASTE OIL SYSTEM CONTROL PANEL IN AN ACCESSIBLE LOCATION. COORDINATE EXACT INSTALLATION LOCATION WITH OWNERS REPRESENTATIVE AND MANUFACTURER PRIOR TO ROUGH IN.
26. ROUTE WASTE OIL PIPING TO STORAGE TANK. VERIFY EXACT LOCATION AND ROUTING REQUIREMENTS IN FIELD PRIOR TO ANY WORK.
27. OIL WASTE PIPING TO DROP IN WALL AND STUB OUT FOR GREASE CADDY. VERIFY EXACT MOUNTING HEIGHT WITH MANUFACTURER. REFER TO DETAIL ON SHEET P6.1.

MUNICIPAL APPROVAL STAMPS

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SEAL

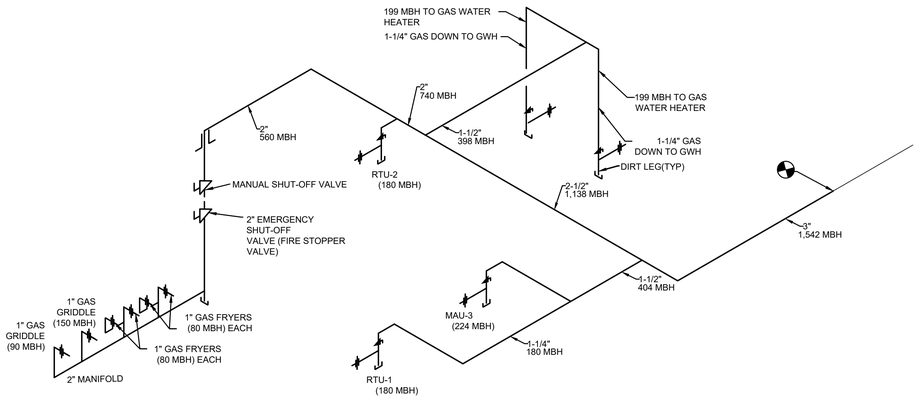
07-12-2024

SHEET TITLE

FLOOR PLAN- HW / CW & GAS

SHEET NUMBER

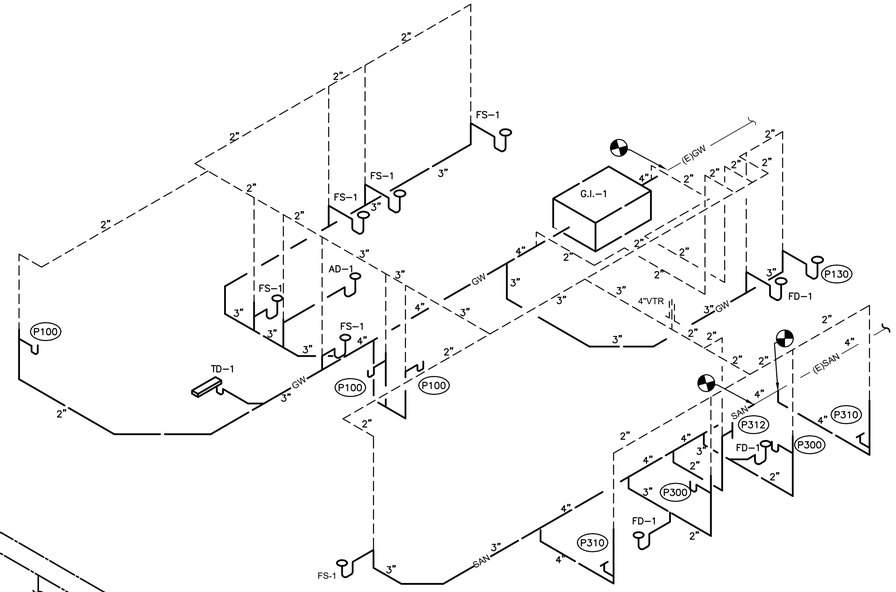
P3.1



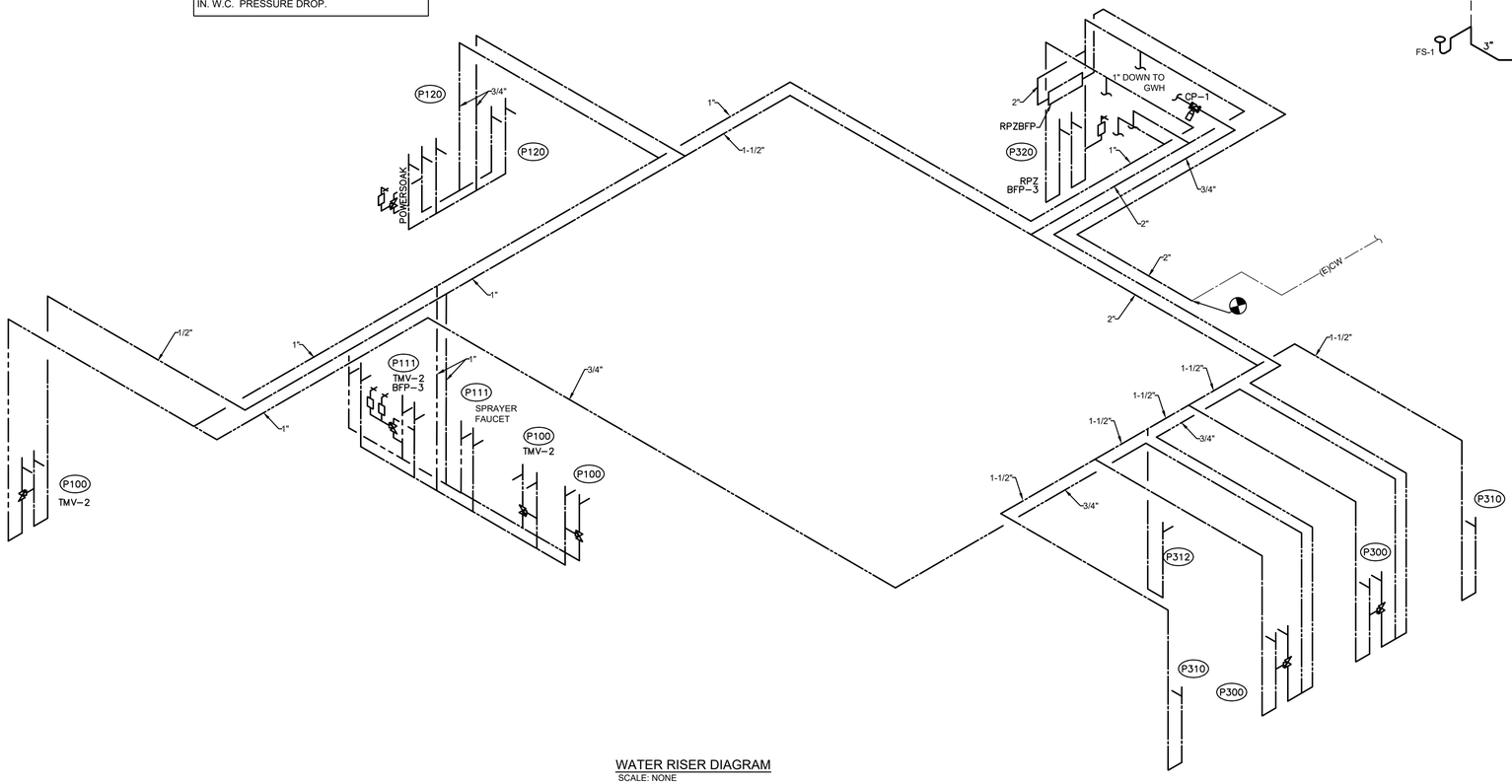
GAS RISER DIAGRAM
SCALE: NONE

NOTE:

GAS METER DEMAND= 1542MBH @ 7IN. W.C. 120'-0" FROM METER TO FURTHEST FIXTURE DESIGN PER TABLE 402.4(2) IN THE 2010 FBC FUEL GAS FOR LESS THAN 2 PSI WITH A 0.5 IN. W.C. PRESSURE DROP.



WASTE RISER DIAGRAM
SCALE: NONE



WATER RISER DIAGRAM
SCALE: NONE

NOTE:

ALL PLUMBING FIXTURES, APPLIANCES AND APPURTENANCES WITH 3/8" OR LARGER INLET OPENINGS AND WITH SOLENOID ACTUATED QUICK CLOSING VALVES SHALL BE PROVIDED WITH WATER HAMMER ARRESTORS.

KITCHEN EQUIPMENT SCHEDULE	
ITEM NUMBER	DESCRIPTION
P200	FREESTYLE SODA DISPENSER
P211	TEA DISPENSER (GOLDEN PEAK)
P220	ICE MACHINE
E311	GAS GRIDDLE (36")
E315	GAS GRIDDLE (60")
E306	GAS FRYER
E121	C02
E111	BAG-IN-BOX
E220	ICE MACHINE
P511	OIL RECYCLING SYS - EXTERIOR
P520	OIL RECYCLING SYS - INTERIOR CADDY
P100	HAND SINK WITH SIDE SPLASH
P120	4 COMPARTMENT POWERSOAK SINK
P111	4 COMPARTMENT WAREWASH SINK WALL MOUNT PRE-RINSE ASSEMBLY DRAIN MASTER ROTARY DRAIN
P130	MOP SINK & FAUCET (36"x24")
P410	WATER BOOSTER
P421	WATER FILTER
P300	LAVATORY
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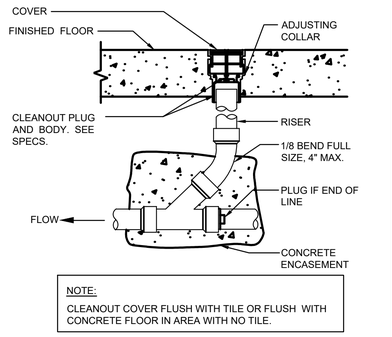
RISER DIAGRAMS

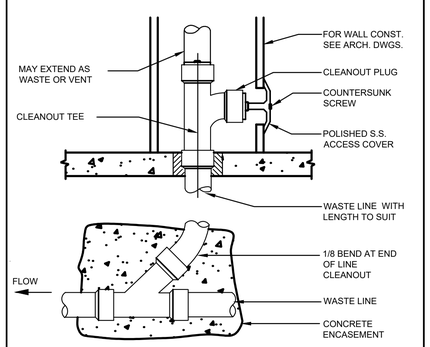
SHEET NUMBER

P4.1

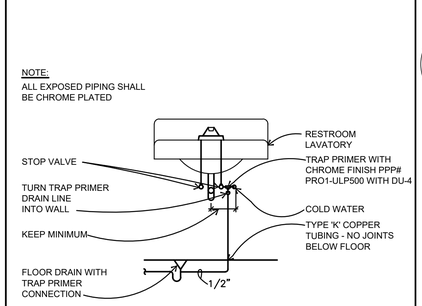


NOTE:
CLEANOUT COVER FLUSH WITH TILE OR FLUSH WITH CONCRETE FLOOR IN AREA WITH NO TILE.

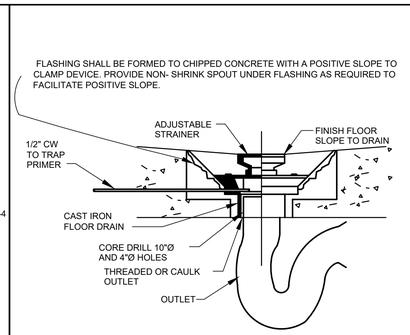
FLOOR CLEAN-OUT DETAIL
SCALE: NONE



WALL CLEAN-OUT DETAIL
SCALE: NONE

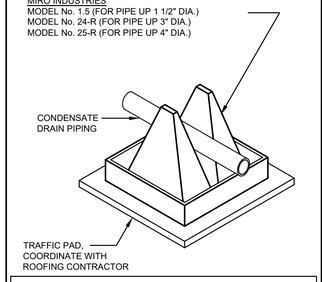


TRAP PRIMER PIPING DETAIL
SCALE: NONE



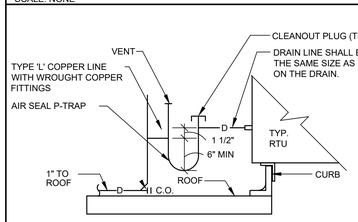
NOTE: THE GENERAL CONTRACTOR SHALL PROVIDE A ONE PIECE WATER PROOF MEMBRANE FLOOR AND BASE IN THE TOILET ROOM(S).

FLOOR DRAIN w/TRAP PRIMER
SCALE: NONE



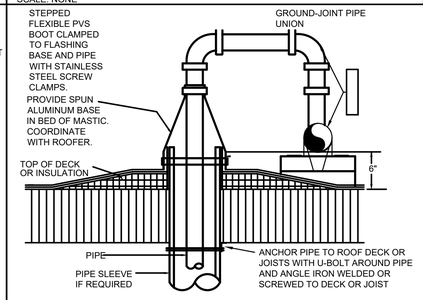
NOTES:
1. PAINT ALL EXPOSED PIPING WITH WHITE EPOXY ON ROOF AND MATCH ADJACENT SURFACES WHEN EXPOSED TO GENERAL VIEW.
2. PROVIDE SUPPORT AT EVERY JOINT AND CHANGE OF DIRECTION MINIMUM

PIPE SUPPORT DETAIL
SCALE: NONE



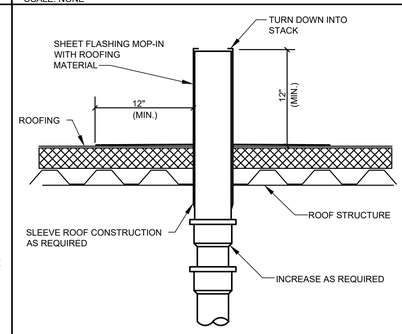
NOTE: CONDENSATE DRAIN CONNECTION UP THRU RTU CURB IS ACCEPTABLE.

RTU CONDENSATE PIPING DETAIL
SCALE: NONE

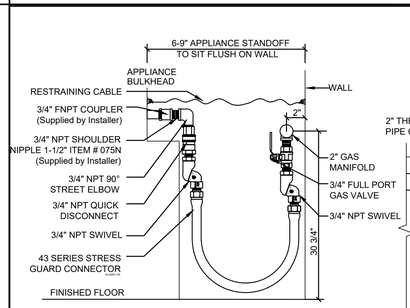


REFER TO PLANS FOR PIPE SIZES AND LOCATIONS. USE WELDED OR SCREWED FITTINGS AS SPECIFIED FOR PIPE SIZE, LOCATE PENETRATION MINIMUM 18" FROM ADJECENT WALLS.

ROOF PENETRATION DETAIL
SCALE: NONE

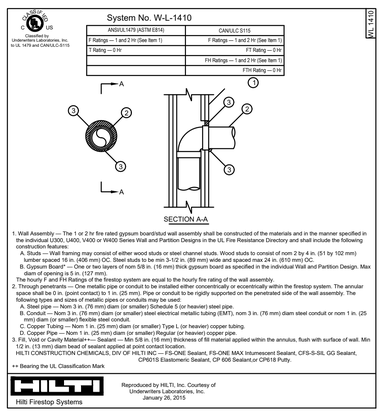


VENT THROUGH ROOF DETAIL
SCALE: NONE



NOTES:
FOR REFERENCE ONLY MAY NOT COMPLY WITH LOCAL CODE ENFORCEMENT
ADDITIONAL PARTS MAY BE NEEDED (Supplied by Others)

GAS CONNECTION DETAIL
SCALE: NONE



1. Wall Assembly — The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, W400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — One or two layers of nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Max diam of opening is 5 in. (127 mm).
   The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly.
2. Through penetrants — One metallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space shall be 0 in. (point contact) to 1 in. (25 mm). Pipe or conduit to be rigidly supported on the penetrated side of the wall assembly. The following types and sizes of metallic pipes or conduits may be used:
   A. Steel pipe — Nom 3 in. (76 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
   B. Conduit — Nom 3 in. (76 mm) diam (or smaller) steel electrical metallic tubing (EMT), nom 3 in. (76 mm) diam steel conduit or nom 1 in. (25 mm) diam steel conduit (or smaller).
   C. Copper Tubing — Nom 1 in. (25 mm) diam (or smaller) Type L (or heavier) copper tubing.
   D. Copper Pipe — Nom 1 in. (25 mm) diam (or smaller) Regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material++ — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with surface of wall. Min 1/2 in. (13 mm) diam bead of sealant applied at point contact location.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant, CFS-S-SIL GG Sealant, CP601S Elastomeric Sealant, CP 606 Sealant,or CP618 Putty.

++ Bearing the UL Classification Mark.

Hilti Firestop Systems

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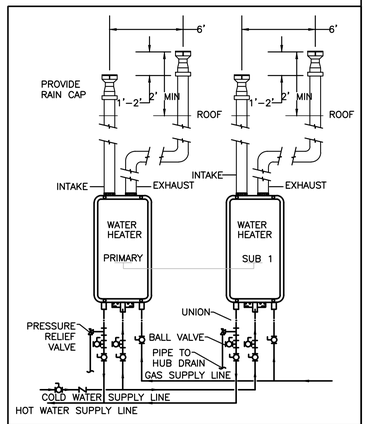
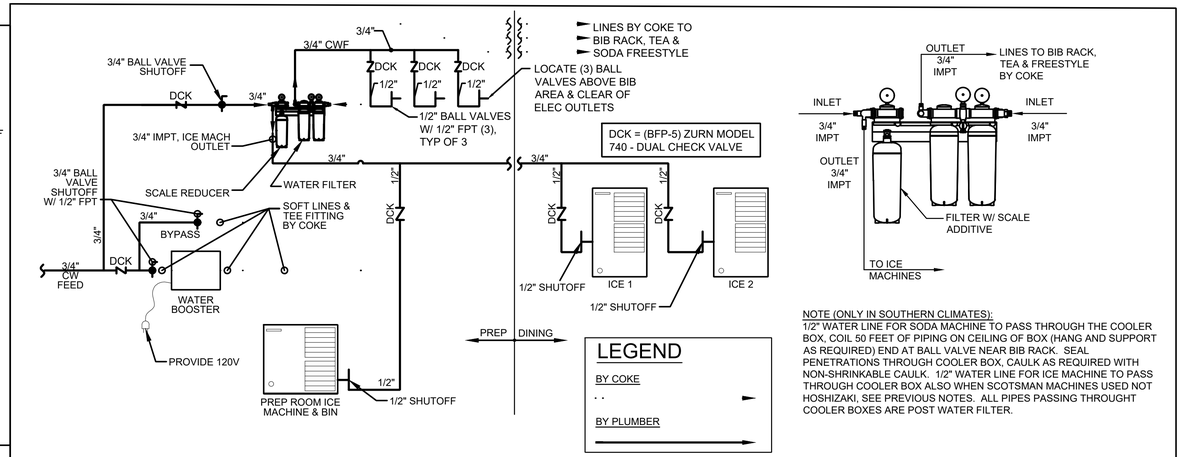


WATER HEATER DETAIL
NO SCALE



NOTE (ONLY IN SOUTHERN CLIMATES):
1/2" WATER LINE FOR SODA MACHINE TO PASS THROUGH THE COOLER BOX, COIL 50 FEET OF PIPING ON CEILING OF BOX (HANG AND SUPPORT AS REQUIRED) END AT BALL VALVE NEAR BIB RACK. SEAL PENETRATIONS THROUGH COOLER BOX, CAULK AS REQUIRED WITH NON-SHRINKABLE CAULK. 1/2" WATER LINE FOR ICE MACHINE TO PASS THROUGH COOLER BOX ALSO WHEN SCOTSMAN MACHINES USED NOT HOSHIZAKI, SEE PREVIOUS NOTES. ALL PIPES PASSING THROUGHT COOLER BOXES ARE POST WATER FILTER.

WATER FILTER DETAIL
SCALE: NO SCALE

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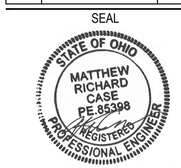

07-12-2024

SHEET TITLE
PLUMBING DETAILS

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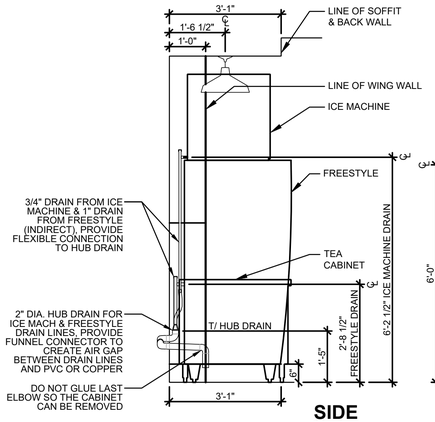
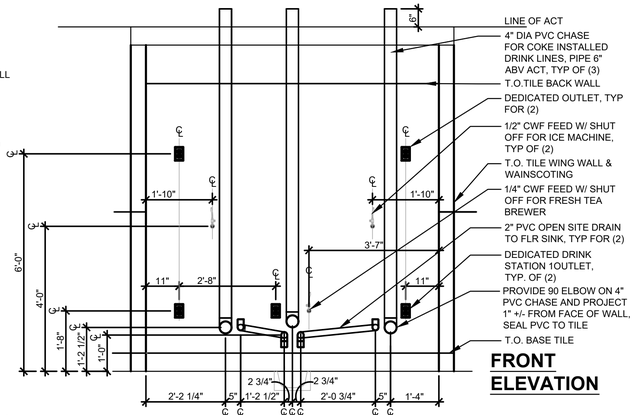
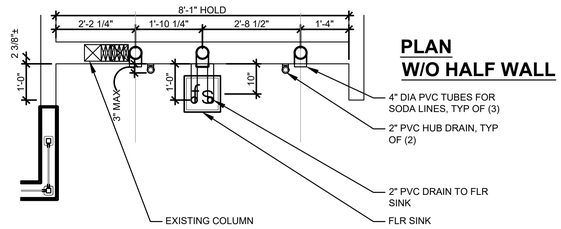


SIDE ELEVATION

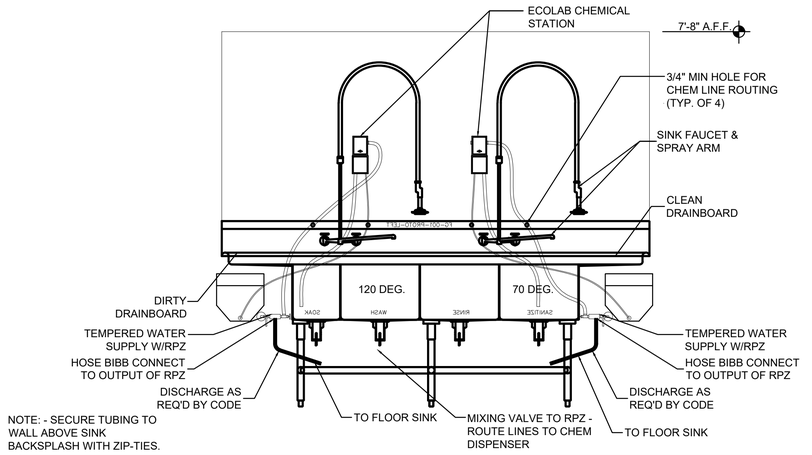


FRONT ELEVATION

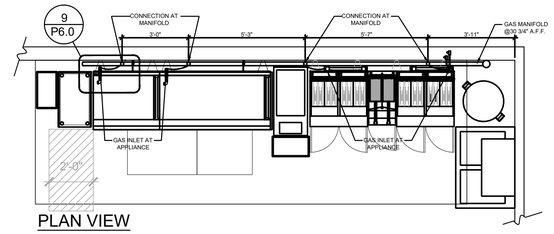


PLAN W/O HALF WALL

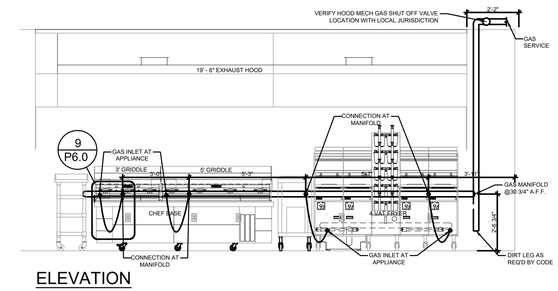
BEVERAGE AREA DETAIL
SCALE: NONE



SPLIT CHEMICAL WARE WASH SYSTEM @ 4-COMP SINK
SCALE: NONE

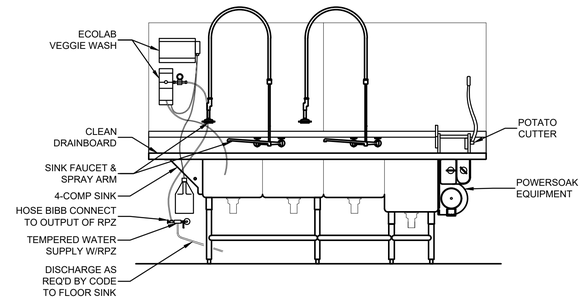


PLAN VIEW

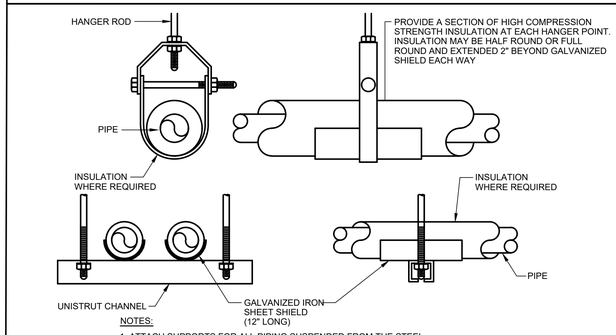


ELEVATION

HOOD GAS DETAIL
SCALE: NONE



CHEMICAL VEGGIE WASH SYSTEM @ 4-COMP SINK
SCALE: NONE



NOTES:
1. ATTACH SUPPORTS FOR ALL PIPING SUSPENDED FROM THE STEEL STRUCTURE TO THE TOP CHORD OF JOISTS OR BEAMS.
2. PROVIDE COPPER OR PLASTIC COATED HANGERS FOR NON-INSULATED COPPER PIPE.

PIPE HANGER DETAIL
SCALE: NONE

MUNICIPAL APPROVAL STAMPS

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SHEET TITLE

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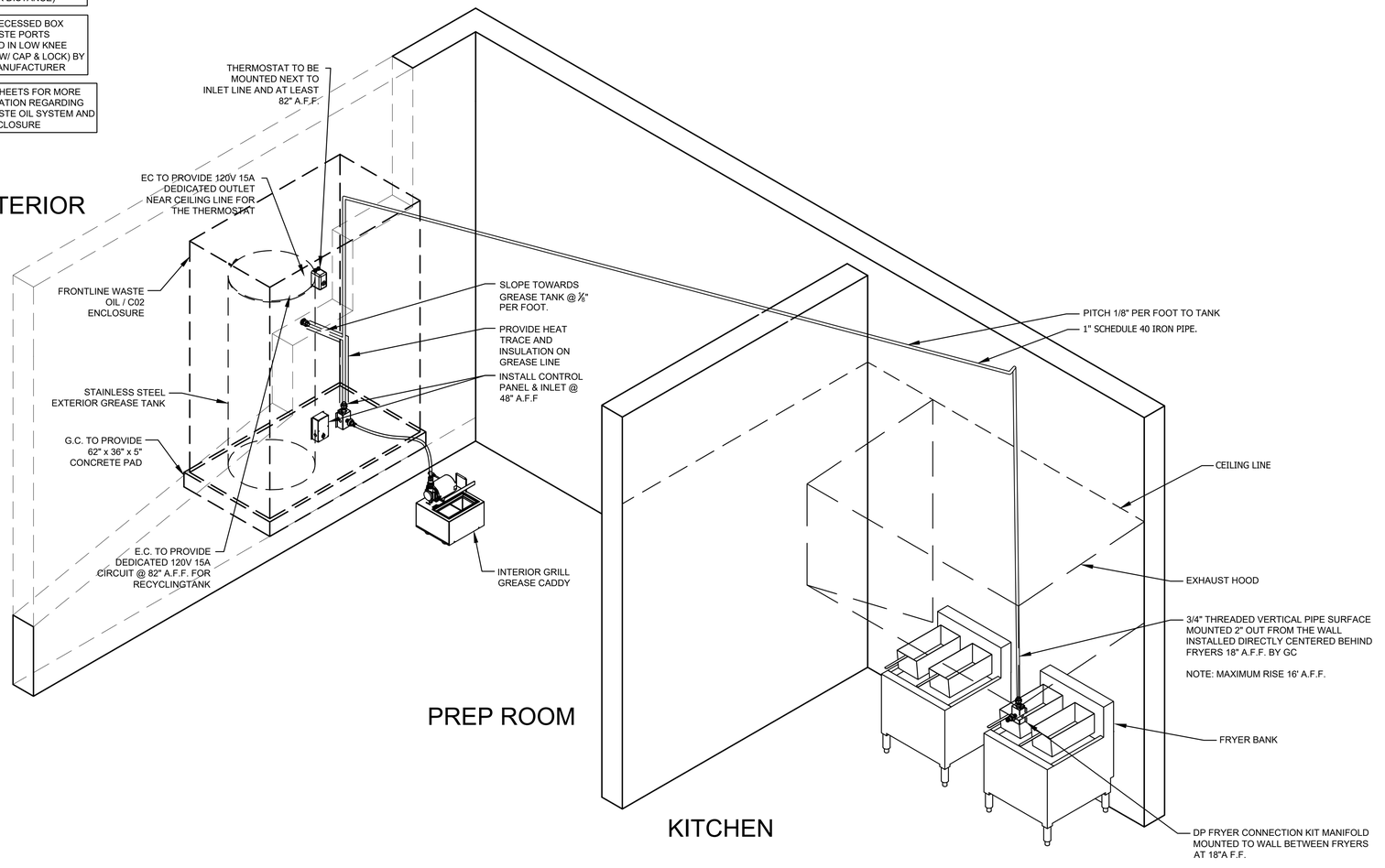
SHEET NUMBER

P5.2

SERVICE TRUCK MUST BE ABLE TO REACH WASTE PORT LOCATION (100' MAX DISTANCE)

USE A RECESSED BOX FOR WASTE PORTS LOCATED IN LOW KNEE WALLS (W/ CAP & LOCK) BY TANK MANUFACTURER

SEE K-SHEETS FOR MORE INFORMATION REGARDING THE WASTE OIL SYSTEM AND CO2 ENCLOSURE



1 WASTE OIL RECYCLING SYSTEM - EXTERIOR TANK
1/2" = 1'-0"

ELECTRICAL CONNECTION

READ THIS SECTION FOR INFORMATION ABOUT HOW TO COMPLETE ELECTRICAL CONNECTIONS AS ONE OF THE FOLLOWING: COMPLETE THESE STEPS TO MAKE A STANDARD ELECTRICAL CONNECTION:

1. IF THE CONTROL PANEL IS MOUNTED TO THE TANK, PLUG THE STORAGE TANK INTO A 120V 15AMP OUTLET.
2. BE SURE THAT THE GREEN POWER LIGHT COMES ON AND REMAINS LIT. NO OTHER LIGHTS SHOULD BE LIT AT THIS TIME.

UNIT PLACEMENT

READ THIS SECTION FOR IMPORTANT INFORMATION ABOUT UNIT PLACEMENT. FOLLOW THESE DIRECTIONS CONCERNING UNIT PLACEMENT:

- THE INSTALLER SHOULD CONFIRM WITH THE RESTAURANT MANAGER/OWNER THE LOCATION FOR THE STORAGE TANK.
- KEEP A 31" WIDE BY 31" DEEP AREA THAT IS REQUIRED FOR THE INSTALLATION OF THE STORAGE TANK.
- EXTERIOR WALL CONSIDERATION - BE SURE THE UNIT CAN BE PLACED AGAINST AN EXTERIOR WALL. IF NOT, EXTRA PIPING IS REQUIRED TO COMPLETE THE OUTLET INSTALLATION.
- CONSIDER THE RELATIONSHIP OF THE STORAGE TANK TO THE FRYER.
- OUTSIDE OBSTRUCTION CONSIDERATION - NOTE ANY OBSTRUCTIONS ON THE OUTSIDE OF THE WALL THAT WILL OBSTRUCT INSTALLATION OF THE OUTLET PIPE.
- WALL OBSTRUCTION CONSIDERATION - NOTE ANY OBSTRUCTIONS INSIDE THE WALL THAT WILL PREVENT INSTALLATION OF THE OUTLET PIPE.

WASTE SYSTEM ROUGH IN NOTES

IN ORDER TO INSTALL THE WASTE OIL RECYCLING TANK PROPERLY AND ECONOMICALLY THE FOLLOWING ROUGH-IN REQUIREMENTS ARE MANDATORY AND THE RESPONSIBILITY OF THE CONTRACTOR TO BE COMPLETED PRIOR TO THE INSTALLER ARRIVAL.

1. WASTE OIL LINE – 3/4" BLACK PIPE INSTALLED DIRECTLY CENTERED BEHIND FRYERS 18" ABOVE GRADE, SURFACE MOUNTED 2" OUT FROM THE FRYER WALL UP ABOVE CEILING LINE 24" AND 1" BLACK PIPE PITCHED 1/8" PER FOOT TO THE TANK; USE LONG SWEEP 90° OR BACK TO BACK 45° ON ALL BENDS (PER DRAWING)

   A) OUTSIDE ENCLOSURE – WASTE OIL PIPE AT OUTSIDE TANK LOCATION NEEDS TO BE AT 72" ABOVE OUTSIDE GRADE, STUBBED OUT 2" AND 24" OFF ANY CORNERS (PER DRAWING)

   B) INTERIOR TANK – WASTE OIL PIPE SHOULD BE RUN TANK LOCATION 16" OFF WALLS OR 24" OFF CORNERS (PER DRAWING)

2. ELECTRICAL SUPPLY – AT TANK LOCATION INSTALL 120 VOLT 15 AMP DEDICATED CIRCUITS.

   A) OUTSIDE ENCLOSURE – REQUIRES TWO DEDICATED CIRCUITS LOCATED DIRECTLY ABOVE CONTROL PANEL MOUNTING LOCATION AND 82" A.F.F.

   B) INTERIOR TANK – INSTALL DEDICATED CIRCUIT AT TANK 82" A.F.F.

3. OUTSIDE SERVICE AREA FOR TANK LOCATION SHOULD BE COMPLETE; CONCRETE PAD POURED, WALLS PAINTED AND EXTERIOR BUILDING WALL FINISHED

4. KITCHEN EQUIPMENT, FRYERS AND STAINLESS STEEL ON FRYER WALL NEEDS TO BE IN PLACE IN ORDER FOR INSTALLER TO ADAPT FRYERS AND CONNECT TO SYSTEM

5. FRONTLINE INTERNATIONAL INSTALLATIONS DEPARTMENT (330-861-1100) WILL MAINTAIN VERBAL COMMUNICATION WITH SITE SUPERVISORS TO VERIFY CONSTRUCTION IS ON SCHEDULE AND CONFIRM SHIPPING & INSTALLATION DATES. DIRECT-CONNECTION WILL PROVIDE TECHNICAL SUPPORT IF NEEDED.

IF ON THE DAY OF THE CONFIRMED INSTALLATION OF THE WASTE OIL STORAGE SYSTEM ANY OF THE ROUGH-IN REQUIREMENTS ARE NOT COMPLETE OR NEED MODIFICATION TO MEET INDICATED SPECIFICATIONS AND INSTALLER IS REQUIRED TO MAKE CORRECTIONS ANY ADDITIONAL INCURRED COSTS WILL BE BACK CHARGED TO CUSTOMER.

PLUMBING SHOULD FOLLOW AS DIRECT A ROUTE AS POSSIBLE AND ALWAYS OBSERVE SLOPE. WHEN PLUMBING IS ACCESSIBLE, USE "T'S" WITH A PLUG RATHER THAN 90º ELBOWS SO AS TO FACILITATE THE DRAINING OR CLEANING OF THE SYSTEM.

DIAGRAMATIC REPRESENTATION ONLY, SEE PLAN FOR CORRECT ORIENTATION OF EXHAUST HOOD AND GREASE RECYCLING SYSTEM

DIAGRAM BASED OFF OF FRONTLINE WASTE OIL SYSTEM. ACTUAL SYSTEM CONFIGURATION MAY DIFFER. CONSULT MANUFACTURER'S SPECIFICATIONS FOR INSTALLATION PROCEDURES & REQUIREMENTS FOR ORDERED EQUIPMENT. COORDINATE ANY CHANGES WITH ALL TRADES.

EXTERIOR SYSTEM

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SHEET TITLE

WASTE GREASE RECYCLING DETAILS

SHEET NUMBER

P6.1