MECHANICAL SPECIFICATIONS

I. GENERAL PROVISIONS:

- A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE PLUMBING AND MECHANICAL SYSTEMS OUTLINED.
- B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.
- C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
- D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
- E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND INDAMAGED ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
- F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY, PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA, COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
- G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
- 2. OPERATION AND MAINTENANCE MANUALS:
- A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
- B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.
- C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE BOUND IN A 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC.

3. MANUFACTURERS:

- A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.
- 4. MOTORS:
- A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK. 5. TESTING, BALANCING, AND CLEANING:
- A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.
- B. SEWER AND VENT PIPING SHALL BE HYDROSTATICALLY TESTED WITH NO LESS THAN 10 FEET OF HEAD FOR A PERIOD OF NOT LESS THAN 15 MINUTES, PER THE LOCAL PLUMBING CODE, WITH NO LEAKS.
- C. FIRE PROTECTION PIPING SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF NEPA.
- D. DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 50 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.
- E. NATURAL GAS PIPING SHALL BE PNEUMATICALLY TESTED AT A PRESSURE OF NOT LESS THAN I-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 50 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.
- F. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED BALANCING PERSONNEL WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES AND ARE FAMILIAR WITH TESTING AND BALANCING PROCEDURES OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).
- I) BALANCING SHALL INCLUDE THE BALANCING OF THE EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE DESIGN QUANTITIES INDICATED AND VERIFICATION OF PERFORMANCE OF ALL EQUIPMENT AND AUTOMATIC CONTROLS.
- 2) WITH IN 30 DAYS OF THE COMPLETION OF THE TESTING AND BALANCING WORK, SUBMIT THE TEST AND BALANCING REPORT BEARING THE SIGNATURE OF THE TEST AND BALANCE ENGINEER. THE REPORTS SHALL BE CERTIFIED PROOF THAT THE SYSTEMS HAVE BEEN TESTED AD USTED AND BALANCED IN ACCORDANCE WITH THE REFERENCED STANDARDS: ARE AN ACCURATE REPRESENTATION OF HOW THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING. REPORTS SHALL BE BOUND IN A VINYL BINDER AND THE BINDER LABELED.
- G. BEFORE DOMESTIC WATER PIPING IS PLACED IN SERVICE, ALL DOMESTIC WATER DISTRIBUTION SYSTEMS, INCLUDING THOSE FOR COLD WATER AND HOT WATER SYSTEMS, SHALL BE FLUSHED, STERILIZED AND CHLORINATED IN ACCORDANCE WITH HEALTH DEPARTMENT REGULATIONS. THE SYSTEMS SHALL BE THOROUGHLY FLUSHED OF ALL DIRT AND FOREIGN MATTER. THEN FILLED WITH WATER TREATED WITH 50 PPM OF CHLORINE. DURING THE FILLING PROCESS, VALVES AND FAUCETS SHALL BE OPENED SEVERAL TIMES TO ASSURE TREATMENT OF THE ENTIRE SYSTEM. THE TREATED WATER SHALL BE LEFT IN THE SYSTEM FOR 24 HOURS AFTER WHICH TIME THE SYSTEM SHALL BE FLUSHED; IF THE RESIDUAL CHLORINE IS NOT LESS THAN 10 PPM, THE FLUSHING SHALL BE REPEATED. AFTER STERILIZATION, SAMPLES OF WATER IN THE SYSTEM SHALL BE APPROVED BY THE BOARD OF HEALTH.
- H. FIRE PROTECTION PIPING SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA.

6. PIPING:

- A. DOMESTIC COLD, HOT, AND HOT WATER RECIRCULATING (ABOVEGROUND).
- 1) TYPE L HARD DRAWN COPPER TUBING, ASTM B-88.
- 2) WROUGHT BRONZE SOLDERED FITTINGS 3) GATE VALVE: CRANE # 428 OR EQUAL.
- 4) GLOBE VALVE: CRANE #7 OR EQUAL.
- 5) BALL VALVE: CRANE #932 OR EQUAL.
- B. DOMESTIC COLD, AND HOT WATER (UNDERGROUND).
- I) TYPE K HARD OR SOFT DRAWN COPPER TUBING, ASTM B-88. 2) WROUGHT BRONZE SOLDERED FITTINGS.
- C. DOMESTIC COLD, AND HOT WATER (UNDERGROUND)
- I) TYPE K SOFT DRAWN COPPER TUBING, ASTM B-88.
- 2) WROUGHT BRONZE FLARED FITTINGS.
- D. SANITARY SEWER, GREASE WASTE, AND VENTS (UNDERGROUND, INTERIOR TO BUILDING).
- I) POLYVINYLCHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT (WHERE APPROVED BY LOCAL CODES). 2) SERVICE WEIGHT, BELL-AND-SPIGOT, COATED CAST IRON, ASTM A-74.
- 3) DWV, WROUGHT COPPER, ANSI B-16.29.
- 4) "NO-HUB" CAST IRON, NEOPRENE GASKETS, STAINLESS STEEL CLAMPS.
- F. SANITARY SEWER, AND VENTS (ABOVEGROUND).
- I) SERVICE WEIGHT, BELL-AND-SPIGOT, COATED CAST IRON, ASTM A-74. 2) DWV, WROUGHT COPPER, ANSI B-16.29.
- 3) GALVANIZED STEEL PIPE, WITH MALLEABLE IRON, THREADED FITTINGS, DRAINAGE PATTERN FOR SEWERS.
- 4) "NO-HUB" CAST IRON, NEOPRENE GASKETS, STAINLESS STEEL CLAMPS. 5) POLYVINYLCHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT (WHERE APPROVED BY LOCAL CODES).
- G. GREASE WASTE, SANITARY SEWER, AND VENTS (EXTERIOR TO BUILDING).
- SERVICE WEIGHT, BELL-AND-SPIGOT, COATED CAST IRON, ASTM A-74.
- 2) DUCTILE IRON GRAVITY SEWER PIPE & FITTINGS, ASTM A746/747, CLASS 50 OR 51, SEALCOATED, MECHANICAL OR PUSH-ON JOINTS, DIP COATING, NEOPRENE OR SYNTHETIC RUBBER GASKETS.
- 3) ACRYLONITRILE-BUTADIENE-STYRENE (ABS) SEWER PIPE, SDR-23.5 OR SCHEDULE 40, SOLVENT JOINT (WHERE APPROVED BY LOCAL CODES). 4) POLYVINYLCHLORIDE (PVC) PIPE, SDR-26, SOLVENT OR ELASTOMERIC JOINT (WHERE APPROVED BY
- LOCAL CODES). H. CONDENSATE DRAINS & INDIRECT WASTE (ABOVEGROUND).

RECOMMENDATIONS.

- I) DWV, WROUGHT COPPER, ANSI B-16.29 (INSIDE BUILDING). 2) POLYVINYLCHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT (EXTERIOR OF BUILDING). I. REFRIGERANT
- I) ASTM B 280, TYPE ACR, HARD-DRAWN STRAIGHT LENGTHS, AND SOFT-ANNEALED COILS, SEAMLESS
- COPPER TUBING. 2) WROUGHT COPPER, ANSI BI6.22, STREAMLINED PATTERN, FITTINGS. BRAZED JOINTS, AWS A 5.8,
- CLASSIFICATION BAG-I (SILVER). 3) TUBING SHALL BE FACTORY CLEANED, READY FOR INSTALLATION, AND HAVE ENDS CAPPED TO
- PROTECT CLEANLINESS OF PIPE INTERIORS PRIOR TO SHIPPING. 4) SIZE AND INSTALLATION OF PIPE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S

- MECHANICAL SPECIFICATIONS
- J. NATURAL GAS. I) BLACK STEEL PIPE, SCHEDULE 40, ASTM A-120. 2) PIPE 2" AND SMALLER; 150 LB. MALLEABLE IRON, THREADED FITTINGS. 3) PIPE 2-1/2" AND LARGER, WELDED.
- 4) PLUG VALVE: ROCKWELL NORDSTROM FIGURE NO. 142 OR 143.
- ELCEN. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-69.
- L. SLEEVES
- SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION AND TO ACCOMMODATE PIPE INSULATION.
- SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT
- 3) ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WATERPROOF SEAL
- 4) PLUMBING VENTS: FLASH ROOF VENT INTO ROOFING SYSTEM AS REQUIRED BY THE
- ROOFING CONTRACTOR TO MAINTAIN EXISTING ROOF WARRANTY. M. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS.
- 7. INSULATION AND DUCT LINING:
- A. ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, A FUEL CONTRIBUTION RATING OF NOT OVER 50, AND A SMOKE DEVELOPED RATING OF NOT OVER 50, IN ACCORDANCE WITH NEPA.
- B. PIPE INSULATION:
- 2) FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASJ JACKET, FACTORY APPLIED PRESSURE SEALING LONGITUDE LAP JOINT, NO STAPLES, ZESTON PREMOLDED PVC FITTING COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 3) FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSLIT OR PRESLIT WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMSTRONG AP ARMAFLEX OR ARMAFLEX 2000.
- 4) FOR NON CIRCULATING SYSTEMS, THE FIRST & FEET OF INLET AND OUTLET PIPING BETWEEN THE TANK AND THE HEAT TRAP (INCLUDING THE HEAT TRAP) MUST BE INSULATED.
- 5) INSULATION SCHEDULE: a) DOMESTIC COLD WATER 1/2" I-I/2" b) DOMESTIC HOT WATER c) HOT WATER RECIRCULATING 1-1/2" d) CONDENSATE DRAINS INSIDE BUILDING 1/2" e) REFRIGERANT SUCTION I" FOR PIPING UP TO I 1/2", \$ 1-1/2" FOR PIPING I-1/2" AND LARGER
- C FOURMENT INSULATION: I) FLEXIBLE FIBERGLASS: GLASS FIBER INSULATION, ASTM C 553, TYPE I, CLASS B-4, SEMI-RIGID BOARD, WITH FACTORY LAMINATED KRAFT ALUMINUM FOIL (ALL SERVICE JACKET), VAPOR BARRIER,

OWENS/CORNING PIPE AND TANK INSULATION.

D. DUCTWORK

- I) DUCT LINING: 3 LB/CF, THICKNESS AS SCHEDULED, AIR STREAM SIDE COATED, INSTALL PER SMACNA STANDARDS.
- a) DUCT LINING SCHEDULE:
- (1) RECTANGULAR SUPPLY DUCT 1/2" First 10' from unit (2) RETURN AIR DUCT 1/2" first 10' from unit 2) DUCT COVERING: 3/4 LB/CF, FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER AND FACING, THICKNESS AS SCHEDULED, INSTALLATION IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- a) DUCT COVERING SCHEDULE:
- (I) SUPPLY AND RETURN DUCT
- (2) OUTDOOR AND MAKE-UP AIR DUCT (INSIDE BUILDING) 8. GREASE HOOD AND EXHAUST DUCT:
- A. TYPE I HOOD EXISTING SHALL BE CONSTRUCTED OF (0.044") THICK 18 GAUGE STAINLESS STEEL IN ACCORDANCE WITH NEPA AND LOCAL CODES.
- GREASE FILTERS SHALL BE UL LISTED ALUMINUM GREASE EXTRACTORS 2) PROVIDE A COMPLETE AUTOMATIC WET CHEMICAL FIRE EXTINGUISHING SYSTEM FOR THE HOOD AND
- BE INTERLOCKED WITH THE SYSTEM, TO SHUTDOWN IN AN ALARM CONDITION.
- ENGINEERED, WET CHEMICAL, STORED-PRESSURE TYPE WITH A FIXED NOZZLE AGENT DISTRIBUTION SYSTEM. THE SYSTEM SHALL BE UL LISTED AND TESTED TO UL STANDARD 300.
- POTASSIUM ACETATE BASED SOLUTION THAT SUPPRESSES COOKING GREASE FIRES, SHALL HAVE A PH OF 9 OR LESS, AND SHALL NOT HARM STAINLESS STEEL SURFACES.
- c) THE SYSTEM SHALL BE PROVIDED WITH A MANUAL "DUAL ACTION" TYPE PULL STATION. PULL STATION SHALL BE LOCATED NOT LESS THAN 10 FEET AND A MAXIMUM OF 20 FEET FROM THE GREASE HOOD AND IN THE PATH OF EGRESS. THE MANUAL ACTUATION SHALL REQUIRE A MAXIMUM FORCE OF 40 POUNDS AND A MAXIMUM MOVEMENT OF 14 INCHES TO ACTUATE THE FIRE SUPPRESSION SYSTEM.
- d) PROVIDE A GAS SHUT OFF VALVE FOR MOUNTING IN THE GAS PIPE THAT WILL SHUT OFF GAS FLOW TO EQUIPMENT UNDER THE HOOD IN AN ALARM CONDITION. PROVIDE AN ELECTRICAL SWITCH WHICH SHALL BE CAPABLE OF DE-ENERGIZING ALL ELECTRICAL DEVICES AND EQUIPMENT UNDER THE HOOD IN AN ALARM CONDITION.
- B. GREASE DUCT SHALL BE CONSTRUCTED OF 16 GAUGE CARBON STEEL OR 18 GAUGE STAINLESS STEEL IN ACCORDANCE WITH NFPA AND LOCAL CODES.

9. PLUMBING:

- A. PROVIDE AN APPROVED WATER HAMMER ARRESTOR FOR EACH PLUMBING FIXTURE SUPPLY AS REQUIRED BY FIXTURE MANUFACTURER.
- B. ALL EXPOSED PIPE SHALL BE CHROME PLATED BRASS PIPE, NO FERROUS PIPE.
- D. PROVIDE ACCESS PANELS FOR ALL CONCEALED VALVES AND TRAPS.
- E. CLEANOUTS:

SLOPES.

- I) VINYL TILE FLOOR: JR SMITH #4140, OR EQUAL 2) QUARRY TILE FLOOR: JR SMITH #4200, OR EQUAL
- 3) CARPETED FLOOR: JR SMITH #4020-Y, OR EQUAL. 4) UNFINISHED FLOOR: JR SMITH #4020, OR EQUAL. 5) WALL: JR SMITH #4472, OR EQUAL, 24" ABOVE THE FLOOR.
- 6) GRADE: JR SMITH #4256, OR EQUAL, WITH HEAVY DUTY CAST IRON BODY AND COVER.
- F. ALL SEWER PIPING LOCATED INSIDE THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES. I) INSTALL 2-1/2" AND SMALLER PIPE AT 1/4" PER FOOT FALL.

K. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FEE AND MASON, OR

I) PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK. ALL SLEEVES

2) INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN PIPE AND SLEEVE WITH FIRE

COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.

I) THE PIPING INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 Btu PER in/hr*sqft*F° OR LESS.

R-6 OR 2 R-6 OR 2"

DUCT AS REQUIRED BY NFPA AND LOCAL CODES. ALL COOKING EQUIPMENT UNDER THE HOOD SHALL

a) THE GREASE HOOD FIRE SUPPRESSION SYSTEM SHALL BE EQUAL TO AMEREX KP SERIES PRE-

b) THE SYSTEM SHALL UTILIZE AN AGENT EQUAL TO AMEREX KP LIQUID FIRE SUPPRESSANT, A

C. PROVIDE CLEANOUTS AT EACH CHANGE OF DIRECTION AND AT 100 FOOT INTERVALS IN STRAIGHT RUNS.

2) INSTALL 3" AND LARGER PIPE AT 1/8" PER FOOT FALL. G. ALL SEWER PIPING LOCATED EXTERIOR TO THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING

) INSTALL 4" AND SMALLER PIPE AT A MINIMUM OF 2% SLOPE. 2) INSTALL 6" AND LARGER PIPE AT A MINIMUM OF 1% SLOPE.

H. PROVIDE DIELECTRIC UNIONS WITH APPROPRIATE END CONNECTIONS TO MATCH THE PIPE SYSTEM IN WHICH INSTALLED (SCREWED, SOLDERED, OR FLANGED). PROVIDE DIELECTRIC UNIONS ON ALL PIPING CONNECTIONS TO HOT WATER HEATERS AND EXPANSION TANKS.

MECHANICAL SPECIFICATIONS

A. ALL DUCTWORK, UNLESS OTHERWISE INDICATED, SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 527, LOCKFORMING QUALITY, WITH G 60 ZINC COATING IN ACCORDANCE WITH ASTM A 525; AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.

B. DUCTWORK, METAL GAUGES, REINFORCING, ETC. SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION FOR A 2 INCH WATER GAUGE STATIC

C. ALL FITTINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION.

D. SEAL ALL DUCTWORK JOINTS WITH NON-HARDENING, NON-MIGRATING MASTIC SEALANT, AS RECOMMENDED FOR SEALING SEAMS AND JOINTS IN DUCTWORK. OIL BASE CAULKING AND GLAZING COMPOUNDS SHALL NOT BE ACCEPTABLE.

E. ALL DUCTWORK AND PLENUMS MUST BE SEALED IN ACCORDANCE WITH THE MECHANICAL CODE AND SMACNA METHOD A. SECTION 6.4.4.2.1 PER THE 2008 HOUSTON COMM. ENERGY CONSERVATION CODE.

F. ALUMINUM DUCTS WHERE INDICATED: ANSI/ASTM B209; ALUMINUM SHEET, ALLOY 3003-HI4. ALUMINUM CONNECTORS AND BAR STOCK: ALLOY 6061-T6 OR OF EQUIVALENT STRENGTH.

II. FLEXIBLE DUCT

PRESSURE.

10. DUCTWORK:

A. ATCO #086, OR EQUAL. (MIN. R-6)

- B. FACTORY APPLIED INSULATION AND VAPOR BARRIER, I-1/2" THICK.
- C. MAXIMUM LENGTH OF 6'-0".

12. EXHAUST FANS:

A. CENTRIFUGAL TYPE FAN WITH CHARACTERISTICS AND CAPACITY AS SCHEDULED, ELECTRICALLY POWERED, SUITABLE FOR MOUNTING ON ROOF CURB. DIRECT OR BELT DRIVEN. HEAVY GAUGE SPUN-ALUMINUM WEATHERPROOF HOUSINGS OF THE HOODED DOME OR UPBLAST TYPE. PROVIDE PERMANENT SPLIT-CAPACITOR TYPE MOTOR FOR DIRECT DRIVEN FANS, AND CAPACITOR-START, INDUCTION-RUN TYPE MOTOR FOR BELT DRIVEN FANS.

- B. CENTRIFUGAL CEILING EXHAUSTERS SHALL BE ELECTRICALLY POWERED CENTRIFUGAL TYPE FAN SUITABLE FOR MOUNTING IN THE CEILING WITH A PERFORATED OFF-WHITE METAL GRILLE WITH A THUMBSCREW ATTACHMENT FOR EASY ACCESS TO FAN HOUSING. UNIT SHALL CONSIST OF A GALVANIZED STEEL HOUSING LINED WITH ACOUSTICAL INSULATION AND SHALL INCLUDE AN INTEGRAL BACKDRAFT DAMPER ON FAN DISCHARGE. MOTOR SHALL BE A PERMANENT SPLIT-CAPACITOR TYPE MOTOR, PERMANENTLY LUBRICATED, WITH THERMAL OVERLOAD PROTECTION. PROVIDE DISCONNECT SWITCH OR OTHER MEANS OF DISCONNECT AT MOTOR IN FAN HOUSING.
- 13. ROOFTOP UNITS:
- A. UNIT SHALL BE FACTORY-ASSEMBLED AND TESTED, DESIGNED FOR ROOF INSTALLATION, AND SHALL CONSIST OF COMPRESSOR(S), CONDENSERS, EVAPORATOR COILS, CONDENSER AND EVAPORATOR FANS, CONDENSER FANS TO BE SEQUENCED. REFRIGERATION CONTROLS, GAS FIRED HEAT EXCHANGER, FILTERS, AND DAMPERS. CAPACITIES AND ELECTRICAL CHARACTERISTICS SHALL BE AS SCHEDULED ON THE DRAWINGS.
- B. COMPRESSOR(S): UNIT SHALL INCLUDE VIBRATION ISOLATORS AND CRANKCASE HEATER. REFRIGERANT CIRCUIT SHALL INCLUDE A FILTER DRYER, SIGHT GLASS, COMPRESSOR SERVICE VALVES, AND LIQUID LINE SERVICE VALVES.

C. SAFETY CONTROLS SHALL INCLUDE:

a) LOW PRESSURE CUTOUT, MANUAL RESET. b) HIGH PRESSURE CUTOUT, MANUAL RESET c) COMPRESSOR MOTOR OVERLOAD PROTECTION, MANUAL RESET.

d) ANTI-RECYCLING TIMING DEVICE. e) ADJUSTABLE LOW-AMBIENT LOCKOUT. F) OIL PRESSURE SWITCH.

- D. REFRIGERANT COIL: ALUMINUM FINS BONDED TO SEAMLESS COPPER TUBE BY MEANS OF MECHANICAL EXPANSION. AN EQUALIZING TYPE VERTICAL DISTRIBUTOR SHALL ENSURE EACH COIL CIRCUIT RECEIVES THE SAME AMOUNT OF REFRIGERANT.
- E. ECONOMIZER SHALL CONSIST OF RETURN AIR DAMPER, OUTDOOR AIR DAMPER, AND BAROMETRIC RELIEF DAMPER. PROVIDE POWERED EXHAUST FAN WITH MANUFACTURER'S STANDARD CONTROLS FOR UNITS SCHEDULED ON THE DRAWINGS.
- F. GAS HEAT: INDIRECT FIRED, GAS HEAT EXCHANGER, AUTOMATIC SPARK IGNITION, MANUFACTURER'S TANDARD GAS TRAIN WITH REGULATOR (IF REQUIRED), AGA APPROVED. VERIFY GAS SERVICE PRESSURE TO INDIVIDUAL ROOFTOP UNITS.
- G. ROOFTOP UNITS SHALL BE WIRED TO SHUTDOWN ON A SIGNAL FROM THE SMOKE DETECTORS AND SHALL AUTOMATICALLY RESET WHEN THE SMOKE DETECTORS ARE RESET. 14. CONTROL WIRING:

A. ELECTRICAL WIRING AND WIRING CONNECTIONS REQUIRED FOR THE INSTALLATION OF THE TEMPERATURE CONTROL SYSTEM, SHALL BE PROVIDED BY THIS CONTRACTOR, UNLESS SPECIFICALLY SHOWN ON THE ELECTRICAL DRAWINGS OR SPECIFICATIONS.

- B. INSTALL CONTROL WIRING, WITHOUT SPLICES BETWEEN TERMINAL POINTS, COLOR CODED. INSTALL IN ELECTRICAL CODE AND THE ELECTRICAL SPECIFICATIONS
- I) INSTALL CIRCUITS OVER 25 VOLT WITH COLOR CODED NUMBER 12 WIRE.
- 2) INSTALL CIRCUITS UNDER 25 VOLT WITH COLOR CODED NUMBER 18 WIRE WITH 0.031 INCH HIGH TEMPERATURE 105 DEGREES F PLASTIC INSULATION ON EACH CONDUCTOR AND PLASTIC SHEATH OVER
- 3) INSTALL ELECTRONIC CIRCUITS WITH COLOR CODED NUMBER 22 WIRE WITH 0.023 INCH POLYETHYLENE INSULATION ON EACH CONDUCTOR WITH PLASTIC JACKETED COPPER SHIELD OVER
- 4) INSTALL LOW VOLTAGE CIRCUITS, LOCATED IN CONCRETE SLABS AND MASONRY WALLS, OR EXPOSED IN OCCUPIED AREAS, IN ELECTRIC CONDUIT.
- 5) ALL WIRING IN AREAS USED AS AIR PLENUMS SHALL BE IN ELECTRIC CONDUIT EXCEPT THAT LOW VOLTAGE WIRING MAY BE TEFLON COATED, ALUMINUM SHEATHED CABLE OR OTHER WIRE SPECIFICALLY APPROVED FOR INSTALLATION IN AIR PLENUMS, WHERE ACCEPTABLE BY LOCAL
- 6) ALL WIRING IN AREAS NOT USED FOR AIR MOVEMENT SHALL BE IN ELECTRIC METALLIC TUBING EXCEPT LOW VOLTAGE WIRING MAY BE IN APPROVED SIGNAL CABLE WHERE ACCEPTED BY LOCAL CODES

15. SMOKE DETECTORS:

- A. UNITS MOUNTED IN THE DUCTWORK SHALL BE A DUCT MOUNTED UL LISTED PHOTO-ELECTRIC SELF-CONTAINED SMOKE DETECTOR WITH HOUSING. UNITS SHALL BE EQUAL TO SIMPLEX #4098-9687. THE SAMPLING TUBE SHALL BE #2098-9804, LENGTH AS REQUIRED FOR DUCT
- B. DUCT DETECTOR REMOTE TEST STATION SHALL BE SIMPLEX #4098-9842 WITH REMOTE ALARM INDICATOR, POWER-ON INDICATOR, TONE-ALERT, TONE-ALERT SILENCE SWITCH, AND TEST/RESET SWITCH. I) DEVICES SHALL BE MOUNTED IN APPROVED LOCATION AS INDICATED ON THE FLOOR PLANS OR AS
- DIRECTED BY LOCAL AUTHORITY HAVING JURISDICTION. C. PROVIDE AND INSTALL A PHOTO-ELECTRIC SMOKE DETECTOR IN THE RETURN AIR DUCT FOR EACH HVAC UNIT AS INDICATED ON THE FLOOR PLANS. DETECTORS ARE TO BE PROVIDED WITH A SUB-BASE CONTAINING AUXILIARY RELAY CONTACTS. RELAY CONTACTS SHALL BE WIRED INTO
- UNIT CONTROL WIRING, SO AS TO SHUT UNIT DOWN IN THE CASE OF SMOKE DETECTION. PROVIDE ALL CONTROL WIRING. ELECTRICAL CONTRACTOR SHALL PROVIDE 120 VOLT POWER TO EACH DETECTOR. D. SMOKE DETECTORS SHALL BE INTERLOCKED. IN ALARM CONDITION OF A SINGLE DETECTOR
- ALL UNITS SHALL SHUT DOWN. 16. REMODELING WORK
- A. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MECHANICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.
- B. EQUIPMENT TO BE SALVAGED:
- I) DISCONNECT AND REMOVE, EXISTING MECHANICAL EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER FOR STORAGE.
- 2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO LIKE NEW" CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED. ANY ITEMS WHICH BECOME DAMAGED BEYOND REPAIR AS A RESULT OF CONSTRUCTION OR DEMOLITION ACTIVITY SHALL BE REPLACED WITH NEW MATERIAL EQUIVALENT IN EVERY RESPECT.
- C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED.
- D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE.
- E. LOCATE, IDENTIFY, AND PROTECT MECHANICAL SERVICES PASSING THROUGH REMODELING AREA AND SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE REMODELING LIMITS. WHERE MECHANICAL SERVICES ARE LOCATED IN A WALL, ETC. TO BE DEMOLISHED, REROUTE PIPING TO NEW OR EXISTING CONSTRUCTION TO MAINTAIN CONTINUITY OF THE SYSTEM. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS.
- F. REMOVE ALL PIPING TO BE DEMOLISHED BACK TO PIPE MAIN OR EDGE OF PROJECT AREA, AND CAP
- G. PIPING AND DUCTS EMBEDDED IN FLOORS, WALLS, AND CEILINGS MAY REMAIN IF SUCH MATERIALS DO NOT INTERFERE WITH NEW INSTALLATIONS. PIPING AND DUCTS TO REMAIN SHALL BE APPROVED BY THE ARCHITECT. REMOVE MATERIALS ABOVE ACCESSIBLE CEILINGS. DRAIN AND CAP PIPING AND DUCTS ALLOWED TO REMAIN ABOVE CEILING OR BELOW FLOOR, CONCEALED FROM VIEW, EXCEPT AS OTHERWISE NOTED. PATCH FLOOR TO MATCH EXISTING.
- H. PIPE AND DUCT SHALL BE CONCEALED WITH NEW OR EXISTING CONSTRUCTION WHENEVER POSSIBLE, UNLESS INDICATED OTHERWISE.



SEAL

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ELECTRICAL SPECIFICATIONS

I. GENERAL PROVISIONS:

- A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLA ELECTRICAL SYSTEMS OUTLINED.
- B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE APPROVAL AS REQUIRED BY THE AUTHORITIES.
- C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST APPROVED EDITION NATIONAL ELECTRIC CODE (NEC), AND ALL APPLICABLE LAWS, CODES AND REGULATIONS GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
- D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
- E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, CONDUIT, ETC. SHALL BE COVERED, PLI CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED ACCEPTANCE.
- F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND RC NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINA ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING M WILL BE MAINTAINED.
- G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A I ONE YEAR FROM FINAL ACCEPTANCE. 2. OPERATION AND MAINTENANCE MANUALS:
- A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTION DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
- B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR IN THE OPERATION AND MAINTENANCE MANUALS.
- C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC.

3. MANUFACTURERS:

- A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS S INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CA LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURER BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PRO-UNLESS NOTED OTHERWISE.
- 4. TESTING, AND BALANCING:
- A. ALL CIRCUITS SHALL BE TESTED FOR CONTINUITY, SHORTS, AND GROUNDS BEFORE CONNE PROPER PHASE AS DESIGNED TO BALANCE THE LOADING BETWEEN PHASES.
- B. POWER AND LIGHTING PANELS SHALL BE PROPERLY PHASED TO DISTRIBUTE THE LOAD A CONNECTED AND ADJUSTED TO OPERATE AS SPECIFIED. C. ALL MOTORS AND SIMILAR EQUIPMENT SHALL BE CHECKED FOR PROPER PHASE ROTATIC
- 5. RACEWAYS:
- A. CONDUIT INSIDE THE BUILDING SHALL BE METALLIC TUBING (EMT), BEARING THE UL LABEL, WITH COMPRESSION TYPE FITTINGS OR SCREW SET FITTINGS.
- B. CONDUIT EXPOSED TO THE WEATHER, INSTALLED UNDERGROUND, IN CONCRETE, OR USED FOR SERVICE ENTRANCE SHALL BE STANDARD RIGID CONDUIT (GALVANIZED) WITH THREADED FITTINGS.
- C. UNDERGROUND CONDUIT MAY BE POLYVINYL CHLORIDE WITH A DEFLECTION TEMPERATURE, UNDER LOAD AT 264 PSI, OF 78 DEGREES C, AND A TENSILE STRENGTH OF 5,200 PSI. JOINTS SHALL BE FLUSH SOLVENT WELDED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE EQUAL TO CARLON POWER AND COMMUNICATIONS DUCT TYPE DB (DIRECT BURIAL). CONDUIT AND FITTINGS SHALL BE PRODUCED BY THE SAME MANUFACTURER.
- D. FLEXIBLE METAL CONDUIT SHALL ONLY BE USED FOR CONNECTIONS TO MOTORS, TRANSFORMERS, AND LIGHT FIXTURES. MAXIMUM LENGTH SHALL BE 6'-0".
- 6. CONDUCTORS:
- A. WIRES SHALL BE CONTINUOUS WITHOUT SPLICES OR TAPS IN CONDUIT RUNS. ALL SPLICES SHALL BE MADE IN JUNCTION, PULL, OR OUTLET BOXES. ALL WIRE SHALL BE INSTALLED IN CONDUIT, WIREWAYS, OR OTHER PROTECTIVE COVER SANCTIONED BY CODES.
- B. CONDUCTORS FOR LIGHTING AND POWER SHALL BE COPPER, MINIMUM NO. 12 A.W.G., 600 VOLT.
- C. NO. 10 GAUGE AND SMALLER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), SOLID CONDUCTOR, UNLESS OTHERWISE INDICATED.
- D. NO. 8 GAUGE AND LARGER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED, UNLESS OTHERWISE INDICATED.
- E. SERVICE ENTRANCE AND PANEL FEEDER CONDUCTORS, NO. 3 GAUGE AND LARGER SHALL BE TYPE XHHW-2 (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED COPPER, UNLESS OTHERWISE INDICATED. 7. MC CABLE:
- A. MC CABLE SHALL CONSIST OF INTERLOCK ARMORED CABLE MADE OF THREE OR FOUR TYPE THHN SOLID (#8 AWG AND LARGER MAY BE STRANDED) COPPER CONDUCTORS INSULATED WITH HEAT AND MOISTURE RESISTANT POLYVINYL CHLORIDE (PVC), WITH NYLON OR EQUIVALENT UL LISTED JACKET, PER UL STANDARD 83. THE THREE CONDUCTORS SHALL BE TWISTED TOGETHER WITH THE COPPER GROUNDING CONDUCTOR, SUITABLE FILLERS, AND WRAPPED IN BINDER TAPE. THE ASSEMBLY SHALL BE ARMORED WITH SPIRALLY WRAPPED INTERLOCKED ARMOR OR ALUMINUM OR GALVANIZED STEEL.
- B. CABLES SHALL BE TESTED IN ACCORDANCE WITH UL STANDARD 1569 FOR TYPE MC CABLE AND RATED AT 600 VOLTS, 90 DEG. C FOR DRY LOCATIONS AND 75 DEG. C FOR WET LOCATIONS.
- 8. WIRING DEVICES:
- A. WALL SWITCHES SHALL BE SPECIFICATION GRADE, QUIET TYPE, FLUSH TOGGLE SWITCH, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES. I) SINGLE POLE: HUBBELL #CSI22I-X, OR EQUAL. 2) THREE WAY: HUBBELL #CSI223-X, OR EQUAL.
- B. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX, GROUNDING, THREE-WIRE TYPE, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES. HUBBELL #CR5352-X, OR EQUAL.
- C. GROUND FAULT INTERRUPTER RECEPTACLES (GFI) SHALL BE HUBBELL #GF20-XL. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.
- D. ISOLATED GROUND RECEPTACLES (IG) SHALL BE HUBBELL #CR5352IG, ORANGE COLOR. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.
- E. RECEPTACLES OUTSIDE BUILDING AND WHERE NOTED AS WEATHERPROOF, SHALL BE AS HEREINBEFORE SPECIFIED EXCEPT SHALL BE INSTALLED IN A WEATHERPROOF ENCLOSURE WHICH SHALL BE INTERMATIC #WPIOIOMC OR #WPIOIOHMC DIECAST METAL WEATHERPROOF RECEPTACLE COVER. COVER SHALL BE WEATHER PROOF RATED WHILE IN USE.
- F. VERIFY DEVICES AND DEVICE COVERPLATES COLOR WITH ARCHITECT.

9. BOXES:

- A. HOT DIPPED GALVANIZED STEEL BOXES. PROVIDE TYPE TO SUIT CONDITIONS FOR INSTALLATION.
- B. ALL BOXES SHALL BE FLUSH MOUNTED, UNLESS INDICATED OTHERWISE.

	10. NEW PANELBOARDS:	le
ATION OF THE	A. FURNISH AND INSTALL CIRCUIT BREAKER PANELBOARDS AS SHOWN ON THE DRAWINGS. PANELBOARDS SHALL BE LISTED BY UL AND SO LABELED, AND SHALL BE FULLY RATED FOR THE VOLTAGE AND CURRENT CAPACITY INDICATED ON THE PANEL SCHEDULE. PANELBOARDS SHALL BE SQUARE D NQ SERIES PANELBOARDS WITH BOLT IN TYPE BREAKERS. PANELBOARD LUGS SHALL BE RATED AT 15°C.	
OR OF THE OF THE	I) CIRCUIT BREAKER INTERRUPTING CAPACITIES SHALL MEET OR EXCEED THE AVAILABLE RMS SYMMETRICAL FAULT CURRENTS INDICATED AND AS REQUIRED TO MEET OR EXCEED THE AVAILABLE FAULT CURRENT FROM LOCAL UTILITY.	
UGGED, OR BE RESTORED TO BEFORE FINAL	B. CIRCUIT BREAKERS SHALL MEET APPLICABLE PORTIONS OF UL STANDARD 489 AND NEMA AB-L. CIRCUIT BREAKERS SHALL BE BOLT-ON, GROUP MOUNTED, AMBIENT MAGNETIC, WITH COMMON TRIP, UL RATED TO CARRY 80% OF NAMEPLATE RATING CONTINUOUSLY IN FREE AIR AT 40° C. CIRCUIT BREAKERS SHALL BE TRIP INDICATING AND FULLY INTERCHANGEABLE WITHOUT DISTURBING ADJACENT UNITS. MIRE TERMINALS SHALL BE RATED 75 DEGREES C. THE OPERATING MECHANISM SHALL BE TRIP-FREE SO THAT CONTACTS CANNOT BE HELD CLOSED AGAINST ANY ABNORMAL OVERCURRENT OR SHORT CIRCUIT CONDITION.	
	a) BREAKERS SHALL MEET APPLICABLE NEMA AND/OR UL SPECIFICATIONS.	
OOFS AS ATE ALL MARRANTY	C. PANELBOARD BOXES SHALL BE GALVANIZED SHEET STEEL WITH AMPLE WIRING GUTTER SPACE IN ACCORDANCE WITH NEC. FRONTS SHALL BE OF SHEET STEEL PAINTED LIGHT GREY OVER A SUITABLE RUST INHIBITOR PRIMER. PANELBOARDS SHALL BE EQUIPPED WITH ONE PIECE DOOR, CYLINDER TUMBLER TYPE LOCK, DIRECTORY CARD-HOLDER AND QUARTER-TURN ADJUSTABLE TRIM CLAMPS.	
PERIOD OF	D. PANELBOARD INTERIORS SHALL CONSIST OF REINFORCED GALVANIZED SHEET STEEL FRAMES WITH COPPER BUS BARS AND CIRCUIT BREAKERS, PROPERLY SUPPORTED TO PREVENT VIBRATIONS AND BREAKAGE IN HANDLING. BUS BARS SHALL BE SEQUENCE PHASED. PANELBOARD SHALL HAVE A FULL SIZED SOLID COPPER NEUTRAL AND GROUND BUS.	
NS, WIRING PARTS LISTS,	 E. BUS BAR BRACING SHALL BE UL LISTED AS INDICATED ON DRAWINGS. ADDITIONAL BRACING SHALL BE PROVIDED AS REQUIRED TO MEET OR EXCEED INDICATED AVAILABLE FAULT CURRENTS. F. DIRECTORY CARDS SHALL BE COMPLETELY FILLED IN BY TYPEWRITER, LISTING CIRCUIT NUMBERS AND LOAD SERVED, INCLUDING EXISTING CIRCUITS. CIRCUIT BREAKERS SHALL BE IDENTIFIED BY CIRCUIT 	
r inclusion	NUMBER LABELS AS HEREINBEFORE SPECIFIED.	
BOUND IN A ² ,	A. DISCONNECTS SHALL BE EXTERNALLY OPERATED, QUICK-MAKE, QUICK-BREAK, SAFETY, WITH PROVISIONS FOR PAD LOCKING. FUSED AND NON-FUSED DISCONNECT SWITCHES SHALL BE PROVIDED AS INDICATED.	
	B. INDOOR SWITCHES SHALL BE NEMA I AND OUTDOOR SWITCHES SHALL BE NEMA 3R, UNLESS INDICATED OTHERWISE.	
HALL BE ONSTRUED AS	12. FUSES:	
RS SHALL JECT DESIGN,	A. FUSES PROTECTING CIRCUIT BREAKER PANELS SHALL BE CURRENT LIMITING U.L. CLASS RK-I FUSES WITH 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE SILVER FOR RATINGS ABOVE 60 AMPERES.	
ECTING TO THE	B. ALL OTHER FUSES SHALL BE U.L. CLASS RK-5, DUAL-ELEMENT WITH A MINIMUM TIME-DELAY OF 10 SECONDS AT 500% RATING. FUSES SHALL HAVE CURRENT-LIMITING SHORT-CIRCUIT LINKS AND 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE COPPER.	
AND SHALL BE	13. LIGHT FIXTURES:	
ON AND OPERATION.	A. WHERE LIGHT FIXTURES ARE MOUNTED IN A LAY-IN CEILING, PROVIDE A MINIMUM OF 2 SUPPORT WIRES ATTACHED DIRECTLY BETWEEN EACH LIGHT FIXTURE AND THE BUILDING STRUCTURE. SUPPORT WIRES SHALL BE A MINIMUM OF 12 GAUGE GALVANIZED STEEL WIRE, SOFT ANNEALED.	

- B. FIXTURES ARE REQUIRED AT ALL LIGHTING OUTLETS SHOWN ON THE DRAWINGS. APPROVED LIGHTING FIXTURE WIRE IS REQUIRED IN ALL FIXTURES AND FIXTURE RACEWAYS. WEATHERPROOF WIRING IS REQUIRED FOR EXTERIOR FIXTURES. ALL PARTS OF FIXTURES AND WIRING SHALL BE IN ACCORDANCE WITH NEC REQUIREMENTS.
- C. ALL FIXTURES SHALL CARRY UL AND ETL LABELS. ALL FLUORESCENT FIXTURE BALLASTS SHALL BE HIGH FREQUENCY ELECTRONIC BALLASTS WITH A "TOTAL HARMONIC DISTORTION" OF LESS THAN 20%, REGARDLESS OF THE NUMBER OF LAMPS CONNECTED TO EACH BALLAST AND SHALL HAVE CBM LABEL ALL FLUORESCENT FIXTURES INSTALLED SHALL INCORPORATE BALLAST PROTECTION. ALL FLUORESCENT BALLASTS SHALL HAVE AN AUDIBLE NOISE RATING OF "CLASS A" OR BETTER. ALL FLUORESCENT BALLASTS SHALL HAVE A POWER FACTOR GREATER THAN 98% WHEN USED WITH PRIMARY LAMP.
- D. ALL FLUORESCENT LAMPS SHALL BE 3500 K COLOR TEMPERATURE WITH A MINIMUM COLOR RENDERING INDEX (CRI) OF 82.
- E. ALL INTERIOR FLUORESCENT LUMINAIRES (FIXTURES) THAT UTILIZE DOUBLE ENDED LAMPS AND CONTAIN BALLASTS THAT CAN BE SERVICED IN PLACE OR BALLASTED LUMINAIRES THAT ARE SUPPLIED FROM MULTIWIRE BRANCH CIRCUITS AND CONTAIN BALLASTS THAT CAN BE SERVICED IN PLACE SHALL HAVE A DISCONNECTING MEANS EITHER INTERNAL OR EXTERNAL TO THE FIXTURE PER NEC 410.73(G).
- 14. SLEEVES:
 - A. PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK.
 - B. INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN CONDUIT AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.
- C. ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WEATHERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY. 15. GROUNDING:
- - A. GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 250. AND ANY LOCAL REQUIREMENTS. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT.
 - B. BOND METAL PIPING SYSTEMS IN COMPLIANCE WITH NEC 250.4(A)(4).

- 6. REMODELING WORK:

 - B. EQUIPMENT TO BE SALVAGED:

 - EQUIPMENT NOT INDICATED TO BE SALVAGED.

 - AFFECTED AREAS.

 - OBSTRUCTION. PATCH FLOOR TO MATCH EXISTING.
 - ARCHITECT.

A. DEMOLITION: DISCONNECT, DEMOLISH AND REMOVE ABANDONED ELECTRICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.

I) DISCONNECT AND REMOVE EXISTING ELECTRICAL EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER FOR STORAGE.

2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO "LIKE NEW" CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED. ANY ITEMS WHICH BECOME DAMAGED BEYOND REPAIR AS A RESULT OF CONSTRUCTION OR DEMOLITION ACTIVITY SHALL BE REPLACED WITH NEW MATERIAL EQUIVALENT IN EVERY RESPECT.

C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND

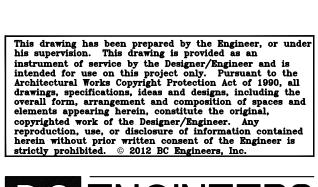
D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE.

E. PROVIDE ALL ALTERATIONS AND REWORK INDICATED AND/OR REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF ALL EXISTING ELECTRICAL SYSTEMS, INTEGRATING THE NEW AND EXISTING AREAS. LOCATE, IDENTIFY, AND PROTECT ELECTRICAL SERVICES PASSING THROUGH REMODELING AREA AND SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE REMODELING LIMITS. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR

I) ABANDONED CONDUIT SHALL HAVE WIRE REMOVED AND SHALL BE CAPPED. ABANDONED OUTLETS IN WALLS OR PARTITIONS SHALL HAVE DEVICES AND WIRE REMOVED, AND SHALL BE COVERED.

2) WHERE EXISTING CONDUITS TERMINATE AT AN EXISTING OUTLET IN A WALL, CEILING, OR FLOOR TO BE REMOVED, DISCONNECT AND REMOVE DEVICE AND WIRE FROM CONDUIT. CONDUIT SHALL BE CUT BACK AND CAPPED (BELOW THE FLOOR OR ABOVE THE CEILING) SO NOT TO CREATE AN

3) WHERE EXISTING CIRCUITS EXTEND BEYOND THE OUTLET IN THE EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED, FURNISH AND INSTALL NEW CONDUIT AND WIRE TO EITHER REPOUTE THE CIRCUIT OR FEED THE REMAINING OUTLET(S) FROM ANOTHER ELECTRICAL SOURCE, BUT IN SUCH A MANNER AS NOT TO REVISE THE CIRCUIT. ALL REROUTED CONDUIT SHALL BE APPROVED BY THE



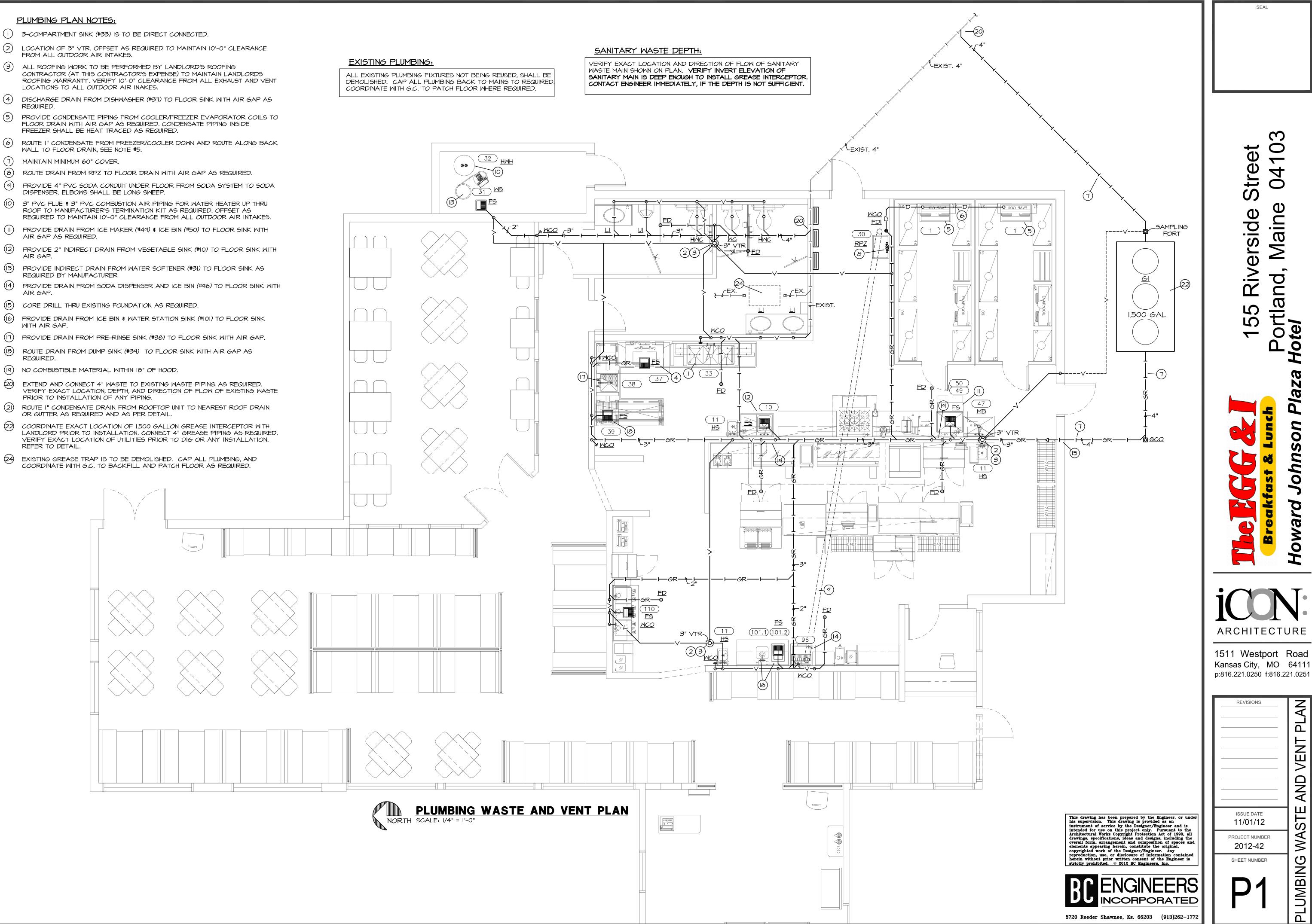


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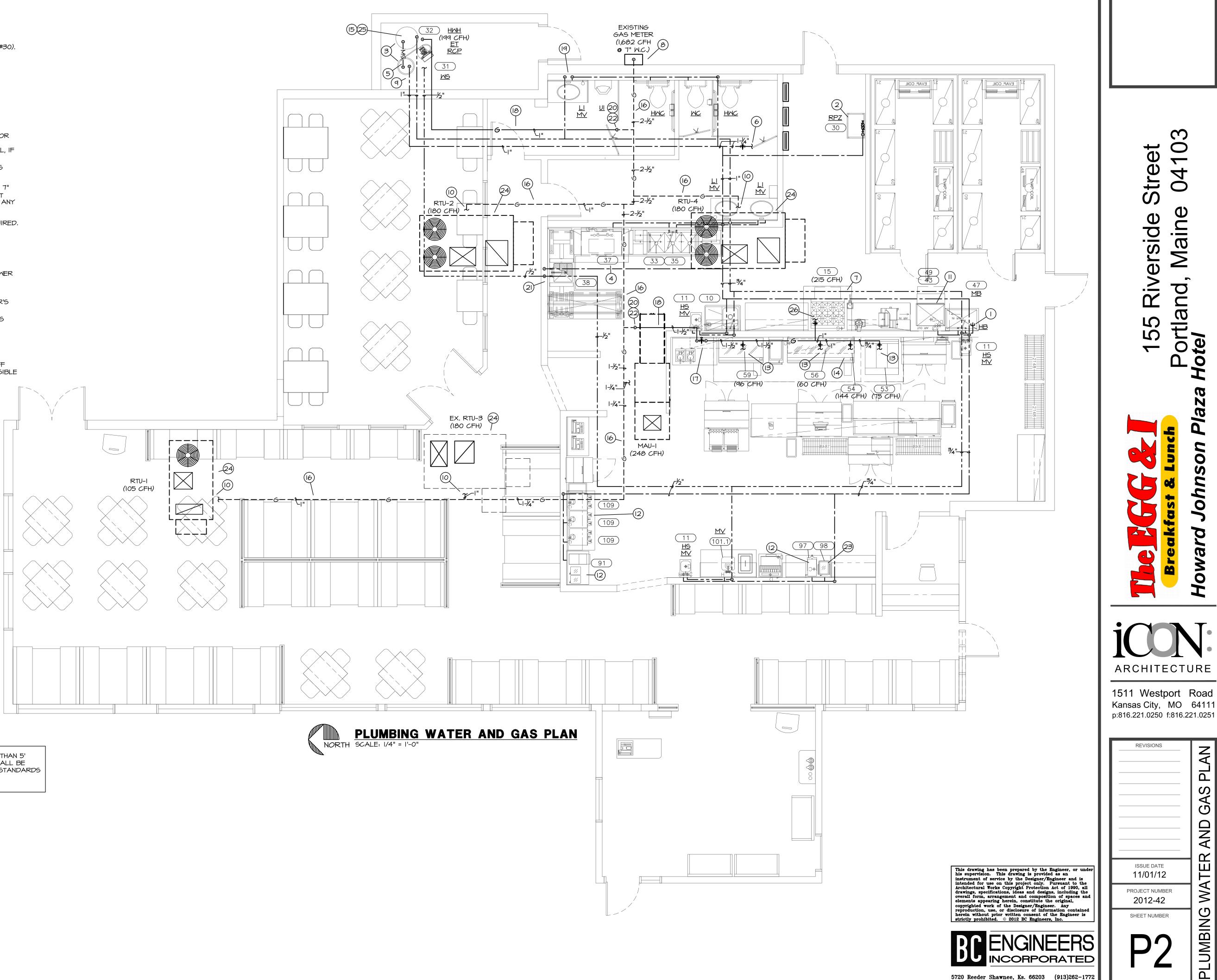
PLUMBING PLAN NOTES:

- () 3-COMPARTMENT SINK (#33) IS TO BE DIRECT CONNECTED.
- 2 LOCATION OF 3" VTR. OFFSET AS REQUIRED TO MAINTAIN 10'-0" CLEARANCE
- FROM ALL OUTDOOR AIR INTAKES.
- 3 ALL ROOFING WORK TO BE PERFORMED BY LANDLORD'S ROOFING CONTRACTOR (AT THIS CONTRACTOR'S EXPENSE) TO MAINTAIN LANDLORDS ROOFING WARRANTY. VERIFY 10'-0" CLEARANCE FROM ALL EXHAUST AND VENT LOCATIONS TO ALL OUTDOOR AIR INAKES.
- (4) DISCHARGE DRAIN FROM DISHWASHER (#37) TO FLOOR SINK WITH AIR GAP AS REQUIRED.
- 5 PROVIDE CONDENSATE PIPING FROM COOLER/FREEZER EVAPORATOR COILS TO FLOOR DRAIN WITH AIR GAP AS REQUIRED. CONDENSATE PIPING INSIDE FREEZER SHALL BE HEAT TRACED AS REQUIRED.
- (6) ROUTE I" CONDENSATE FROM FREEZER/COOLER DOWN AND ROUTE ALONG BACK WALL TO FLOOR DRAIN, SEE NOTE #5.
- $(\overline{7})$ MAINTAIN MINIMUM 60" COVER.
- (8) ROUTE DRAIN FROM RPZ TO FLOOR DRAIN WITH AIR GAP AS REQUIRED.
- **(9**) PROVIDE 4" PVC SODA CONDUIT UNDER FLOOR FROM SODA SYSTEM TO SODA DISPENSER. ELBOWS SHALL BE LONG SWEEP.
- (0) 3" PVC FLUE & 3" PVC COMBUSTION AIR PIPING FOR WATER HEATER UP THRU ROOF TO MANUFACTURER'S TERMINATION KIT AS REQUIRED. OFFSET AS REQUIRED TO MAINTAIN 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES.
- (I) PROVIDE DRAIN FROM ICE MAKER (#49) & ICE BIN (#50) TO FLOOR SINK WITH AIR GAP AS REQUIRED.
- (2) PROVIDE 2" INDIRECT DRAIN FROM VEGETABLE SINK (#10) TO FLOOR SINK WITH AIR GAP.
- (3) PROVIDE INDIRECT DRAIN FROM WATER SOFTENER (#31) TO FLOOR SINK AS REQUIRED BY MANUFACTURER
- (4) PROVIDE DRAIN FROM SODA DISPENSER AND ICE BIN (#96) TO FLOOR SINK WITH AIR GAP.
- (5) CORE DRILL THRU EXISTING FOUNDATION AS REQUIRED.
- (6) PROVIDE DRAIN FROM ICE BIN & WATER STATION SINK (#101) TO FLOOR SINK WITH AIR GAP.
- (8) ROUTE DRAIN FROM DUMP SINK (#39) TO FLOOR SINK WITH AIR GAP AS REQUIRED.
- (19) NO COMBUSTIBLE MATERIAL WITHIN 18" OF HOOD.
- 20 EXTEND AND CONNECT 4" WASTE TO EXISTING WASTE PIPING AS REQUIRED. VERIFY EXACT LOCATION, DEPTH, AND DIRECTION OF FLOW OF EXISTING WASTE PRIOR TO INSTALLATION OF ANY PIPING.
- (2) ROUTE I" CONDENSATE DRAIN FROM ROOFTOP UNIT TO NEAREST ROOF DRAIN OR GUTTER AS REQUIRED AND AS PER DETAIL.
- 2 COORDINATE EXACT LOCATION OF 1,500 GALLON GREASE INTERCEPTOR WITH LANDLORD PRIOR TO INSTALLATION. CONNECT 4" GREASE PIPING AS REQUIRED. VERIFY EXACT LOCATION OF UTILITIES PRIOR TO DIG OR ANY INSTALLATION. REFER TO DETAIL.
- 24) EXISTING GREASE TRAP IS TO BE DEMOLISHED. CAP ALL PLUMBING, AND



PLUMBING PLAN NOTES:

- PROVIDE ½" HB 60" AFF.
- 2 PROVIDE RPZ BACKFLOW PREVENTOR FOR CONNECTION TO CARBONATOR (#30). LOCATE BFP 72" AFF IN ACCESSIBLE LOCATION. NO COPPER PIPING TO BE ROUTED DOWNSTREAM OF BFP.
- (3) REFER TO RISER DIAGRAMS FOR SW, HW, & HWR CONNECTIONS TO WATER HEATER (#32) AND WATER SOFTENER (#31) AS REQURIED.
- (4) CONNECT $\frac{3}{4}$ " HW TO DISHWASHER (#37) AS REQUIRED.
- 5 PROVIDE INTERCONNECTION PIPING FROM WATER SOFTENER (#31) TO WATER HEATER (#32) AS REQUIRED.
- 6) CONNECT 1-1/4" CW TO EXISTING CW WITH SHUTOFF VALVE. VERIFY EXACT LOCATION PRIOR TO INSTALLATION OF ANY PIPING. REFER TO LANDLORD FOR ANY ADDITIONAL REQUIREMENTS. VERIFY EXISTING WATER SERVICE IS PROTECTED WITH AN APPROVED BACKFLOW DEVICE. PROVIDE AND INSTALL, IF NONE FOUND TO BE EXISTING.
- (7) CONNECT I" GAS TO KITCHEN EQUIPMENT AS REQUIRED PER MANUFACTURER'S SPECIFICATIONS.
- 8 COORDINATE WITH GAS COMPANY FOR A TOTAL GAS LOAD OF 1,682 CFH @ 7" W.C. EXTEND AND CONNECT 2-1/2" GAS PIPING TO GAS METER. VERIFY EXACT LOCATION OF GAS METER AND GAS PRESSURE PRIOR TO INSTALLATION OF ANY PIPING. ROUTE 2-1/2" GAS PIPING UP ONTO ROOF AS REQUIRED.
- (9) CONNECT I" CW TO WATER SOFTENER WITH BACKFLOW PREVENTOR AS REQUIRED.
- (0) CONNECT GAS PIPING TO RTU AS DETAILED.
- (II) CONNECT 1/2" CW TO ICE MAKER (#49) AND WATER FILTER (#43) WITH BFP AS REQUIRED BY LOCAL JURISDICTION.
- (2) CONNECT 1/2" CW TO HOT CHOCOLATE (#91), ICED TEA (#97) AND COFFEE BREWER (#109) WITH ASSE 1022 LISTED BFP OR AIR GAP AND SHUT OFF VALVE AS REQUIRED.
- (B) CONNECT $\frac{3}{4}$ " GAS TO KITCHEN EQUIPMENT AS REQUIRED PER MANUFACTURER'S SPECIFICATIONS.
- (14) CONNECT I" GAS TO KITCHEN EQUIPMENT AS REQUIRED PER MANUFACTURER'S SPECIFICATIONS.
- (15) CONNECT I" GAS PIPE TO WATER HEATER AS REQUIRED.
- (6) GAS PIPE LOCATED ON ROOF. SUPPORT AS REQUIRED AND PER DETAIL.
- (7) GAS PIPE TO COOKING LINE. ROUTE PIPING INSTALL GAS SOLENOID SHUT-OFF VALVE (FIRE SUPPRESSION SYSTEM) ON WALL BELOW CEILING IN AN ACCESSIBLE LOCATION AS REQUIRED. ROUTE PIPE BEHIND EQUIPMENT AT 15" AFF.
- (18) ROUTE GAS PIPE ABOVE CEILING.
- (19) ROUTE PIPING DOWN WALL ON INTERIOR SIDE OF INSULATION FOR FREEZE PROTECTION.
- 20 ALL ROOFING WORK TO BE PERFORMED BY LANDLORD'S ROOFING CONTRACTOR (AT THIS CONTRACTOR'S EXPENSE) TO MAINTAIN LANDLORDS ROOFING WARRANTY. VERIFY 10'-0" CLEARANCE FROM ALL EXHAUST AND VENT LOCATIONS TO ALL OUTDOOR AIR INAKES.
- (21) CONNECT ½" CW AND ½" HW TO PRE-RINSE FAUCET (#38) AS REQUIRED.
- 22 ROUTE GAS PIPING DOWN THROUGH ROOF. SEAL PENETRATION WEATHER TIGHT.
- (23) PROVIDE 2" CW CONNECTION TO BEVERAGE/JUICE DISPENSER (#98) WITH ASSE 1022 LISTED BFP OR AIR GAP AS REQUIRED.
- ROUTE I" CONDENSATE DRAIN FROM ROOFTOP UNIT TO NEAREST 24) ROOF DRAIN OR GUTTER AS REQUIRED AND AS PER DETAIL.
- 25 SET WATER HEATER TEMPERATURE TO 140° F. MAINTAIN PROPER CLEARANCE AROUND FOR WATER HEATER.
- CONNECT I-1/4" GAS TO KITCHEN EQUIPMENT AS REQUIRED PER MANUFACTURER'S SPECIFICATIONS. 26



BACKFLOW ASSEMBLIES TO BE INSTALLED NO MORE THAN 5' A.F.F. "ALL BACKFLOW ASSEMBLIES AND DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE INSTALLATION STANDARDS PROVIDED BY THE AUTHORITY HAVING JURISDICTION."

0 3 HOW ARCHITECTURE 1511 Westport Road

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PLUMBING FIXTURE SCHEDULE CONT:

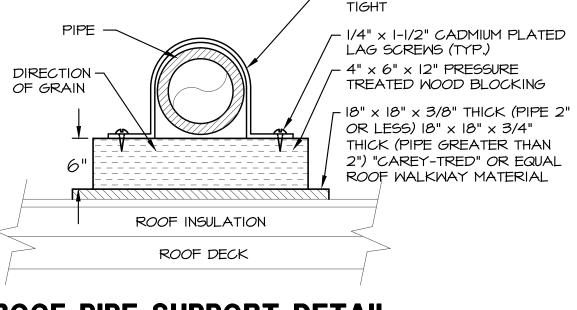
<u>WS</u>	WATER SOFTNER: CULLIGAN #WS-090, PEAK FLOW 38 GPM, CONTINUOUS FLOW 29.5 GPM, 210,000 GRAIN@LB. PROVIDE VALVING AND UNIONS AS REQUIRED BY MANUFACTURER TO INSTALL AS SHOWN ON RISER DIAGRAM.
<u>MC</u>	WATER CLOSET: TOTO, #CST744S, "DRAKE CLOSE COUPLED TOILET", I.6 GALLON FLUSH, ELONGATED BOWL, FLOOR MOUNTED, FLOOR OUTLET, TANK TYPE, VITREOUS CHINA, SIPHON-JET ACTION, #SC514 OPEN FRONT SEAT WITH CHECK HINGE AND LESS COVER, CHROME PLATED ANGLE STOP AND RISER.
<u>HWC</u>	HANDICAP WATER CLOSET: TOTO, #CST744SL, "DRAKE CLOSE COUPLED TOILET", I.6 GALLON FLUSH, I6-I/2" HIGH ELONGATED BOWL, FLOOR MOUNTED, FLOOR OUTLET, TANK TYPE, VITREOUS CHINA, SIPHON-JET ACTION, #SC5I4 OPEN FRONT SEAT WITH CHECK HINGE AND LESS COVER, CHROME PLATED ANGLE STOP AND RISER. HANDLE ON WIDE SIDE OF FIXTURE.
<u>UI</u>	URINAL, WALL HUNG: AMERICAN STANDARD, #6561.017, "TRIMBROOK", VITREOUS CHINA, SIPHON JET, WALL HUNG URINAL WITH 3/4" TOP SPUD, SLOAN #186-1 FLUSH VALVE, FLOOR MOUNTED FIXTURE SUPPORT. SET RIM HEIGHT PER ARCHITECTURAL DRAWINGS.
<u>L</u> I	HANDICAP LAVATORY, COUNTERTOP: AMERICAN STANDARD, #0476.028, "AQUALYN", VITREOUS CHINA, 20"× 17" OVAL BASIN, #2385.130 VANDAL- RESISTANT FAUCET WITH SINGLE METAL LEVER HANDLE, #7723.018 OFFSET GRID DRAIN WITH I-1/4" TAILPIECE, CHROME PLATED P-TRAP (MOUNTED PARALLEL WITH WALL), CHROME PLATED ANGLE STOPS AND RISERS, INSULATE EXPOSED DRAIN, WATER SUPPLIES, AND VALVES WITH PROWRAP SEAMLESS MOLDED CLOSED CELL VINYL INSULATION.
<u>MB</u>	MOP BASIN: ZURN, #ZI996-36-BV-HH-SF, MOLDED STONE MOP BASIN, 2" DRAIN, VINYL BUMPER GUARD, #21996-SF FAUCET WITH POLISHED CHROME FINISH, VACUUM BREAKER, INTEGRAL STOPS, WALL BRACE & PAIL HOOK, 30" HOSE AND WALL BRACKET.
<u>FD</u>	FLOOR DRAIN: SIOUX CHIEF, #832-25 SCHEDULE 40 PVC FLOOR DRAIN WITH ADJUSTABLE TOP AND 6" NIKALOY STRAINER. PROVIDE WITH DEEP-SEAL TRAP.
<u>FDI</u>	FLOOR DRAIN: SIOUX CHIEF, #832-25, SCHEDULE 40 PVC FLOOR DRAIN WITH RECESSED 6" NIKALOY STRAINER. PROVIDE WITH DEEP-SEAL TRAP.
<u>FS</u>	FLOOR SINK: SIOUX CHIEF #861, SCHEDULE 40 PVC, INTERIOR, 12"x 12" NICKEL BRONZE STRAINER, SEDIMENT BUCKET. PROVIDE I FINISHED OPENING IN STRAINER FOR CONNECTION OF INDIRECT WASTE FROM SINK. PROVIDE WITH DEEP-SEAL TRAP.
<u>HMH</u>	HOT WATER HEATER: RHEEM, #HEII9-199, GAS FIRED, CONDENSING TYPE, II9 GALLON STORAGE, 199 MBTUH INPUT, 312 GPH RECOVERY AT 100 DEGREES F RISE, MAIN & PILOT AUTOMATIC GAS VALVES, 120 VOLT, TEMPERATURE AND PRESSURE RELIEF VALVE. (NO EXCEPTION)
ET	HOT WATER EXPANSION TANK: AMTROL, #ST-12, 4.4 GALLON EXPANSION TANK WITH DIAPHRAGM.
<u>RCP</u>	HOT WATER RECIRCULATING PUMP: BELL & GOSSETT, #NBF, 3 GPM @ 7 FT. HEAD, I/I2 HP, I20 VOLT, &#TC-I AUTOMATIC TIMER.</td></tr><tr><td><u>RPZ</u></td><td>REDUCED PRESSURE ZONE BACK FLOW PREVENTOR WATTS #009-QT, BRONZE BODY, TWO, IN-LINE INDEPENDENT CHECK VALVES, REPLACEABLE CHECK SEATS WITH AN INTERMEDIATE RELIEF VALVE, AND BALL VALVE TEST COCKS.</td></tr><tr><td><u>H5</u></td><td>HAND SINK: BY OTHERS. PROVIDE DRAIN WITH I-1/2" TAILPIECE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT, CHROME PLATED ANGLE STOPS AND RISERS.</td></tr><tr><td>HB</td><td>HOSE BIBB. WOODEORD #24 $3/4$" HOSE NOTTLE OUTLET BRASS FINISH</td></tr></tbody></table>

- <u>HB</u> HOSE BIBB: WOODFORD, #24, 3/4" HOSE NOZZLE OUTLET, BRASS FINISH, HANDWHEEL OPERATED, INTEGRAL VACUUM BREAKER.
- GREASE INTERCEPTOR: WATER AND SEWER DEPARTMENT APPROVED 1,500 <u>GI</u> GALLON CONCRETE PRECAST GREASE INTERCEPTOR AND ASSOCIATED PIPING PER CODE REQUIREMENTS AND AS DETAILED.

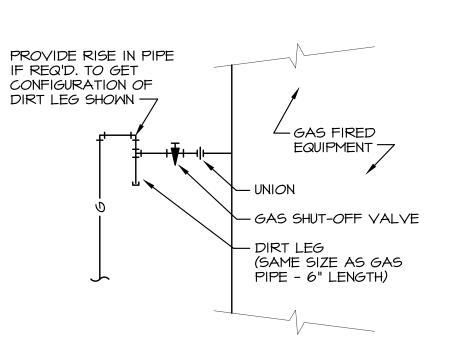
PLUMBING GENERAL NOTES:

- I. INSTALL ALL PIPE, ETC. AS HIGH AS POSSIBLE.
- 2. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
- 3. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF FIXTURES.
- 4. REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR SUPPORTING PIPING, EQUIPMENT, ETC. FROM THE STRUCTURE. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.
- 5. SAWCUT EXISTING FLOOR AS REQUIRED FOR INSTALLATION OF UNDERFLOOR PIPING. PATCH FLOOR TO MATCH EXISTING.
- 6. PROVIDE I" SCHEDULE 40 PVC CONDENSATE DRAIN PIPE FOR EACH ROOFTOP UNIT LAID DIRECTLY ON ROOF TO NEAREST ROOF DRAIN. PROVIDE WATER TRAP AND CLEAN OUTS AS DETAILED. SECURE PVC PIPE TO DRAIN WITH NYLON STRAP.
- 7. NO PIPING SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
- 8. ALL EXISTING PLUMBING NOT BEING REUSED, SHALL CAPPED BACK AT MAINS AS REQUIRED. COORDINATE WITH G.C. TO PATCH FLOOR WHERE REQUIRED.
- 9. FOOD SERVICE CONTRACTOR TO SUPPLY SINK BOWLS AND FAUCETS FOR KITCHEN SINKS. PLUMBING CONTRACTOR TO SUPPLY P-TRAPS, ANGLE STOPS, RISERS, VALVES AND ACCESSORIES FOR KITCHEN SINKS.
- IO. ANY PENETRATIONS TO THE WALL, FLOOR OR CEILING AT ALL WATER OR WASTE LINES MUST BE SEALED AROUND THE PIPE FIRST AND THEN THE ESCUTCHEON SEALED TO THE WALL.
- II. ALL EXPOSED PIPING (PLUMBING, POS LINES, FIRE ALARM, FIRE EXTINGUISHER, ETC) MUST BE PAINTED TO MATCH ADJACENT CONSTRUCTION. THERE SHALL BE ABSOLUTELY NO EXPOSED, UNPAINTED PIPING WITHIN THE ESTABLISHMENT.

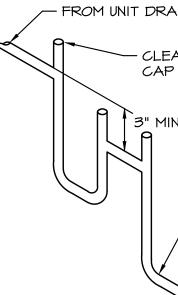
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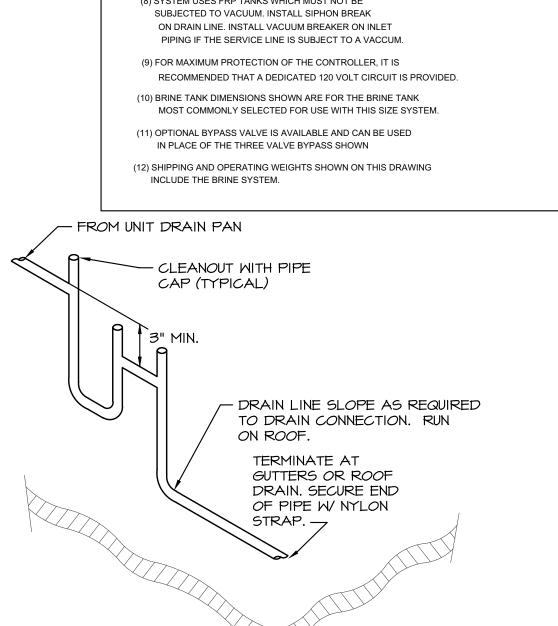


PLUMBING FIXTURE BRANCH	PIPIN	IG SC	HED	ULE
FIXTURE	INACTE	VENT		
FIXTURE	MASIE	VENT	CM	HM
WATER CLOSET (TANK TYPE)	4"	2"	1/2"	
	•	-		
	2"	1/2"	1.11	
URINAL	2	11/2		
LAVATORY	- /4"	- /4"	1/2"	1/2"
LAVATORI	1-1/4	1-1/4	1/2	1/2
SINK	1-1/2"	- /2"	1/2"	1/2"
	1-1/2	1-1/2	1/2	1/2
	0"			
FLOOR DRAIN	2"	2"		
	21	21	2/11	2/41
MOP BASIN	2"	2"	3/4"	3/4"
OTE: INDIVIDUAL VENTS FOR FIXTURES O	N PLANS		ISFR	
DIAGRAMS HAVE BEEN INCREASED WHERE				NGTH
S IN EXCESS OF THE MAXIMUM DISTANCE I				
	- " × /8"			
	STRAP.	DO NO	DT CLA	MP PIPE

ROOF PIPE SUPPORT DETAIL

GAS CONNECTION DETAIL

AIN PAN
EANOUT WITH PIPE P (TYPICAL)
IN.
DRAIN LINE SLOPE AS REQUIRED TO DRAIN CONNECTION. TERMINATE AT P-TRAP WITH AIR GAP
INSATE DRAIN DETAIL



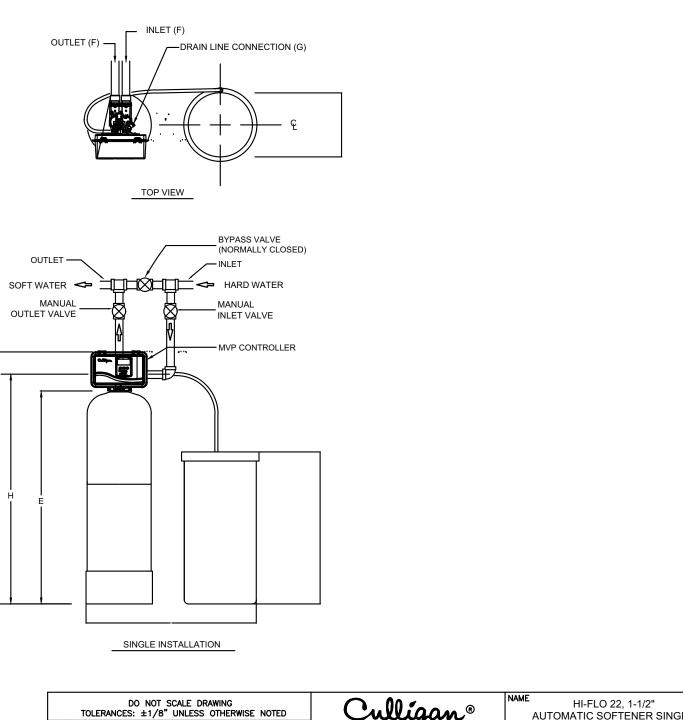
CONDENSATE DRAIN DETAIL SCALE: NONE

PLUMBING SYMBOLS

PLUMBING	<u>SYMBOLS</u>
— — —	SOIL AND WASTE PIPING BELOW GRADE
	SOIL AND WASTE PIPING ABOVE GRADE
—+GR-I—	SOIL AND WASTE PIPE TO GREASE INTERCEPTOR
V	SANITARY VENT PIPING ABOVE GRADE
V	SANITARY VENT PIPING BELOW GRADE
	DOMESTIC COLD WATER PIPING
—-SW—-	DOMESTIC COLD SOFTENED WATER PIPING
	DOMESTIC HOT WATER PIPING
	DOMESTIC HOT WATER RECIRCULATION PIPING
D	CONDENSATE DRAIN LINE
—_G—	GAS PIPING
G	GAS PIPING ON ROOF
с+	PIPING TURNING DOWN
+0	PIPING TURNING UP
 4,	TEE TOP CONNECTION
— -	UNION
×1292×-	BACKFLOW PREVENTER
FCO 🖸	FLOOR CLEAN OUT
600	GRADE CLEAN OUT
WCO 🛏	WALL CLEAN OUT
FD _⊘	FLOOR DRAIN
— , ∎	VALVE
—Ø—	CHECK VALVE
$\langle \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$	MATCH MARKS ON PLUMBING RISER DIAGRAM
\bigcirc	CONNECT TO EXISTING
—+ ₹ +—	SOLENOID VALVE

_	DIMENSIONS (INCHES)									UNIT DA	TA PER TANK						
MODEL	WIDTH A	HEIGHT B(6)	TANK DIA. D	TANK HEIGHT E	INLET/OUTLET PIPE SIZES F	DRAIN SIZE G	FLOOR TO INLET H	TANK	BRINE TANK HEIGHT M(10)	MAX. CAPACITY KGR @ SALT DOSAGE	RESIN VOLUME ft ³	CONTINUOUS FLOW gpm @ 15 psi drop	PEAK FLOW gpm @ 25 psi drop	DRAIN FLOW gpm	min. Drain Pipe size In.	-	SIMPLEX SHIP. WT. Ibs.
WS-090	47	63	16	53	1.5	1.0	57	18	38	90 @ 45	3	29.5	38	6	0.75	1235	341

MANUAL



	DO NOT SCALE TOLERANCES: ±1/8" UNLES		WISE	NOTED	Culligan®	HI-FLO 22, 1-1/2" AUTOMATIC SOFTENER SINGLE		
Le	t. Change	By	Арр	Date	ENGINEERED	WS-090 TEC	HNICAL DATA SH	IEET
\vdash					NORTHBROOK, ILLINOIS	DETAILED BY: KMR 9/20/07	APP. BY:	SHEET 1 OF 1
					PRINT AND BILL OF MATERIAL ARE NOT TO BE USED WITHOUT THE WRITTEN CONSENT OF CULLIGAN INTERNATIONAL CO.	REF. NO.	PART NO. HF-22 W	
								13 000

EQ	UIP	MENT SCHEDULE
ITEM NO	QTY	EQUIPMENT CATEGORY
1	1	WALK-IN COOLER/FREEZER
10	1	(1) ONE COMP. VEGETABLE SINK AND FAUCET
11	3	HAND SINK W/ SIDE SPLASHES
15	1	(6) O/B RANGE W/ OVEN (w/ CASTERS)
30	1	SODA SYSTEM
31	1	WATER SOFTENER
32	1	WATER HEATER
33	1	(3) COMP. POT & PAN SINK w/ CLEAN DISH TABLE
35	1	FAUCET (SPLASH MOUNTED)
37	1	DISHMACHINE
38	1	PRE-RINSE FAUCET (WALL MOUNTED)
39	1	SOILED DISH TABLE w/ PRE-RINSE SINK AND DUMP SINK
43	1	WATER FILTER
47	1	MOP BASIN
49	1	ICE MAKER
50	1	ICE BIN
53	1	HOT TOP HEAVY DUTY RANGE (w/ CASTERS)
54	1	72" CHEESE MELTER (w/ MOUNTING BRACKETS)
56	1	72" GRIDDLE
59	1	48" GRIDDLE
91	1	HOT CHOCOLATE DISPENSER
96	1	SODA DISPENSER W/ ICE BIN
97	1	ICED TEA BREWER
98	1	BEVERAGE / JUICE DISPENSER
101.1	1	BUILT-IN SINK (w/ WATER FILLER)
101.2	1	DROP-IN ICE BIN
109	3	COFFEE MAKER
110	1	COFFEE WORK TABLE WITH DRAIN

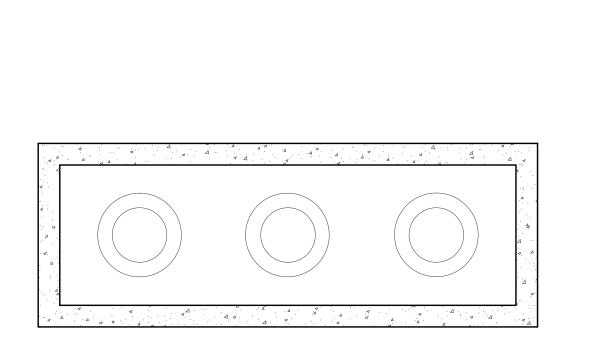
155 Riverside Street Portland, Maine 04103	a Hotel
The Breakfast & Lunch	Howard Johnson Plaza Hotel
	–
ICON ARCHITECTO 1511 Westport Kansas City, MO p:816.221.0250 f:816.2	JRE Road 64111

SEAL

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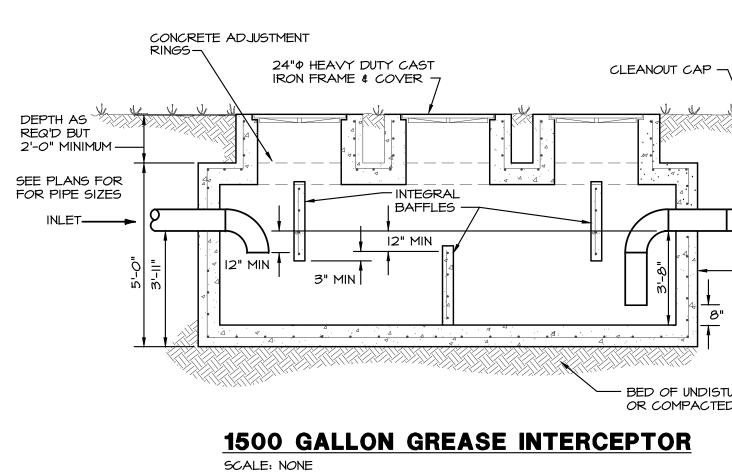
5720 Reeder Shawnee, Ks. 66203 (913)262-1772

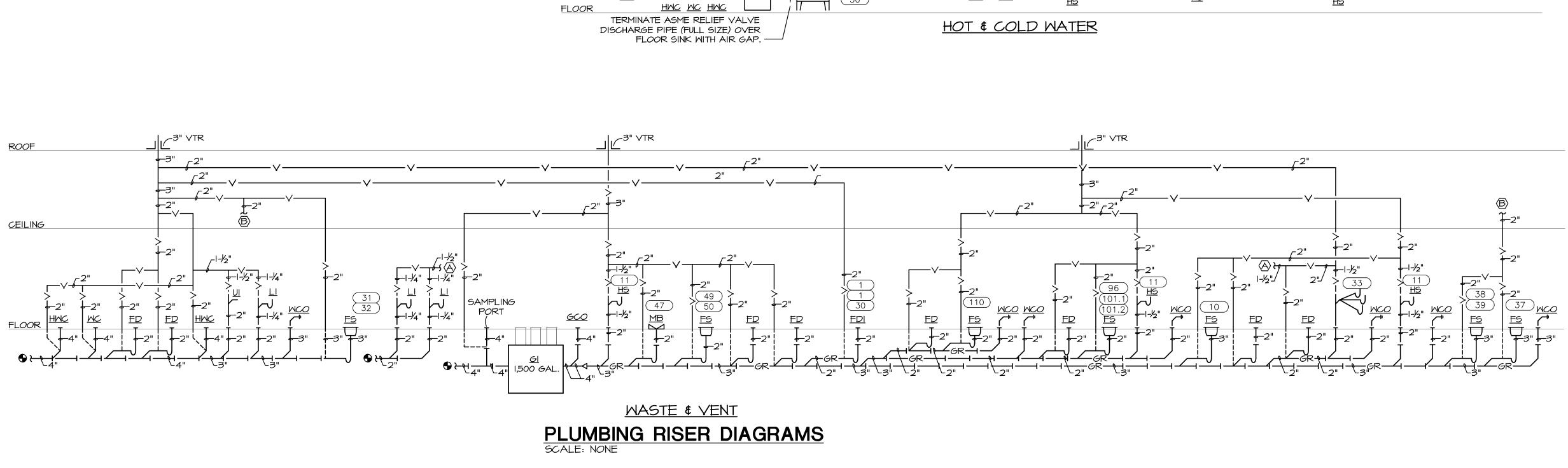


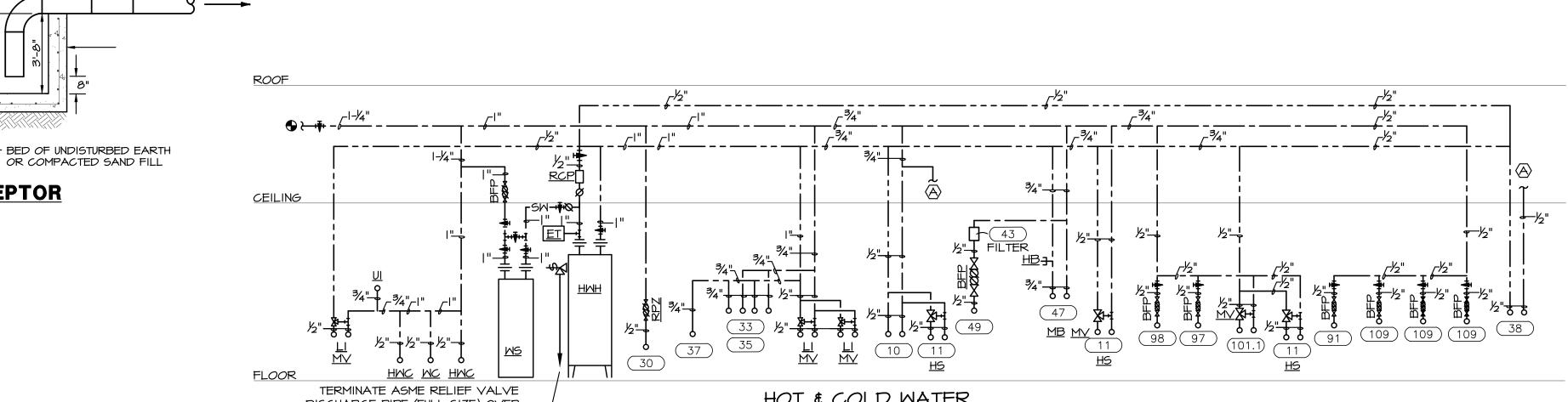
- 4"x4" SANITARY

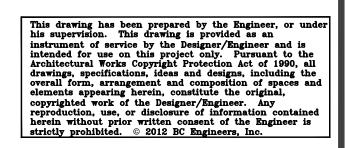
OUTLET

TEE









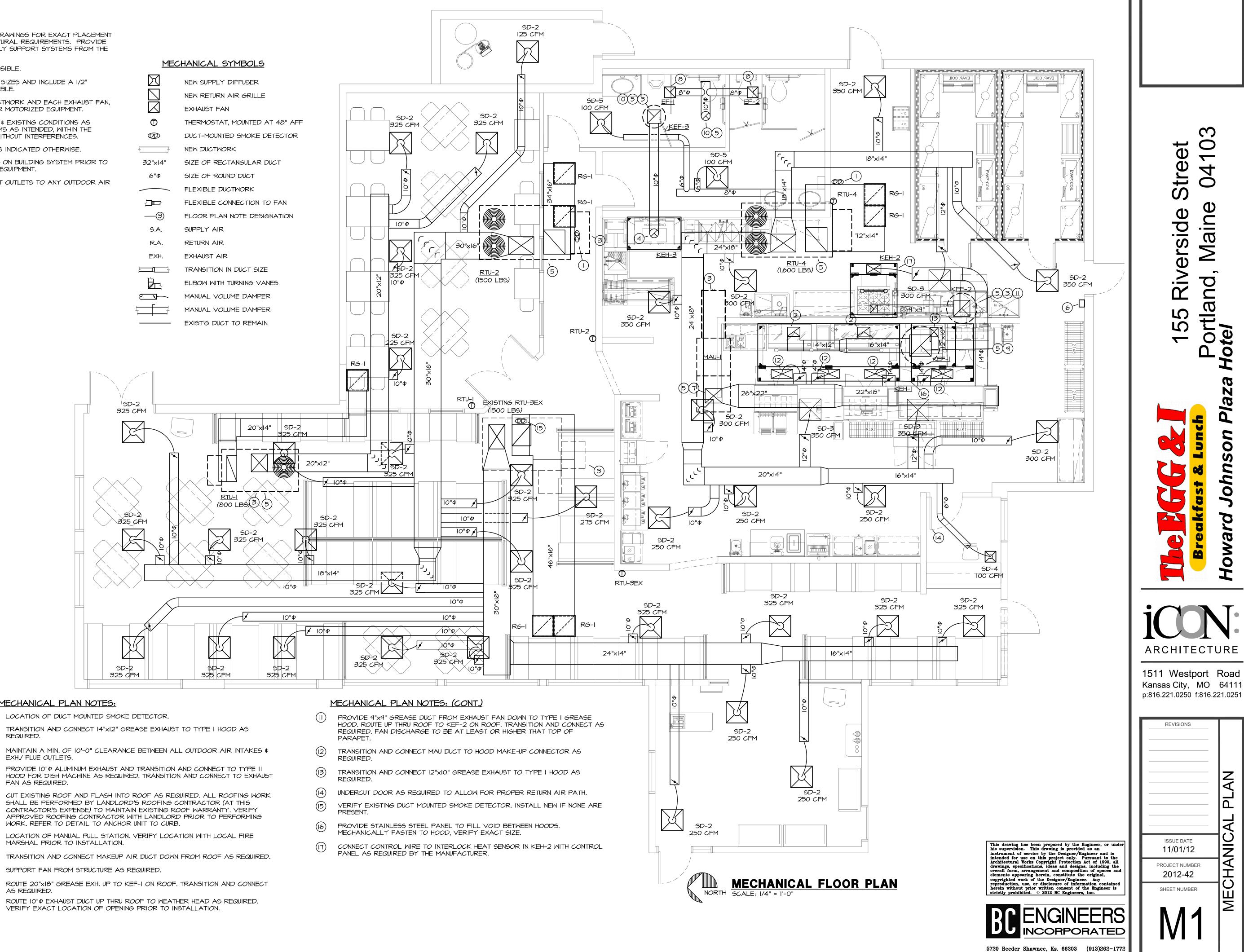


 \mathcal{O} \bigcirc et $\overline{}$ Stre(40 Maine erside Q rla 55 O $\overline{}$ 40 Howard 4 \sim ARCHITECTURE 1511 Westport Road Kansas City, MO 64111 p:816.221.0250 f:816.221.0251 REVISIONS PLUMBING RISER DIAGRAMS ISSUE DATE PROJECT NUMBER 2012-42 SHEET NUMBER \square

GENERAL NOTES:

- REFER TO ARCHITECTURAL & SHELL BUILING DRAWINGS FOR EXACT PLACEMENT OF EXHAUST FANS, ETC. & ADDITIONAL STRUCTURAL REQUIREMENTS. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.
- 2. INSTALL ALL DUCT, PIPE ETC. AS HIGH AS POSSIBLE.
- DUCT SIZES SHOWN ARE ACTUAL SHEETMETAL SIZES AND INCLUDE A 1/2" 3. ALLOWANCE FOR DUCT LINER WHERE APPLICABLE.
- 4. PROVIDE FLEXIBLE CONNECTION BETWEEN DUCTWORK AND EACH EXHAUST FAN, ROOFTOP UNIT, MAKE-UP AIR UNITS AND OTHER MOTORIZED EQUIPMENT.
- COORDINATE ALL WORK WITH OTHER TRADES & EXISTING CONDITIONS AS 5. REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
- 6. ALL DUCTWORK SHALL BE CONCEALED UNLESS INDICATED OTHERWISE.
- CONTRACTOR TO VERIFY STRUCTURAL LOADS ON BUILDING SYSTEM PRIOR TO INSTALLATION OF ANY INSTALLATION OF NEW EQUIPMENT.
- 8. VERIFY 10'-0" CLEARANCE FROM ALL EXHAUST OUTLETS TO ANY OUTDOOR AIR INTAKES.

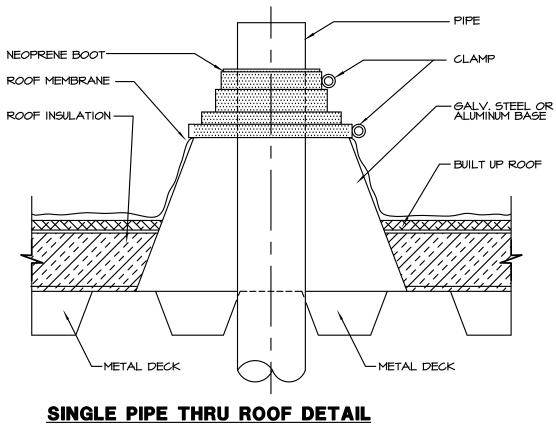
- NEW SUPPLY DIFFUSER NEW RETURN AIR GRILLE EXHAUST FAN NEW DUCTWORK SIZE OF ROUND DUCT FLEXIBLE DUCTWORK SUPPLY AIR RETURN AIR EXHAUST AIR TRANSITION IN DUCT SIZE



SFAL

MECHANICAL PLAN NOTES:

- ()LOCATION OF DUCT MOUNTED SMOKE DETECTOR.
- 2 REQUIRED.
- 3 MAINTAIN A MIN. OF 10'-0" CLEARANCE BETWEEN ALL OUTDOOR AIR INTAKES \$ EXH./ FLUE OUTLETS.
- (4) HOOD FOR DISH MACHINE AS REQUIRED. TRANSITION AND CONNECT TO EXHAUST FAN AS REQUIRED.
- (5) CUT EXISTING ROOF AND FLASH INTO ROOF AS REQUIRED. ALL ROOFING WORK SHALL BE PERFORMED BY LANDLORD'S ROOFING CONTRACTOR (AT THIS CONTRACTOR'S EXPENSE) TO MAINTAIN EXISTING ROOF WARRANTY. VERIFY APPROVED ROOFING CONTRACTOR WITH LANDLORD PRIOR TO PERFORMING WORK. REFER TO DETAIL TO ANCHOR UNIT TO CURB.
- 6 LOCATION OF MANUAL PULL STATION. VERIFY LOCATION WITH LOCAL FIRE MARSHAL PRIOR TO INSTALLATION.
- (7)TRANSITION AND CONNECT MAKEUP AIR DUCT DOWN FROM ROOF AS REQUIRED.
- ⑧ SUPPORT FAN FROM STRUCTURE AS REQUIRED.
- **(9**) ROUTE 20"XIB" GREASE EXH. UP TO KEF-I ON ROOF. TRANSITION AND CONNECT AS REQUIRED.
- \bigcirc ROUTE 10" & EXHAUST DUCT UP THRU ROOF TO WEATHER HEAD AS REQUIRED. VERIFY EXACT LOCATION OF OPENING PRIOR TO INSTALLATION.



CALE:	NONE

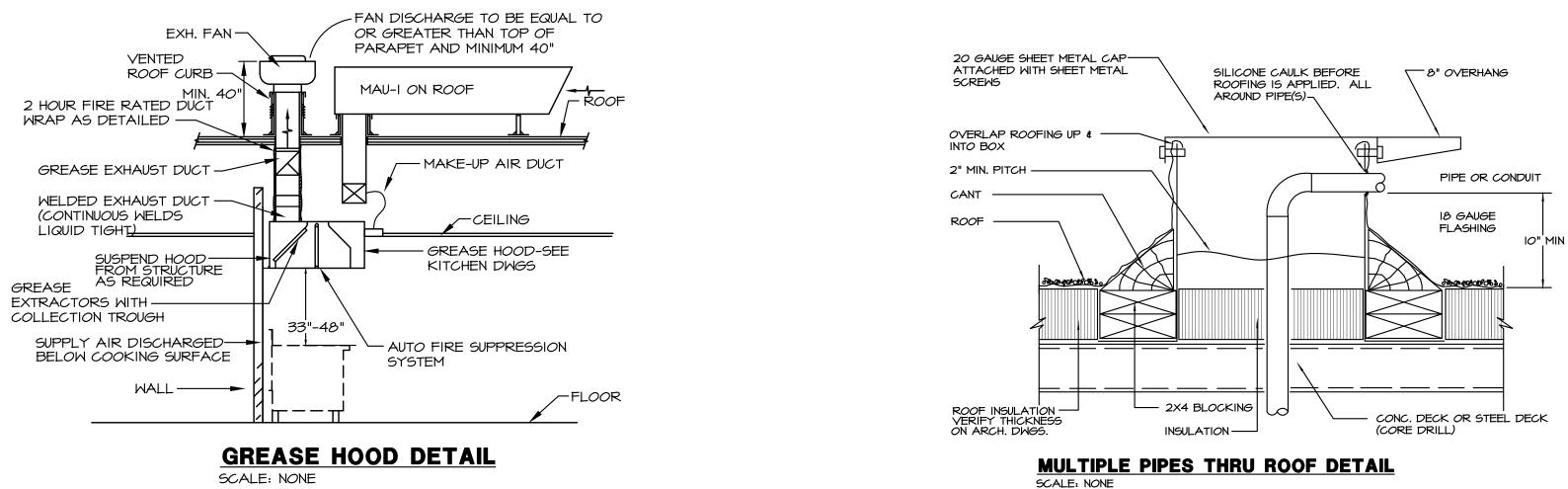
OUTDOOR AIR CALCULATIONS								
UNIT	CLASS	SQ. FT.	PEOPLE/ SQ. FT.	CFM/ SQ. FT.	CFM/ PERSON	CFM		
	OFFICE	54	7/1000		20	5		
RTU'S ¢ MAU-I	KITCHEN	1615	20/1000		15	485		
	TOILETS	302				300		
	DINING	2170	70/1000		20	3038		
	LOBBY	290	30/1000		15	131		
					TOTAL	3,958		

MINIMUM OUTDOOR AIR REQUIRED = 3,958 CFM TOTAL OUTDOOR AIR SUPPLIED = 6,201 CFM

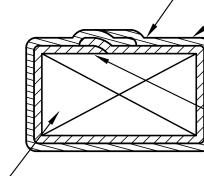
MARK	MF	GF
SD-I	TI	rus
SD-2		
SD-3		
SD-4		
SD-5		
RG-I		

SUPPLY AIR UNIT	OUTSIDE	RETURN	SUPPLY	OA/SA	EXHAUST AIR UNIT	EXHAUST	REMARKS
	AIRFLOW	AIRFLOW	AIRFLOW			AIRFLOW	
	(CFM)	(CFM)	(CFM)	%		(CFM)	
RTU-1	215	985	1,200	18.0%	KEF-1	3,950	
RTU-2	540	2,460	3,000	18.0%	KEF-2	758	
RTU-3EX	720	3,280	4,000	18.0%	KEF-3	750	
RTU-4	720	3,280	4,000	18.0%			
					EF-1	150	
MUA-1	4,006	0	4,006	100.0%	EF-2	150	
TOTAL	6,201	10,005	16,206	38.2%	TOTAL	5,766	
			RES	SULTING BUILD	ING PRESSURIZATION	435	CFM

MARK
RTU-I
RTU-2
RTU-BEX
RTU-4



3" LONGITUDINAL



DUCTWRAP TO CREATE A TWO HOUR RATED ASSEMBLY. PROVIDE ALL ELEMENTS AND INSTALLATION TECHNIQUES REQUIRED BY THE MANUFACTURER

3" PERIMETER OVERLAP AT 21" O.C. STAGGERED WITH THE LONGITUDINAL OVERLAP

- GREASE DUCT AS SPECIFIED

<u>DUCTWRAP</u> - 3M FIREBARRIER DUCT WRAP #I5A, GREASE DUCT FIRE PROTECTION SYSTEM, UL 1978 & ASTM E 119 APPROVED, 2300°F RATING, O CLEARANCE TO COMBUSTIBLES.

GREASE DUCT ENCLOSURE DETAIL SCALE: NONE

MODEL	NECK SIZE	FACE SIZE	FINISH	REMARKS
PAS/3	I2"Φ	24"x24"	WHITE	-
*	ΙΟ"Φ			-
PAR/3	22"x22"			-
PAS/3	6"Ф	12"XI2"		-
*	•	24"x24"		W/ TRM & O.B.D. IN NECK
PAR/3	22"x22"	•	•	-
		, , , , , , , , , , , , , , , , , , ,	,	

DIFFUSER SCHEDULE

EXHAUST FAN SCHEDULE

				EXTERNAL		ELECTRIC	AL							
MARK	MFGR	MODEL	CFM	STATIC P. IN. WG.	RPM	VOLT/Φ/HZ	PWR	FAN TYPE	REMARKS					
EF-I	соок	GC-164	150	0.25	1125	120/1/60	IIOM	CEILING EXH.	-					
EF-2	1	*	1	1	1	1	1	*	-					

NOTES: 1. PROVIDE CEILING GRILLE, FAN SPEED CONTROL NEAR FAN ABOVE CEILING, INTEGRAL BACK DRAFT DAMPER WEATHER HEAD, AND NON-FUSED DISCONNECT FOR EF-I & EF-2.

2. FANS SHALL NOT EXCEED SCHEDULED RPM.

	ROOFTOP UNIT SCHEDULE																
		NOM.	EVAP.	EXT. STATIC P.		COOLING	5		HEATI	NG (GAS)	ELECTR	RICAL		TOTAL			
MFGR	MODEL NO.	TONS	CFM	<i></i>	TOTAL BTUH	SENS. BTUH	AMB.	EVAP. EAT DB/WB	BTUH INPUT	BTUH OUTPUT	<i>∨0</i> LT/Φ/HZ	BLOWER MOTOR	OUTDOOR AIR (CFM)	WEIGHT (LBS)	EER/	FREON	REMARKS
LENNOX	KGA03654	З	1,200	0.8	36,300	27,200	105	80/67	105,000	84,000	208/3/60	2 HP	240	850	13.0/-	R-410a	-
†	KGA09054	7.5	3,000	•	84,100	62,200			180,000	144,000		3 HP	600	1,500	-/11.0	1	-
YORK	DHI20NI5N	10	4,000	-	113,000	89,000			180,000	-		-	800	-	-	-	EXISTING
LENNOX	KGAI2054B	10	4,000	0.8	113,600	85,200	V	ţ	180,000	144,000	•	3 HP	800	1,600	-/11.0	0.8	-
							7 /										T

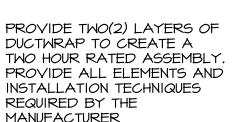
NOTES: I. PROVIDE OUTDOOR AIR ECONOMIZER, TIME DELAY ON COMPRESSOR RE-START, CRANKCASE HEATER, BAROMETRIC RELIEF DAMPER, AND COMPRESSOR LOCK-OUT WITH AMBIENT BELOW 30°F, AND FUSED DISCONNECT FOR RTU-1, RTU-2 AND RTU-4. OUTDOOR AIR DAMPER TO FULLY CLOSE W/ FAN SHUTDOWN FOR EACH UNIT.

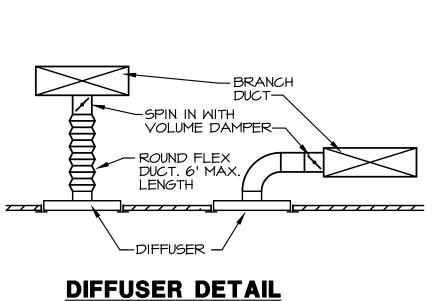
2. EXTERNAL STATIC PRESSURE LISTED REPRESENTS STATIC PRESSURE REQUIRED FOR DUCTWORK AND DIFFUSERS OUTSIDE THE HVAC UNIT COMPLETELY INDEPENDENT OF ANY PRESSURE DROP THROUGH THE HVAC EQUIPMENT INCLUDING BUT NOT LIMITED TO FILTERS, COILS AND ECONOMIZERS. THE FAN AND MOTOR SHALL BE SIZED APPROPRIATELY TO MEET THIS DEFINITION OF EXTERNAL STATIC PRESSURE.

3. PROVIDE 7-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER THERMOSTATS FOR EACH UNIT. THERMOSTAT TO BE HONEYWELL VISIONPRO 8000' COMMERCIAL (TB8220U1003)- NO EXCEPTIONS.

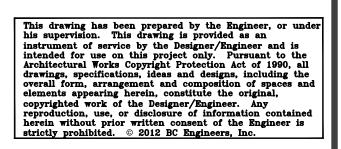
4. PROVIDE CURB ADAPTER FOR RTU-I, RTU-2 AND RTU-4. VERIFY EXACT SIZE OF EXISTING CURB PRIOR TO ORDERING.

5. RTU-3 IS EXISTING, LISTED FOR REFERENCE ONLY.





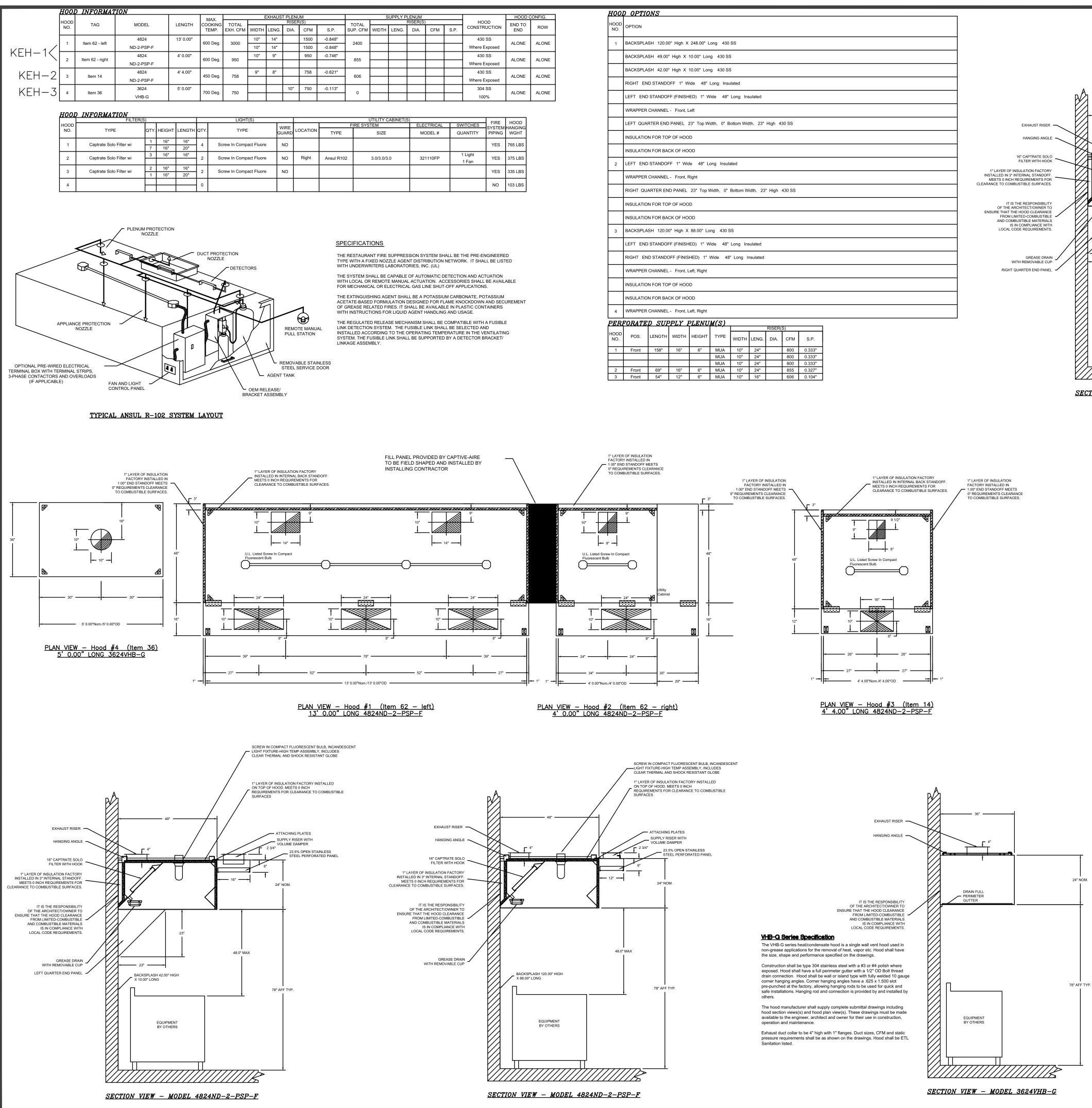
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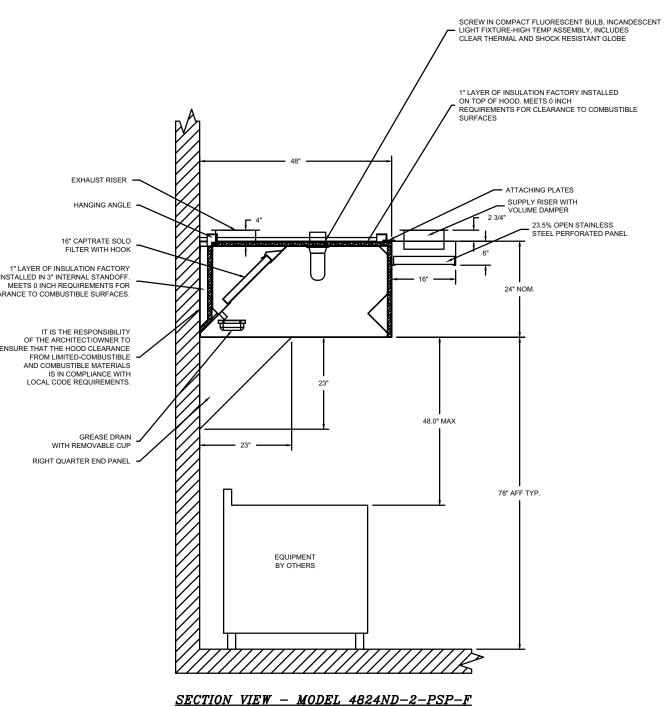


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H001	D OPTI	ONS													
HOOD NO.	OPTION														
1	BACKSPLA	ASH 120.0	0" High X	248.00" L	.ong 430	SS									
	BACKSPLA	ASH 49.00	" High X	10.00" Lor	ig 430 St	6									
	BACKSPLASH 42.00" High X 10.00" Long 430 SS RIGHT END STANDOFF 1" Wide 48" Long Insulated														
	RIGHT EN	ND STANDO	OFF 1" W	/ide 48"	Long Insu	llated									
	LEFT EN	O STANDO	FF (FINISH	IED) 1" W	/ide 48"	Long Ins	sulated								
	WRAPPER	CHANNEL	Front, I	_eft											
	LEFT QUA	RTER END	PANEL	23" Top W	idth, 0" B	ottom Wic	ith, 23"	High 4	30 SS						
	INSULATIO	ON FOR TO	P OF HOC	D											
	INSULATIO	ON FOR BA	CK OF HO	OD											
2	LEFT EN	D STANDO	FF 1" Wid	de 48" L	ong Insula	ated									
	WRAPPER	CHANNEL	- Front, F	Right											
	RIGHT QU	JARTER EN	ID PANEL	23" Top \	Vidth, 0"	Bottom W	/idth, 23	" High	430 SS						
	INSULATIO	ON FOR TO	P OF HOC	D											
	INSULATIO	ON FOR BA	CK OF HO	OD											
3	BACKSPLA	ASH 120.0	0" High X	88.00" Lo	ong 430 S	s									
	LEFT EN	O STANDO	FF (FINISH	IED) 1" W	/ide 48"	Long Ins	sulated								
	RIGHT EN	ND STANDO	OFF (FINIS	HED) 1"	Wide 48	" Long li	nsulated								
	WRAPPER	CHANNEL	- Front, I	_eft, Right											
	INSULATIO	ON FOR TO	P OF HOC	D											
	INSULATIO	ON FOR BA	CK OF HO	OD											
4	WRAPPER	CHANNEL	- Front, I	_eft, Right											
PERI	FORATE	D SUL	PPLY I	PLENU	M(S)										
HOOD NO.	POS.	LENGTH	WIDTH	HEIGHT	TYPE	WIDTH	LENG.	RISER	(S) CFM	S.P.					
1	Front	158"	16"	6"	MUA	10"	24"		800	0.333"					
					MUA	10"	24"		800	0.333"					
					MUA	10"	24"		800	0.333"					
2	Front	69"	16"	6"	MUA	10"	24"		855	0.327"					
3	Front	54"	12"	6"	MUA	10"	16"	1	606	0.104"					



ND-2 Series with PSP Accessory Specification The ND-2 series hood with PSP accessory is a compensating canopy hood system rated for all types of cooking equipment. The hood shall have the size,

shape and performance specified on drawings. Construction shall be type 430 stainless steel with a #3 or #4 polish where exposed. Individual component construction shall be determined by the manufacturer and ETL. Construction shall be dependent on the structural application to minimize distortion and other defects. All seams joints and penetrations of the hood enclosure to the lower outermost perimeter that directs and captures grease-laden vapor and exhaust gases shall have a liquid-tight continuous external weld in accordance with NFPA 96. Hood shall be wall type with fully welded 10 gauge corner hanging angles. Corner hanging angles have a .625 x 1.500 slot pre-punched at the factory, allowing hanging rods to be used for quick and safe installations. Hanging rod and connect is provided by and installed by others.

Ventilator shall be furnished with U.L. classified aluminum baffle filters, supplied in size and quantity as required by ventilator. The filters shall extend the full length of the hood and the filler panels shall not be more than 6" in width. The hood manufacturer shall supply complete computer generated submittal

drawings including hood sectio view(s) and hood plan view(s). These drawings must be available to the engineer, architect and owner for their use in construction, operation and maintenance.

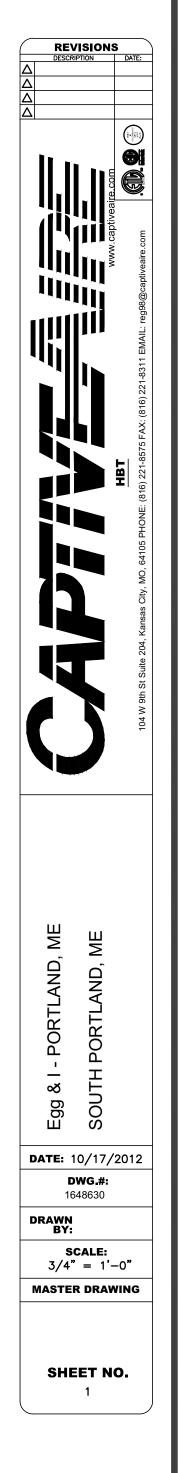
Exhaust duct collar to be 4" high with 1" flange. Duct sizes, CFM and static pressure requirements shall be as shown on drawings. Static pressure requirements shall be precise and accurate; air velocity and volume information shall be accurate within 1-ft increments along the length of the ventilator. U.L. incandescent light fixtures and globes shall be installed and pre-wired to a junction box. The light fixtures shall be installed with a maximum of 4'0" spacing on center and allow up

to a 100 watt standard light bulb. The hood shall have:

- A double wall insulated front to eliminate condensation and increase rigidity. The insulation shall have a flexural modulus of 475 EI, meet UL 181 requirements and be in accordance with NFPA 90A and 90B. - An integral front baffle to direct grease laden vapors toward the exhaust filter - A built-in wiring chase provided for outlets and electrical controls on the hood face and shall not

penetrate the capture area or require an external chaseway. - Low velocity make-up air (up to 90%) provided through front and side plenums (PSP accessory). - A removable grease cup for easy cleaning.

The hood shall be ETL Listed as "Exhaust Hood Without Exhaust Damper", ETL Sanitation Listed and built in accordance with NFPA 96. The hood shall be listed for 450°F cooking surfaces at 150 CFM/ft, 600°F cooking surfaces at 200 CFM/ft, and 700°F cooking surfaces at 250 CFM/ft.



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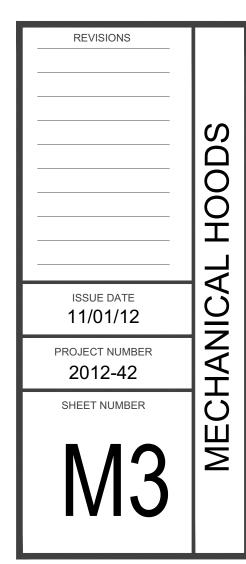
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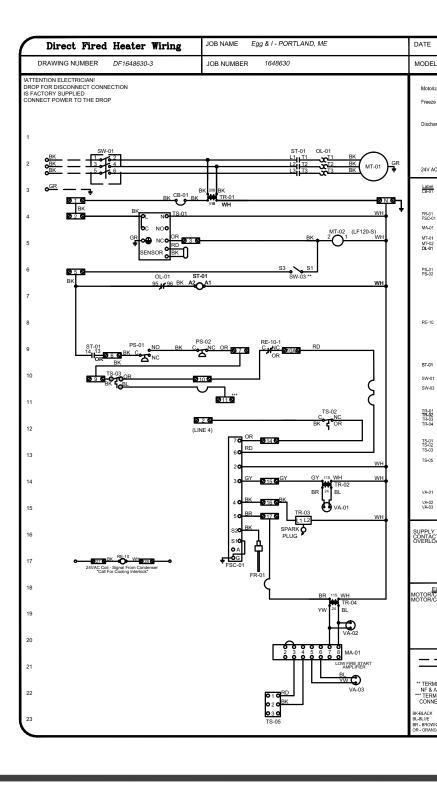
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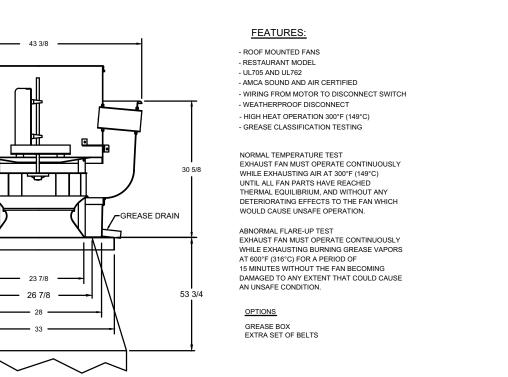
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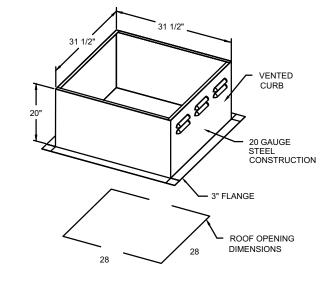
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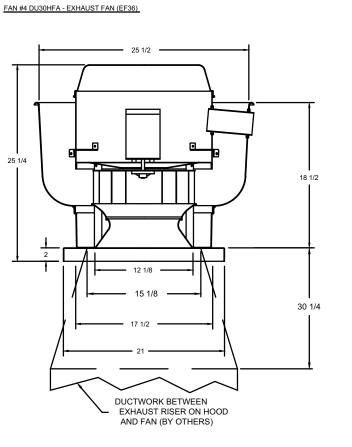
			FAN IN	FORM	ATION			<u> </u>	1	1	1	-		i	1	1	FAN #1 NCA24HPFA - EXHAUST FAN (EF62)
	FAN UNIT NO.		FAN UNIT	MODEL #		MODEL	TAG	CFM	ESP.	RPM	H.P.	ø	VOLT	FLA	WEIGHT (LBS.)	SONES	3
- 1	1		NCA24	4HPFA		NCA24HPF	A EF62	3950	2.100	1098	3.000	3	208	9.5	224.42	21	43 3/8
-2			NCA1	4HPFA		NCA14HPF	A EF14	758	1.150	1233	0.500	3	208	1.8	115.84	10.5	
-3			DU3	0HFA		DU30HFA	EF36	750	0.400	1276	0.250	1	115	4.0	56.56	8.9	
		•						•		•				•		•	
	14774	514 1 7	MEADI		7												
	FAN		INFORM	MODEL #		BLOWER	HOUSING	TAG	CFM	ESP.	RPM	н.	P. Ø	VOLT	FLA WEIGH		
	NO.		FAN UNIT	MODEL #		BLOWER	HOUSING	TAG	CFM	ESP.	КРМ	н.	P. Ø	VOLI	FLA WEIG	11 (LBS.)	
—1	3		A2-D.5	600-G15		G15-PB	A2-D.500		4006	0.500	917	3.0	00 3	208	9.5 84	4.54	
	GAS	FIRE	D MAKE	-UP A	AIR UNI	T(S)											
	FAN UNIT	ACTUAL		JT BTUs	OUTPUT	i i	P. RISE	REQUIRED	INPUT G	AS PRESS	URE	GAS	S TYPE				
	NO.	DENSI			BTUs									-			/ ├
	3	YES	5 24	48465	228588	55 0	leg F	7 ir	n. w.c 14	in. w.c.		Na	atural]			
	OPTIO	VS										-					
FAN UNIT NO.	OPTION (C	ty Descr)														EXHAUST RISER ON HOOD AND FAN (BY OTHERS)
	1 - Grease	Box										1					
	1 - Extra Se	et of Belts										1					
2	1 - Grease	Box										1		FAN	H2 NCA14HPFA - EXH	IAUST FAN	N (EF14)
	1 - Extra Se	et of Belts										1					FEATURES:
3	1 - AC Inter	lock Relay	- 24VAC Coil													 	
	1 - Inlet Pre	ssure Gau	ge, 0-35"												1		- RESTAURANT MODEL - UL705 AND UL762 - AMCA SOUND AND AIR CERTIFIED
	1 - Manifold	Pressure	Gauge, -5 to	15" wc												1	- WIRING FROM MOTOR TO DISCONNECT
	1 - Motorize	ed Backdrat	t Damper for	A2-D Hous	sing							1					- HIGH HEAT OPERATION 300°F (149°C) - GREASE CLASSIFICATION TESTING
	1 - Freezes	tat													30 1/2		NORMAL TEMPERATURE TEST EXHAUST FAN MUST OPERATE CONTINU
	1 - Low Fire	e Start															WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT A
	1 - Curb Du	ict Hanger															GREASE DRAIN
	1 - Extra Se	et of Belts														<u> </u>	ABNORMAL FLARE-UP TEST EXHAUST FAN MUST OPERATE CONTINU WHILE EXHAUSTING BURNING GREASE V
4	1 - I 15-BDI	O Damper													2		AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMIN
<u>AN</u>	ACCES	<u>SORIE.</u>	5														DAMAGED TO ANY EXTENT THAT COULD AN UNSAFE CONDITION.
FAN	FAN UNIT		EXHAUST			SUPF	νLΥ										20
UNIT NO.	TAG	GREASE	GRAVITY	WALL	SIDE	GRAVITY	MOTORIZED									Ĺ	EXTRA SET OF BELTS
		CUP	DAMPER	MOUNT	DISCHARGE	DAMPER	DAMPER	MOUNT									
1	EF62	YES															DUCTWORK BETWEEN EXHAUST RISER ON HOOD AND FAN (BY OTHERS)
2	EF14	YES					YES										
4	EF36						123										
	B ASSE	 'MBLIE	 'S														
	ON FAN	WEIG		ІТ	EM					SIZE							
NO.																	
NO. (3S	С	urb			31.500"W	x 31.500"L	x 20.000"H	H Vented	Hinge	ed				
NO. (# 1	48 LI															
NO. 0	# 1 # 2	48 LI 36 LI		С	urb			23.000"W	x 23.000"L	x 20.000"H	H Vented	Hinge	ed				
1			35		urb					x 20.000"H			ed				

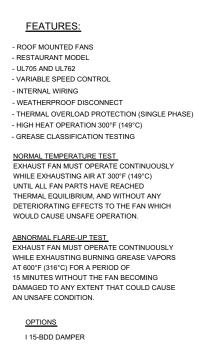


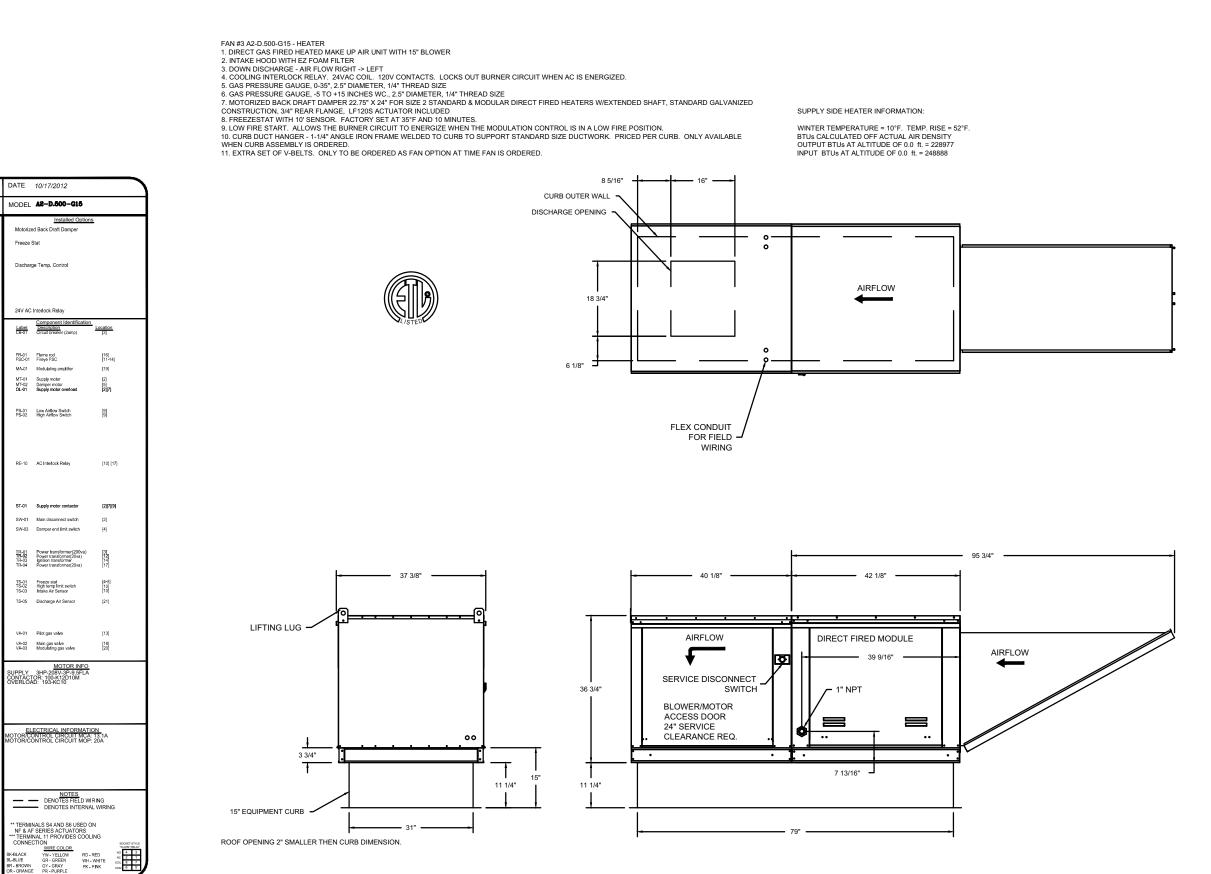




VENTED CURB 20 GAUGE STEEL CONSTRUCTION └── 3" FLANGE ► ROOF OPENING DIMENSIONS

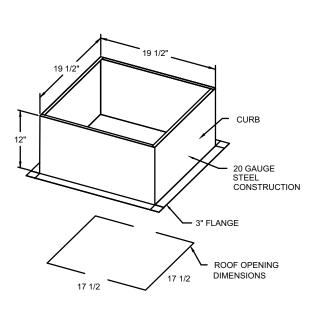






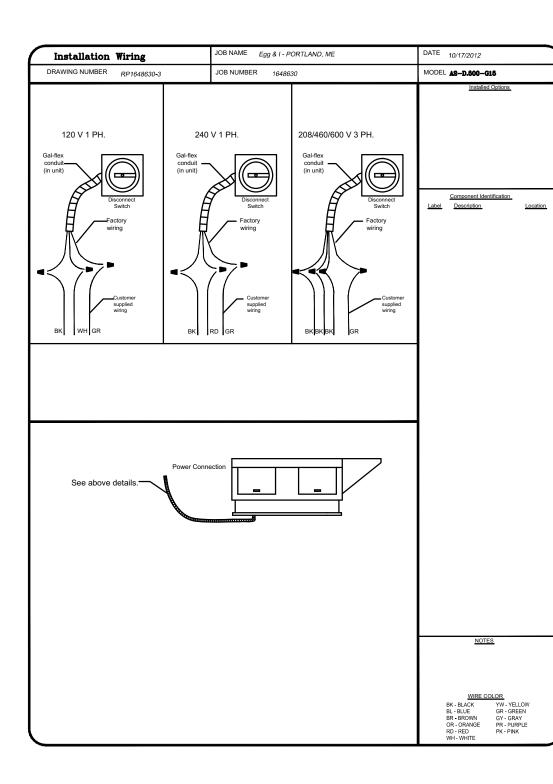


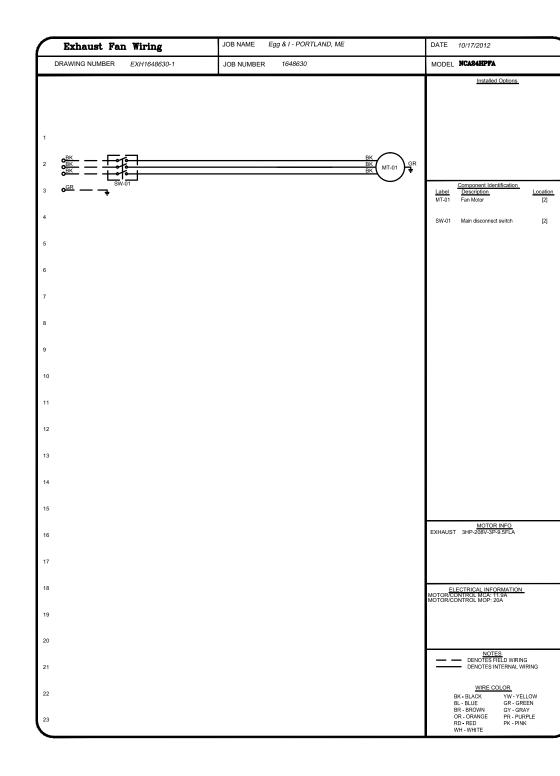
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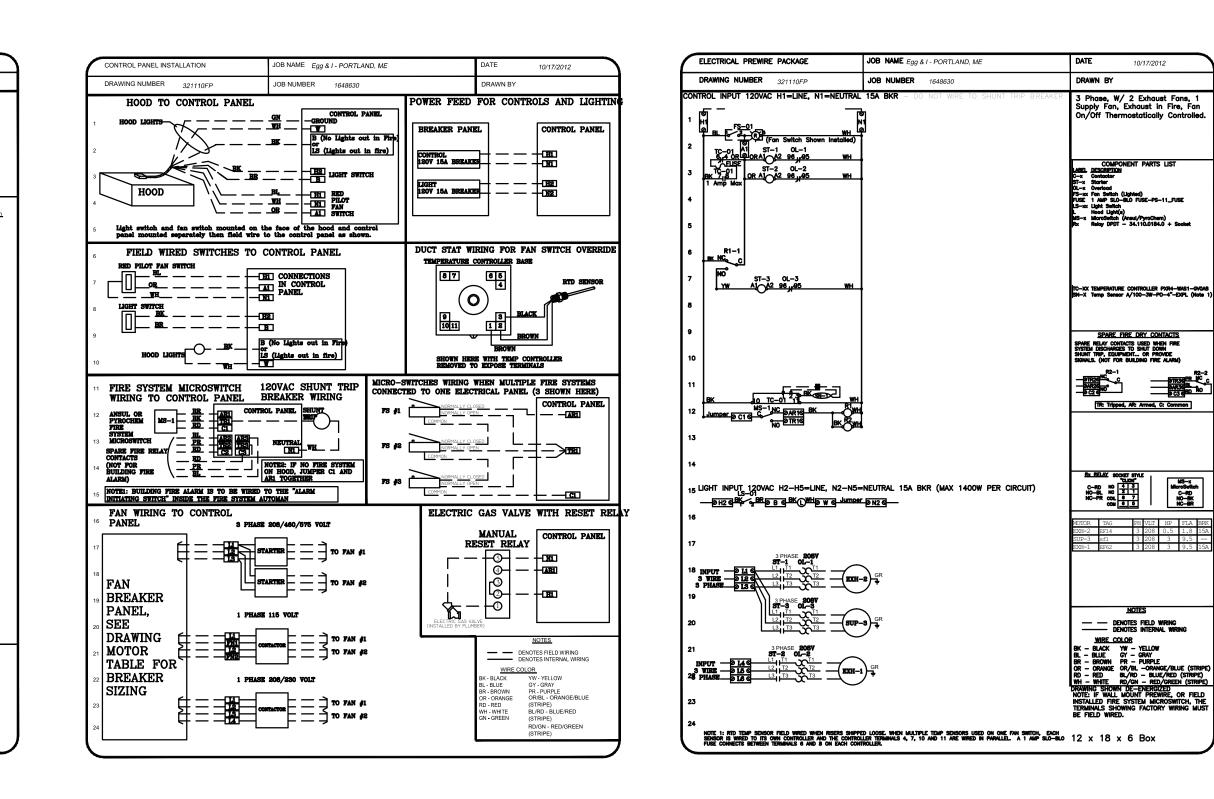


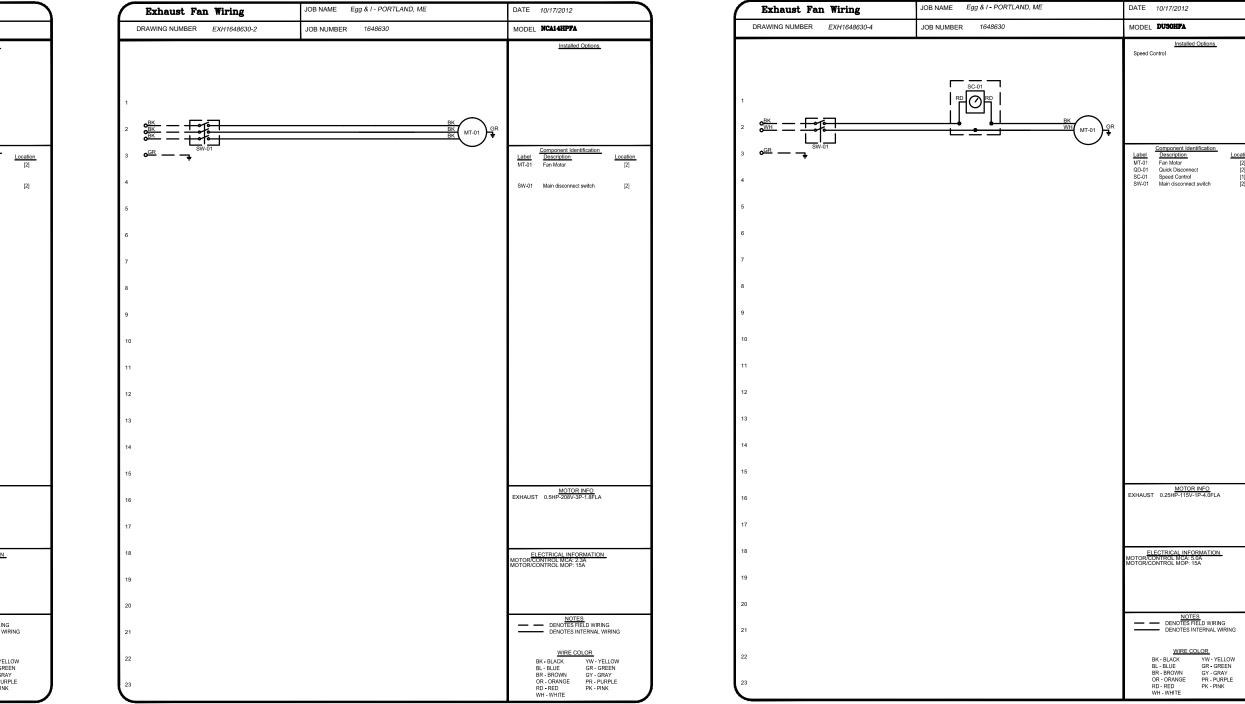
FIFCTDICAL DACKACES

<u>EL</u>	<u>ECTR</u>	<u>ICAL PAC</u>	KAGES										
NO	TAG	PACKAGE #	LOCATION	SWITCH	IES	OPTION	FANS CONTROLLED						
				LOCATION	QUANTITY		TYPE	Ø	H.P.	VOLT	FLA		
	EC	20111050	Utility Cabinet Right	Utility Cabinet Right	1 Light	Exhaust On In Fire, Fans On/Off Thermostatically Controlled	Enternat		0.500	208			
1	EC	321110FP	Ounty Cabinet Right	Hood # 2	1 Fan	Exhaust On In File, Fails On/On Thermostatically Controlled	Exhaust	3	0.500	208	1.8		
							Exhaust	3	3.000	208	9.5		
							Supply	3	3.000	208	9.5		











SEAL

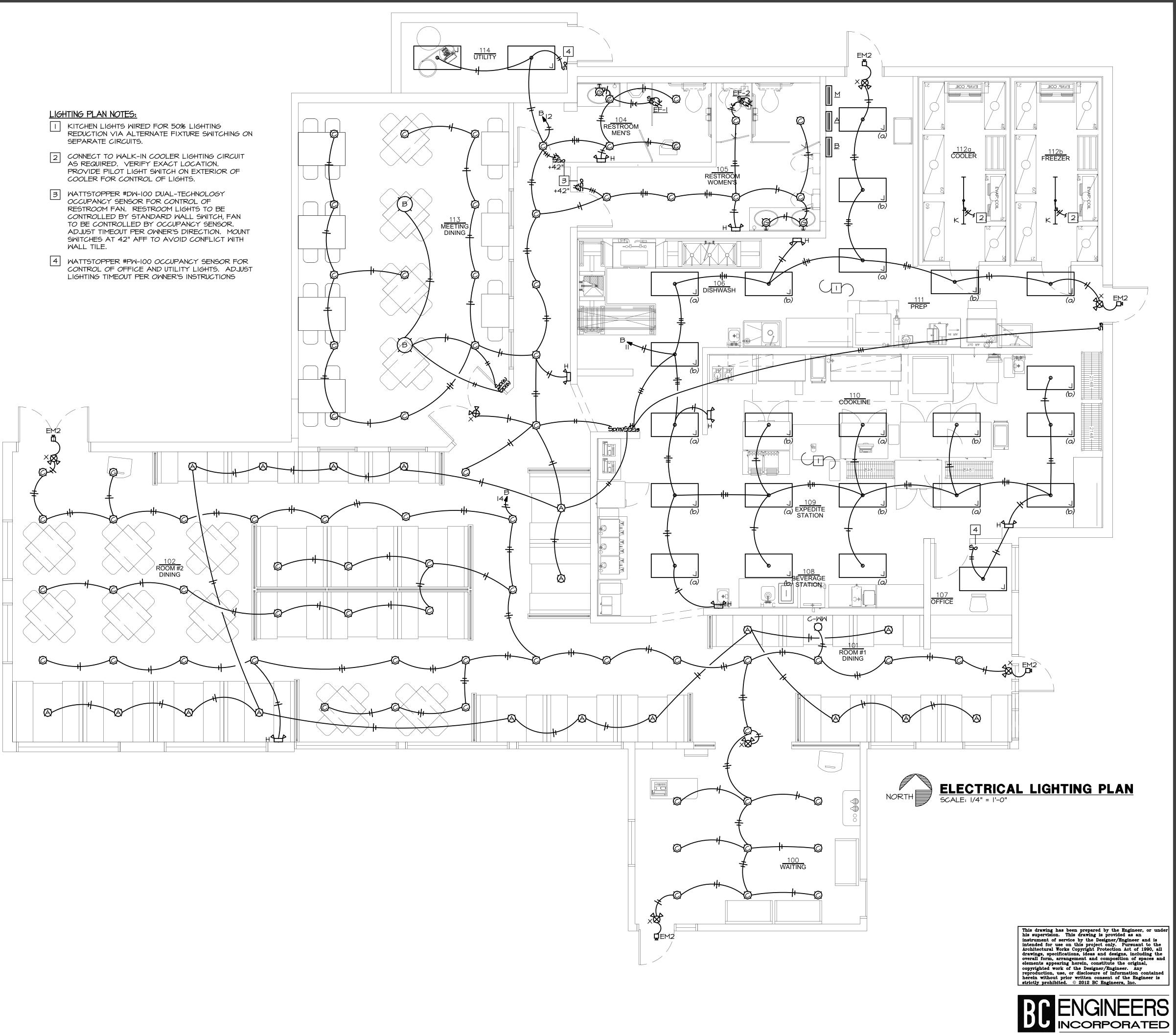
A │ **|||||||**||[§] ШΜ PORTLAND, AND ، ا SOUTH Egg **DATE:** 10/17/2012 DWG.#: 1648630 DRAWN BY: SCALE: 3/4" = 1'-0"MASTER DRAWING SHEET NO. 3

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- AS REQUIRED. VERIFY EXACT LOCATION. COOLER FOR CONTROL OF LIGHTS.
- OCCUPANCY SENSOR FOR CONTROL OF RESTROOM FAN. RESTROOM LIGHTS TO BE WALL TILE.

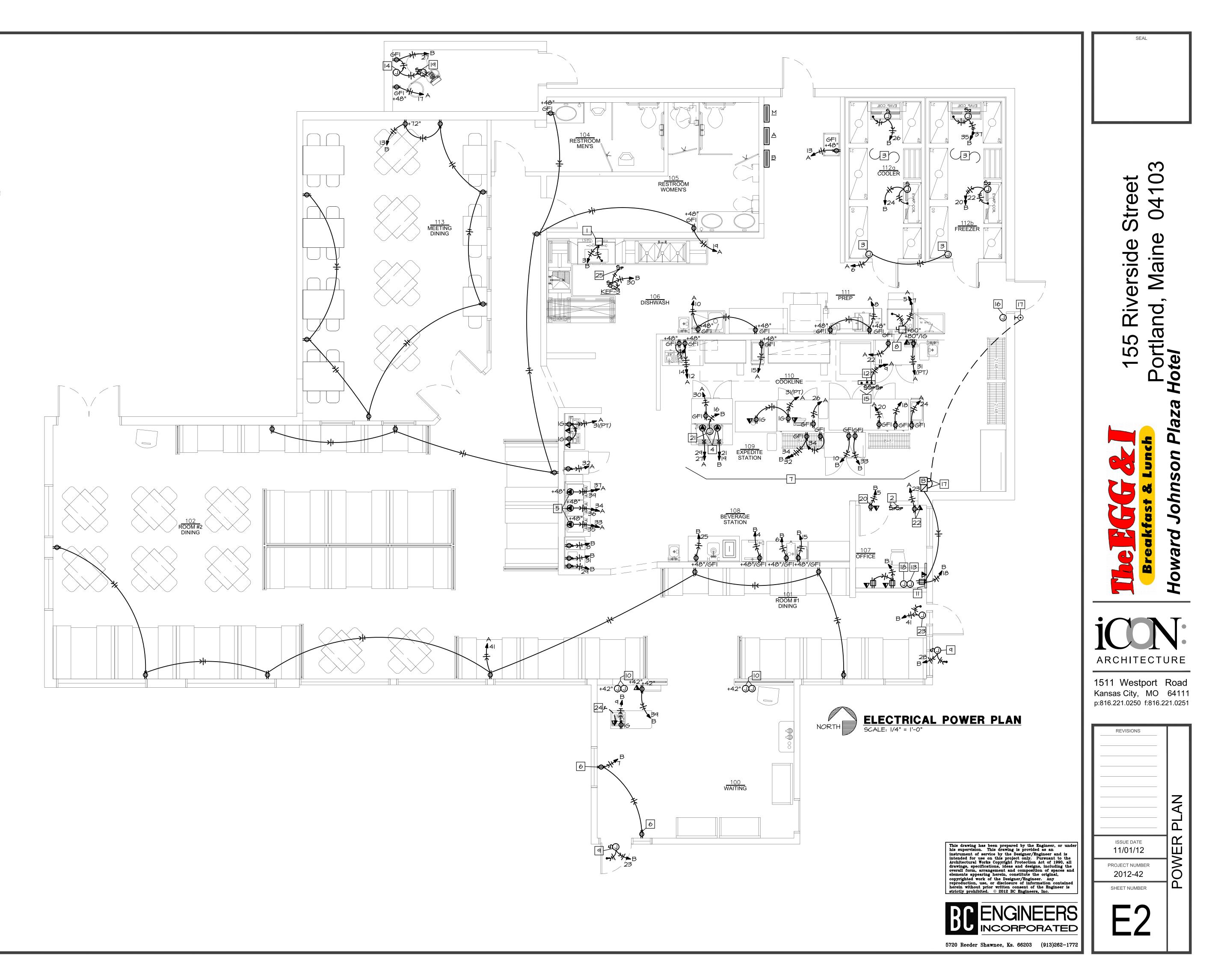


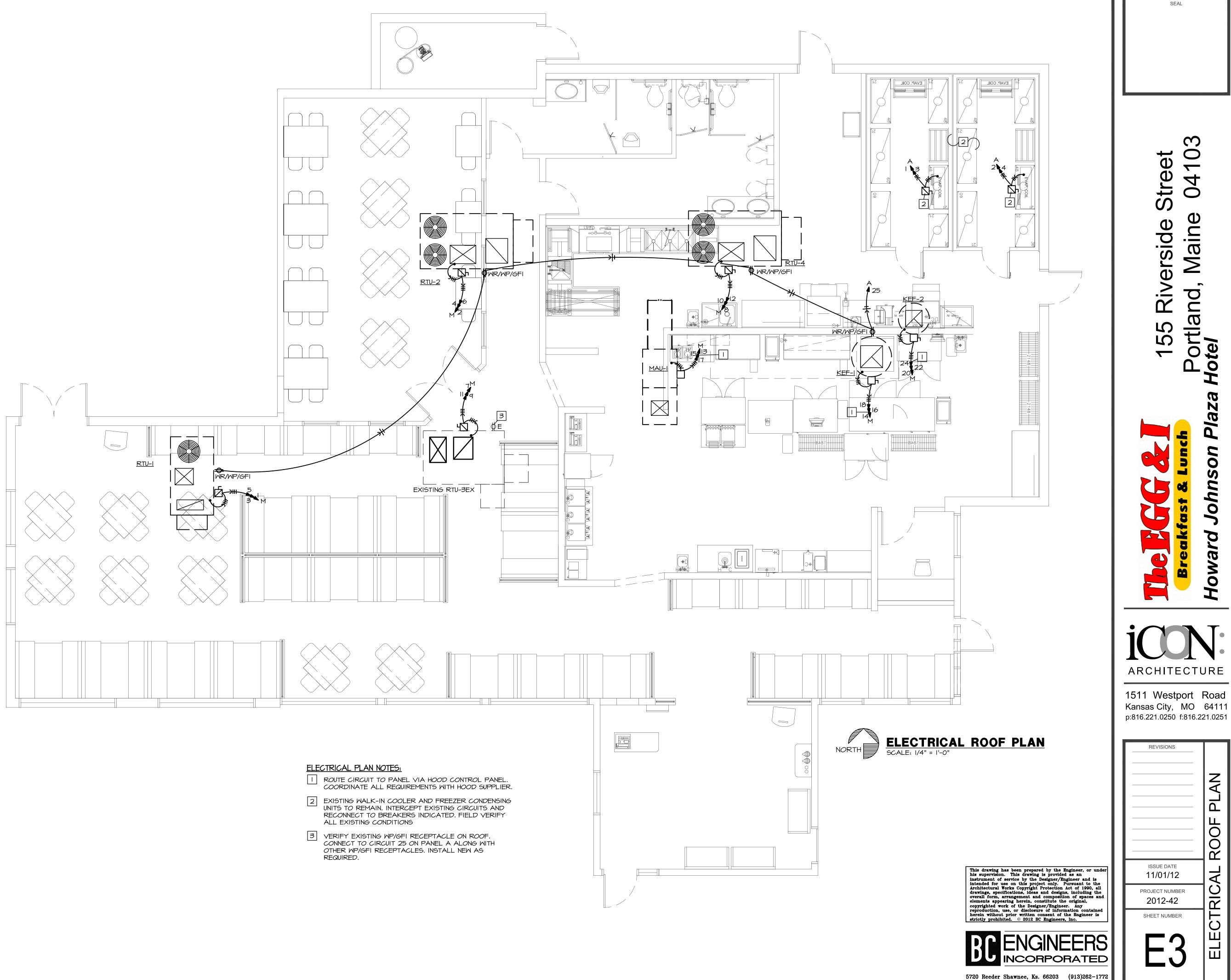
3 et 0 $\overline{}$ Stree 04 Maine reside Riv σ rtla 55 0 Π 0 1n 2 0 O G 3 HO ARCHITECTURE 1511 Westport Road Kansas City, MO 64111 p:816.221.0250 f:816.221.0251 REVISIONS PLAN LIGHTING ISSUE DATE 11/01/12 PROJECT NUMBER 2012-42 SHEET NUMBER

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ELECTRICAL PLAN NOTES:

- IPROVIDE NEMA 4X DISCONNECT FOR CONNECTION TODISH MACHINE.VERIFY EXACT LOCATION & ELECTRICALREQUIREMENTS.
- 2 (2) SINGLE-POLE PILOT LIGHT SWITCHES FOR SIGNAGE CONTROL. CONNECT TO SIGNS AS REQUIRED. PROVIDE NAMEPLATE "EXTERIOR SIGN" ABOVE SWITCHES.
- 3 EXISTING WALK-IN COOLER AND FREEZER TO REMAIN. INTERCEPT EXISTING CIRCUITS AND RECONNECT TO NEW BREAKERS INDICATED. FIELD VERIFY ALL EXISTING CONDITIONS.
- 4 NEMA 6-20R RECEPTACLE FOR CONVEYOR TOASTER. VERIFY EXACT LOCATION & ELECTRICAL REQUIREMENTS.
- 5 NEMA LI4-30R OUTLET FOR COFFEE BREWER. VERIFY ELECTRICAL REQUIREMENTS & NEMA CONFIGURATION.
- 6 DUPLEX RECEPTACLE MOUNTED FLUSH IN CEILING ABOVE GLASS FOR DISPLAY SIGNAGE PER NEC. ROUTE CIRCUIT TO PANEL VIA TIMECLOCK (SEE NOTE 2).
- ALL DEVICES ON THIS PREPLINE TO BE INSTALLED ON STRUCTURE MOUNTED BELOW CEILING PROVIDED BY KITCHEN EQUIP. SUPPLIER WITH WIRING RUN ABOVE CEILING. NO CORDS OR PLUGS SHALL BE INSTALLED ABOVE THE CEILING.
- 8 CONNECT TO ICE MACHINE AS REQUIRED. VERIFY EXACT LOCATION & ELECTRICAL REQUIREMENTS.
- JUNCTION BOX WITH TOGGLE DISCONNECT PER NEC FOR TENANT SIGNAGE. VERIFY EXACT LOCATION, CONNECT TO SIGN AS REQUIRED. ROUTE CIRCUIT TO PANEL INDICATED VIA PILOT LIGHT SWITCH IN OFFICE, SEE NOTE 2.
- 10 PROVIDE (2) JUNCTION BOXES WITH 1/2"C TO ABOVE ACCESSIBLE CEILING AT LOCATION INDICATED FOR MUSIC SYSTEM CONTROLS
- 4' PLYWOOD TELEPHONE BACKBOARD MOUNTED BELOW DESK WITH #6CU BOND TO BUILDING ELECTRODE SYSTEM AND I"C TO EXISTING BUILDING TELEPHONE SERVICE ENTRANCE.
- 12 EXHAUST HOOD CONTROL PANEL. VERIFY EXACT LOCATION. CONNECT TO FANS AS REQUIRED. SEE WIRING DIAGRAM ON MECHANICAL SHEETS FOR MORE INFORMATION.
- [3] (2) GANG J-BOX WITH (2) 3/4"C TO ABOVE CEILING.
- [4] CONNECT TO HOT WATER HEATER CONTROLS AS REQUIRED. HEATER CONTROL MUST BE A DEDICATED CIRCUIT PER MANUFACTURER'S SPECIFICATIONS.
- 15 PROVIDE TOGGLE SWITCH FOR HOOD LIGHTS AND (2) PILOT-LIGHT SWITCHES FOR HOOD FANS. CONNECT TO HOOD CONTROL PANEL PER MANUFACTURER'S INSTRUCTIONS. PROVIDE LABEL ON EACH SWITCH.
- 16 PROVIDE JUNCTION BOX WITH 3/4"C TO ABOVE ACCESSIBLE CEILING FOR HOOD FIRE SUPPRESSION PULL STATION. COORDINATE EXACT LOCATION WITH HOOD SUPPLIER.
- PROVIDE NUTONE #BK140SLPB OR EQUAL COMMERCIAL DOOR CHIME AND PUSHBUTTON. VERIFY LOCATION OF PUSHBUTTON WITH OWNER.
- B ALL DATA AND PHONE SHALL BE ROUTED TO THIS LOCATION.
- GONNECT TO HOT WATER HEATER RE-CIRC PUMP AS REQUIRED. VERIFY EXACT LOCATION & ELECTRICAL REQUIREMENTS.
- 20 DEVICES MOUNTED ABOVE DOOR. COORDINATE EXACT LOCATION WITH OWNER.
- 21 CONNECT TO CEILING MOUNTED HEAT LAMPS PER MANUFACTURER'S INSTRUCTIONS. VERIFY EXACT LOCATION & ELECTRICAL REQUIREMENTS.
- 22 DUPLEX RECEPTACLE AND DATA OUTLET 12" BELOW CEILING FOR MUSIC SYSTEM. COORDINATE EXACT LOCATION IN FIELD.
- 3 JUNCTION BOX ABOVE ACCESSIBLE CEILING FOR CONNECTION TO POWER-OPERATED DOOR. VERIFY EXACT LOCATION & ELECTRICAL REQUIREMENTS WITH DOOR SUPPLIER.
- 24 3/4"C IN FLOOR TO NEAREST WALL, THEN UP TO ABOVE ACCESSIBLE CEILING FOR PHONE/DATA TO HOSTESS STATION. VERIFY EXACT LOCATION. COORDINATE ALL UNDERFLOOR WORK WITH LANDLORD.
- 25 PILOT LIGHT SWITCH ON FACE OF HOOD FOR EXHAUST FAN CONTROL.





	<u>ELECTRICAL SYMBOLS LIST</u>			nen fanel: A	V V		
		-		BUS: 225A		٢	1AIN:
	NG & NOTES	-	CKT NO	DESCRIPTION	BRKR AMPS	BRKR POLE	MIRE SIZE
+48"	SPECIAL MOUNTING HEIGHT FOR ASSOCIATED DEVICE. (CENTERLINE OF DEVICE)		 3	WALK-IN COOLER CONDENSING UNIT	20	2	12
GFI WP	GROUND FAULT INTERRUPTER DEVICE. WEATHERPROOF ENCLOSURE ON DEVICE.		5	ICE MACHINE	20	2	12
WR	WEATHER-RESISTANT LISTED DEVICE		7				
16	ISOLATED GROUND DEVICE.		۹ 	HOOD LIGHTS	20		12
EM	EMERGENCY BATTERY BACKUP		н в	HOOD CONTROLS	20 20		12 12
X	ELECTRICAL FLOOR PLAN NOTE WITH DESIGNATION.		15	SODA SYSTEM	20		12
2	CONDUIT CONCEALED WHERE POSSIBLE OR AS NOTED, ARROWS INDICATE HOME RUN TO PANEL. CIRCUIT NUMBERS INDICATED.		17	*SHUNT TRIP BREAKER*	20		12
	#12 WIRE IN CONDUIT, UNLESS NOTED OTHERWISE ON DRAWINGS		19	CONVENIENCE RECEPTS	20		12
•	OR SPECIFICATION.		21	SPARE	20		
\leftarrow	GROUNDING CONDUCTOR, #12 WIRE UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION.		23 25	MUSIC SYSTEM WP/GFI RECEPTS	20 20		2 2
~~	CONDUIT ROUTED UNDER FLOOR.		27				
			29	CONVEYOR TOASTER	20	2	12
LIGHTING			31	POS *GFI*	20	I	12
€_2	EMERGENCY TWIN HEAD LIGHT FIXTURE.		33	COFFEE BREWER	30	2	10
1021	EXIT LIGHT WITH DIRECTIONAL ARROWS INDICATED.		35				<u> </u>
	FLUORESCENT STRIP FIXTURE WITH TYPE DESIGNATION.		37 39	COFFEE BREWER	30	2	0
	FLUORESCENT FIXTURE WITH TYPE DESIGNATION.		94 41	CONVENIENCE RECEPTS	20		2
ANL	NIGHT LIGHT, CONNECT TO UNSWITCHED CIRCUIT.			S: PROVIDE SUB-FEED LUGS		UAL FE	
۸Q	CEILING OR RECESSED FIXTURE WITH TYPE DESIGNATION.			AS REQUIRED TO FEED NEW TAL VA INCLUDES LOAD FRO			_ 'B'.
^Q⊣	WALL MOUNTED FIXTURE WITH TYPE DESIGNATION.		*GFC	II* - GFCI BREAKER			
POWER I	DEVICES				1		
ф	DUPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS			NEW PANEL: B	V	OLTS/i	PHAS
				BUS: 225A			1AIN:
ф	FOURPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE.		CKT NO	DESCRIPTION	BRKR AMPS	POLE	SIZE
φ	SIMPLEX (SINGLE) RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE.		3	OFFICE RECEPTACLES	20 40		12 8
₩₽	DEVICE MOUNTED ABOVE COUNTER AND/OR SPLASH GUARD.		5	OFFICE RECEPTS	20	1	12
	HEAVY DUTY OUTLET - NEMA CONFIGURATION SIZE PER		7	DISPLAY WINDOW REC	20	1	12
	EQUIPMENT MANUFACTURER'S RECOMMENDATION.		٩	HOSTESS STATION	20	1	12
	PANEL BOARD, TOP OF BOX 6'-O" AFF.		Ш	DINING LIGHTS	20	I	12
J	JUNCTION BOX.		в	CONVENIENCE RECEPTS	20	1	12
마	NON-FUSED DISCONNECT SWITCH.		15	JUICE DISPENSER	20	<u> </u>	12
	FUSED DISCONNECT SWITCH.		17	SOFTENER/RE-CIRC	20		12
			19	CONVEYOR TOASTER	20	2	12
	MOTOR WITH DESIGNATION.		21				12
<u>CONTROL</u>			21 23	SIGNAGE	20	1	
	<u>_</u> S			SIGNAGE CONVENIENCE RECEPT	20 20	1	12
<u>CONTROL</u> S	<u>-S</u> SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF.	-	23			 	
	<u>SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF.</u> SP SINGLE POLE WALL SWITCH WITH PILOT LIGHT.	-	23 25	CONVENIENCE RECEPT	20	 	12
	SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF. SP SINGLE POLE WALL SWITCH WITH PILOT LIGHT. SO WALL MOUNTED OCCUPANCY SENSOR SWITCH		23 25 27	CONVENIENCE RECEPT HWH CONTROLS	20 20	 	2 2
	<u>SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF.</u> SP SINGLE POLE WALL SWITCH WITH PILOT LIGHT.		23 25 27 29 31 33	CONVENIENCE RECEPT HWH CONTROLS COFFEE GRINDERS	20 20 20	1	2 2 2
	 SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF. SP SINGLE POLE WALL SWITCH WITH PILOT LIGHT. SO WALL MOUNTED OCCUPANCY SENSOR SWITCH SOW DIMMER SWITCH, (MULTIPLY X BY 100 TO DETERMINE THE SIZE OF DIMMER). DO NOT GANG DIMMERS. DIMMERS TO 		23 25 27 29 31	CONVENIENCE RECEPT HWH CONTROLS COFFEE GRINDERS COFFEE GRINDERS	20 20 20 20	1	2 2 2 2
5	SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF. SP SINGLE POLE WALL SWITCH WITH PILOT LIGHT. SO WALL MOUNTED OCCUPANCY SENSOR SWITCH SDXX DIMMER SWITCH, (MULTIPLY X BY 100 TO DETERMINE THE SIZE OF DIMMER). DO NOT GANG DIMMERS. DIMMERS TO BE LUTRON "NOVA T" SERIES.		23 25 27 29 31 33 35	CONVENIENCE RECEPT HWH CONTROLS COFFEE GRINDERS COFFEE GRINDERS MICROWAVE	20 20 20 20 20 20	 	2 2 2 2 2
5	 SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF. SP SINGLE POLE WALL SWITCH WITH PILOT LIGHT. SO WALL MOUNTED OCCUPANCY SENSOR SWITCH SDW DIMMER SWITCH, (MULTIPLY X BY 100 TO DETERMINE THE SIZE OF DIMMER). DO NOT GANG DIMMERS. DIMMERS TO BE LUTRON "NOVA T" SERIES. S2 2-POLE SWITCH MANUAL MOTOR STARTER WITH OVERLOADS. 	-	23 25 27 29 31 33 35 37 39 41	CONVENIENCE RECEPT HWH CONTROLS COFFEE GRINDERS COFFEE GRINDERS MICROWAVE EXIST FREEZER EVAP HOSTESS STATION POWER DOOR OPENER	20 20 20 20 20 20 20	 	2 2 2 2 2 2 2 2 2
S	 SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF. SP SINGLE POLE WALL SWITCH WITH PILOT LIGHT. SO WALL MOUNTED OCCUPANCY SENSOR SWITCH SDW DIMMER SWITCH, (MULTIPLY X BY 100 TO DETERMINE THE SIZE OF DIMMER). DO NOT GANG DIMMERS. DIMMERS TO BE LUTRON "NOVA T" SERIES. S2 2-POLE SWITCH MANUAL MOTOR STARTER WITH OVERLOADS. 	-	23 25 27 29 31 33 35 37 39	CONVENIENCE RECEPT HWH CONTROLS COFFEE GRINDERS COFFEE GRINDERS MICROWAVE EXIST FREEZER EVAP HOSTESS STATION POWER DOOR OPENER	20 20 20 20 20 20 20 20	 	2 2 2 2 2 2 2 2

GENERAL NOTES:

NEW PANEL: A

BRKR BRKR WIRE

PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.

- FOR INSTALLATION OF UNDERFLOOR CONDUIT. NO STRUCTURAL ELEMENTS SHALL BE
- 3. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM REGARDLESS OF CIRCUITING INDICATED.
- 6. DISCONNECTS FOR ROOFTOP AND CONDENSING UNITS TO BE PROVIDED BY MECHANICAL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
- 7. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF LIGHT FIXTURES AND DEVICES.
- 8. REFER TO ELECTRICAL SPECIFICATIONS ELSEWHERE IN THESE DRAWINGS FOR FURTHER DIRECTLY APPLY TO THIS WORK.
- MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.
- PRIOR TO WORK.

	V	OLTS/i	PHASE	/WIRE:	120/20) 8√/3 ¢/	/4M	L	.00ATI	0N: 0	FFICE		MOUNTING: SURFACE			
		Μ	IAIN: N	1L0		IC: 1	22,000	RMS S	YS AM	PS		FEED	ER: SEE RISER DIAGRAM			
	BRKR AMPS	BRKR POLE	MIRE SIZE	φΑ	φΒ	¢C	φΑ	¢₿	¢C	MIRE SIZE	BRKR POLE	BRKR AMPS	DESCRIPTION	CKT NO		
	20	2	12	1600			1600			12	2	20	WALK-IN FREEZER	2		
	20	2	12		1600			1600		12	2 20		CONDENSING UNIT	4		
	20	2	12			1758			500	12	I	20	COOLER/FRZR *GFCI*	6		
	20	2	12	1758			1250			12	I	20	SLICER	8		
	20	I	12		800			500		12	I	20	FOOD PROCESSOR	10		
	20	I	12			400			1800	12	I	20	WAFFLE IRON	12		
	20	I	12	600			1800			12	I	20	WAFFLE IRON	14		
	20		12		750						I	20	SPARE	16		
e	20		12						1032	12	I	20	RAISED RAIL TABLE	18		
	20	I	12	1080			1500			12	I	20	MICROWAVE OVEN	20		
	20	I						540		12	I	20	REF PREP TABLE	22		
	20	I	12			360			1200	12	I	20	FOOD WARMER	24		
	20	I	12	1080			864			12	I	20	RAISED RAIL	26		
					1747						I	20	SPARE	28		
	20	2	12			1747			540	12	I	20	REF PREP TABLE	30		
	20	I	12	400			540			12	I	20	REF PREP TABLE	32		
		_			2995			2995						34		
	30	2	10			2995			2995	10	2	30	COFFEE BREWER	36		
	30	_		2995							I	20	SPARE	38		
	30	2	10		2995						I	20	SPARE	40		
	20	I	12			1260					I	20	SPARE	42		
	OR D		ED	9513	10887	8520	7554	5635	8067							
		PANEL	· 'B'.	סדו	67	165	22	165	67	то	TAL V	4 *	87547			
									AI	MPS Ø	208	ЗΦ	243.01			

$\vee c$	OLTS/F	PHASE	/WIRE:	120/20	08√/3¢/	/4M	L	OCATI	0N: 0	FFICE		MOUNTING: SURFACE		
	М	AIN: N	1L <i>0</i>		IC; :	22,000	RMS S	YS AM	PS		FEED	ER: SEE RISER DIAGRAM		
SRKR AMPS	BRKR POLE	WIRE SIZE	φ A	∲ ₿	¢C	φ	∲₿	℃ ∲	WIRE SIZE	BRKR POLE	BRKR AMPS	DESCRIPTION	CKT NO	
20	Ι	12	720							I	20	SPARE	2	
40	I	8		3600			600		12	I	20	SODA DISPENSER	4	
20	I	12			180			1800	12	I	20	ICED TEA BREWER	6	
20	I	12	360			1800			12	Ι	20	HOT CHOCOLATE DISP	8	
20	Ι	12		400			480		12	Τ	20	RAISED RAIL	10	
20	I	12			1178			1679	12	Т	20	KITCHEN LIGHTS	12	
20	I	12	1440			752			12	I	20	LIGHTS	14	
20	Ι	12		650			1500		12	Ι	20	HEAT LAMP	16	
20	I	12			600			360	12	I	20	TELEPHONE 4PLEXES	18	
20	2	12	1747			1400			12	2	20	EXIST FREEZER EVAP	20	
20	2	12		1747			1400		14	4	20		22	
20	I	12			1200			1400	12	I	20	EXIST COOLER EVAP	24	
20	Ι	12	180			1400			12	Ι	20	EXIST COOLER EVAP	26	
20	I	12		400			1200		12	Ι	20	SIGNAGE	28	
20	Ι	12			1320			480	12	Τ	20	KEF-3	30	
20	I	12	1320			1400			12	Ι	20	FOOD WARMER	32	
20	I	12		1500			1400		12	Τ	20	FOOD WARMER	34	
20	2	12			1400					Ι	20	SPARE	36	
20	2	12	1400							I	20	SPARE	38	
20	I	12		180						Ι	20	SPARE	40	
20	Ι	12			1400					Ι	20	SPARE	42	
			7167	8477	7278	6752	6580	5719						
			130	119	15057 12997				TOTAL VA			41,973		
								A	MPS @ 208 30			116.51		

I. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO

2. WHERE CONDUIT IS SHOWN UNDERFLOOR, SAWCUT EXISTING FLOOR SLAB AS REQUIRED SAWCUT. WHEN SAWCUTTING, PATCH FLOOR TO MATCH EXISTING SURFACE AS REQUIRED.

CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR. ALL OTHER DISCONNECTS SHALL

INFORMATION AND REQUIREMENTS. GENERAL CONDITIONS AND SUMMARY OF WORK ALSO

II. ALL MATERIALS EXPOSED WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT

12. ALL GFI RECEPTACLES SHALL HAVE DEDICATED NEUTRAL TO PREVENT NUISANCE TRIPS.

13. KITCHEN EQUIPMENT - VERIFY ALL ELECTRICAL REQUIREMENTS AND ROUGH-IN LOCATION

LIGHT	FIXTURE	SCHEDUI	Ŀ
		JUILDUL	- L

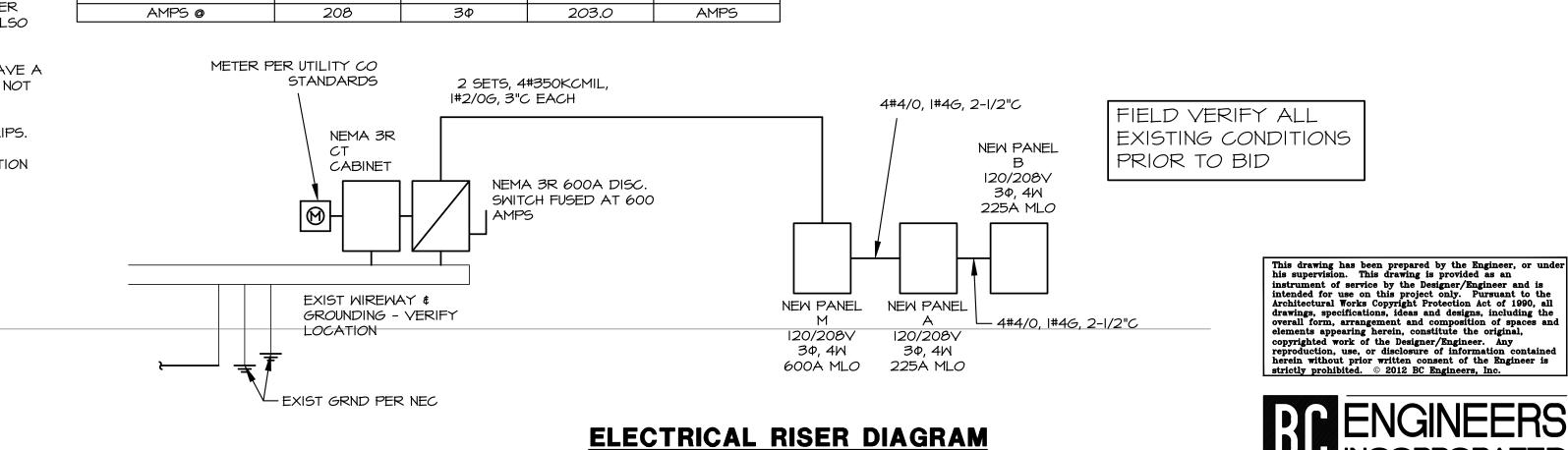
	GHT FIXTURE SCHI	RE SCHEDULE:					
ID:	TYPE:	MFG.:	STYLE/PRODUCT #:	FINISH:	LAMP TYPE/WATTAGE		
А	16" Ø PENDANT - MOUNT 68" AFF	MAXIM	#91076MROI	OIL RUBBED BRONZE	(1) PHILIPS EL/A G25 9w CFL (10W MAX LABEL)		
В	CHANDELIER - MOUNT 89" AFF	MAXIM	#2654-MRKB	Marble	(3) PHILIPS EL/MDT 15w DIMMABLE CFL (48W MAX LABEL)		
С	RECESSED DOWNLIGHT	LIGHTOLIER	1104IC/1176WH	WHITE BAFFLE WHITE TRIM	(1) PHILIPS 15w EL/A BR30/DIM16 DIMMABLE CFL (16W LABEL)		
C-WW	RECESSED DOWNLIGHT	LIGHTOLIER	1104IC/1185	WHITE BAFFLE WHITE TRIM	(1) PHILIPS15w EL/A BR30/DIM16 DIMMABLE CFL (16W LABEL)		
Е	EXISTING TO REMAIN				(1) PHILIPS 15w EL/A BR30/DIM16 DIMMABLE CFL (16W LABEL)		
G	4 LIGHT BATH VANITY STRIP	MAXIM LIGHTING	11811ICBK	BLACK w/ ICE GLASS SHADE	(4) PHILIPS 9w EL/A 9W-FAN CFL (40W MAX LABEL)		
Н	EMERGENCY LIGHT	HARDI	EMR-16	WHITE			
J	2x4 RECESSED FLOURESCENT	LIGHTOLIER	XP2GVA332-UNV-GI-CUL	WHITE	(3) 28w T8, 4' LAMPS - PHILIPS		
J2	2x2 RECESSED FLOURESCENT	LIGHTOLIER	XP2GVA26U-UNV-GI-CUL	WHITE	(2) 28w T8, 2' LAMPS 6" LEG - PHILIPS		
K	VAPOR-TIGHT FLUORESCENT	LSI/MIDWEST	EG2-48HO-SS-UE	WHITE	(2) F48T12HO-PHILIPS		
X	EXIT SIGN	HARDI	PCX-MR16-RW	RED ON WHITE	LED		
EM2	REMOTE EXTERIOR HEAD	LITHONIA	AFN-X-EXT				

ALL LIGHT FIXTURES WITH MEDIUM-BASE SOCKETS SHALL BE PROVIDED BY THE MANUFACTURER WITH A LABEL INDICATING MAXIMUM WATTAGE TO MATCH THE LAMPING SCHEDULED FOR ENERGY CODE COMPLIANCE. ALL LAMPS SHALL BE BY PHILIPS - NO EXCEPTIONS

NEW PANEL: M VOLTS/PHASE BUS: 600A MAIN: 600,		E/WIRE: 120/208V/30/4W			LOCATION: OFFICE					MOUNTING: SURFACE					
		l: 600	DA MLO		IC:				FEEDI		ER: SEE RISER DIAGRAM				
CKT NO	DESCRIPTION	BRKR AMPS	BRKR POLE	WIRE SIZE	φ	φΒ	¢C	φΑ	φΒ	¢C	MIRE SIZE	BRKR POLE	BRKR AMPS	DESCRIPTION	CK NC
1					2500			4650							2
з	RTV-I	35	з	8		2500			4650		6	3	60	RTV-2	4
5							2500			4650					6
7					5988			5088							8
٩	RTU-3	60	з	6		5988			5088		6	з	50	RTU-4	10
П							5988			5088					12
13					1150			1150							14
15	MAU-I	30	з	ю		1150			1150		ю	з	30	KEF-I	16
17							1150			1150					18
19	BUSSED SPACE							220							20
21	BUSSED SPACE								220		12	з	20	KEF-2	22
23	BUSSED SPACE									220					24
25	BUSSED SPACE							30986							26
27	BUSSED SPACE								31579		4/0	з	225	PANEL 'A+B'	28
29	BUSSED SPACE									29584					30
NOTES):	•	•		9638	9638	9638	42094	42687	40692					
					517	132	52	325	503	330	Т	OTAL \	/A	154,387	
			AMPS Ø					208	ЗΦ	428.54					

PANEL M	<u>1 ELECTRICA</u>	L FEEDER C	ALCULATION	<u>15</u>
TYPE	CONNECTED	FACTOR	DEMAND	CODE REF
LIGHTING	3609	1.00	3609	215.3
RECEPTACLES (IST IOK)	8140	1.00	8140	220.44
HVAC	78518	1.00	78518	220.44
MISC	0	1.00	0	215.3
LARGEST MOTOR	6308	0.25	1577	220.50
WATER HEATER	1000	1.00	1000	215.3
SIGNAGE	2400	1.00	2400	215.3
KITCHEN EQUIPMENT	58760	0.65	38194	220.56
TOTAL KVA	152427		133438	
AMPS @	208	3Φ	370.4	AMPS

PANEL A & B ELECTRICAL FEEDER CALCULATIONS							
TYPE	CONNECTED	FACTOR	DEMAND	CODE REF			
LIGHTING	3609	1.00	3609	215.3			
RECEPTACLES (IST IOK)	8140	1.00	8140	220.44			
ADDITIONAL RECEPTS	0	0.50	0	220.44			
MISC	2900	1.00	2900	2 5.3			
HVAC	16280	1.00	16280	220.50			
WATER HEATER	1000	1.00	1000	215.3			
SIGNAGE	2400	1.25	3000	2 5.3			
KITCHEN EQUIPMENT	58760	0.65	38194	220.56			
	*	*	•	•			
TOTAL KVA	93089		73123				
AMPS @	208	30	203.0	AMPS			



SCALE: NONE





SFAI