

PACKAGED HEAT-COOL UNIT SCHEDULE																
MARK	MODEL	MANUFACTURER	SCFM	ESP	MOTOR HP.	GAS TYPE	HEATING BTU INPUT	HEATING BTU OUT	AFUE	COOLING BTU TOTAL	NOM. TONS	EER	SYSTEM KW	MINIMUM FRESH AIR	UNIT WEIGHT LBS.	NOTE:
RTU-1	YSC120F4RHA	TRANE	4,000	0.5	3.75	NAT	250,000	200,000	80%	119,000	10	11.3	10.0	630 CFM	1500	1,2,3,4,5,6
RTU-2	YSC120F4RHA	TRANE	4,000	0.5	3.75	NAT	250,000	200,000	80%	119,000	10	11.3	10.0	600 CFM	1500	1,2,3,4,5,6

NOTES:

- ALL WORK TO BE DONE IN COMPLIANCE WITH ALL STATE AND LOCAL CODES AND ALL MANUFACTURER'S INSTRUCTIONS.
- SUPPLY FANS TO RUN CONSTANTLY DURING OCCUPIED PERIODS OF BUILDING OPERATION.
- MAINTAIN 10'-0" BETWEEN ALL VENT/EXHAUST AND OUTSIDE AIR INTAKES.
- PROVIDE AND INSTALL TURNING VANES OR LARGE RADIUS TURNS ON ALL DUCT CORNERS.
- PROVIDE AND INSTALL SPLITTER DAMPERS AT ALL SUPPLY DUCT TEES AND TAKE-OFFS.
- ALL SUPPLY DUCT TAKE-OFFS SHALL BE PROVIDED WITH MANUALLY ADJUSTABLE AIR BALANCING DAMPER WITH LOCKING QUADRANTS OR WINGS.
- UNDERCUT DOORS OR PROVIDE DOOR OR TRANSFER GRILLES WHERE NECESSARY TO PROVIDE FOR PROPER TRANSFER OF AIR. DO NOT PENETRATE ANY FIRE BARRIERS.
- ALL DUCT INSTALLATION SHALL CONFORM TO ASHRAE AND SMACNA STANDARDS AS REGARDS BUT NOT LIMITED TO DUCT GAUGES, TURNING RADII AND THE INSTALLATION OF TURNING VANES AND/OR EXTRACTORS, WHETHER OR NOT SHOWN ON PLANS.
- ALL DUCTWORK AND PIPING SHALL RUN STRAIGHT AND TRUE AND SHALL BE INSTALLED IN A WORKMANLIKE MANNER.
- STEEL OR ALUMINUM DUCTWORK THAT REQUIRES INSULATION SHALL CONFORM WITH ALL APPLICABLE CODES. DIMENSIONS LISTED ARE INSIDE AREA SIZES. MINIMUM INSULATION R VALUES SHALL BE DETERMINED BY IECC CODE 503.2.7. ALL SUPPLY AND RETURN DUCTS SHALL BE INSULATED WITH A MINIMUM OF R-5 INSULATION WHEN LOCATED IN UNCONDITIONED SPACES AND WITH A MINIMUM OF R-8 INSULATION WHEN LOCATED OUTSIDE THE BUILDING ENVELOPE.
- DUCTWORK SEAMS AND JOINTS: ALL LONGITUDINAL & TRANSVERSE JOINTS, SEAMS AND CONNECTIONS OF SUPPLY, RETURN AND EXHAUST DUCTS TO BE SECURELY FASTENED AND SEALED. THIS SYSTEM IS A LOW PRESSURE (LESS THAN OR EQUAL TO 2" W.G.) DUCT SYSTEM. TAPES AND MASTICS SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A. ALL DUCT SEALING WORK SHALL COMPLY WITH IECC 503.2.7.1 & IMC 603.0
- GRILLES AND REGISTERS ARE GENERAL SIZES AND SHOULD BE VERIFIED FOR FINAL SELECTION AND TYPE.
- GAS PIPING PROVIDED TO MEET ALL STATE AND LOCAL CODES, INCLUDING LOCAL GAS UTILITY COMPANY REQUIREMENTS AND THE NATIONAL FUEL GAS CODE, NFPA NO. 54.
- HVAC CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDENSATE DRAIN LINES AND REFRIGERATION PIPING IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ALL LOW VOLTAGE CONTROL WIRING SHALL BE FURNISHED AND INSTALLED BY HVAC CONTRACTOR.
- HVAC CONTRACTOR OR BALANCING AGENT SHALL TEST AND BALANCE THE ENTIRE HVAC SYSTEM. THE BALANCE REPORT SHALL BE SUBMITTED TO THE ENGINEER OR HVAC DESIGNER ALONG WITH ONE COPY RETAINED ON SITE WITH APPROVED HVAC PLANS. NOTE THAT FINAL INSPECTIONS SHALL NOT BE PERFORMED AND COMPLIANCE STATEMENTS (REQUIRED FOR OCCUPANCY) SHALL NOT BE PROVIDED WITHOUT A VALID AIR BALANCE REPORT ON FILE WITH THE ENGINEER OR HVAC DESIGNER.
- HVAC CONTRACTOR SHALL PROVIDE ONE SET OF OPERATION & MAINTENANCE MANUALS TO THE OWNER. THIS MANUAL SHALL INCLUDE ALL EQUIPMENT O & M MANUALS, ALL THERMOSTAT PROGRAMMING MANUALS AND INSTRUCTIONS AND ANY AND ALL RELEVANT WIRING DIAGRAMS OR CONTROL SCHEMATICS AND ALL EQUIPMENT WARRANTY INFORMATION.
- ACCESS AND SERVICE SPACE REQUIREMENTS: CLEARANCES AROUND APPLIANCES TO ELEMENTS OF PERMANENT CONSTRUCTION, INCLUDING OTHER INSTALLED EQUIPMENT AND APPLIANCES, SHALL BE SUFFICIENT TO ALLOW INSPECTION, SERVICE, REPAIR OR REPLACEMENT WITHOUT REMOVING SUCH ELEMENTS OF PERMANENT CONSTRUCTION OR DISABLING THE FUNCTION OF A REQUIRED FIRE-RESISTANCE-RATED ASSEMBLY. A LEVEL WORKING SPACE AT LEAST 30 INCHES DEEP AND 30 INCHES WIDE SHALL BE PROVIDED IN FRONT OF THE CONTROL SIDE TO SERVICE THE APPLIANCE.
- EXHAUST OUTLETS FOR "ENVIRONMENTAL AIR" EXHAUST OPENINGS SHALL BE LOCATED ≥3 FEET FROM PROPERTY LINES AND > 3 FEET FROM OPENINGS INTO THE BUILDING. "ENVIRONMENTAL AIR" IS AIR THAT IS CONVEYED TO OR FROM OCCUPIED AREAS THROUGH DUCTS WHICH ARE NOT PART OF THE HEATING OR AIR-CONDITIONING SYSTEM, SUCH AS VENTILATION FOR HUMAN USAGE, DOMESTIC KITCHEN RANGE EXHAUST, BATHROOM EXHAUST AND DOMESTIC CLOTHES DRYER EXHAUST. THE EXHAUST FROM A BATHROOM OR KITCHEN IN A RESIDENTIAL DWELLING SHALL NOT BE CONSIDERED TO BE HAZARDOUS OR NOXIOUS CONTAMINANT. OTHER TYPES OF EXHAUST OPENINGS SHALL BE LOCATED 10 FEET FROM PROPERTY LINES AND 10 FEET FROM OPERABLE OPENINGS INTO BUILDINGS.
- OUTDOOR AIR INTAKES MUST BE LOCATED MINIMUM 10 FEET FROM ANY HAZARDOUS OR NOXIOUS CONTAMINANT SOURCE, SUCH AS VENTS, CHIMNEYS, PLUMBING VENTS, STREETS, ALLEY, PARKING LOTS AND LOADING DOCKS. WHERE A CONTAMINANT SOURCE IS WITHIN 10 FEET HORIZONTALLY OUTSIDE AIR OPENING SHALL BE LOCATED A MINIMUM OF 3 FEET BELOW THE CONTAMINANT SOURCE.
- PROVIDE SHEET METAL DUCTS, DUCT LINER AND FITTINGS WHICH ARE CONSTRUCTED IN COMPLIANCE WITH THE STANDARDS APPROVED BY ASHRAE, SMACNA, & ACCA. THE USE OF FIBERGLASS CONSTRUCTED DUCT, (DUCTBOARD) WILL NOT BE PERMITTED ON THIS PROJECT.
- HVAC CONTRACTOR SHALL FIELD VERIFY ALL DUCT DIMENSIONS PRIOR TO FABRICATION.
- THE DESIGNER AND G. A. LARSON COMPANY WILL NOT BE RESPONSIBLE FOR THE ABILITY TO INSTALL PREFABRICATED DUCT WITHOUT FIELD MEASUREMENTS.
- HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR DUCTWORK ROUTING, INSTALLATION AND RESOLVING INTERFERENCE WITH OTHER TRADES.
- PROVIDE HVAC SYSTEMS WITH AUTOMATIC SETBACK OR SHUTDOWN CONTROLS.
- ALL THERMOSTATS SHALL BE LOCATED AT A MAXIMUM OF 48 INCHES AND A MINIMUM OF 15 INCHES ABOVE FINISHED FLOOR.
- ALL EXHAUST FANS SHALL BE WIRED PER REQUIREMENTS NOTED IN THE SCHEDULE. ALL WIRING PROVIDED BY ELECTRICAL CONTRACTOR.
- HVAC CONTRACTOR SHALL PROVIDE SMOKE DETECTION SYSTEM THAT WILL SHUT DOWN THE AIR DISTRIBUTION SYSTEM UPON ACTIVATION. SMOKE DETECTORS SHALL BE CONNECTED TO A FIRE ALARM SYSTEM IF PROVIDED IN THE BUILDING. THE ACTIVATION OF A SMOKE DETECTOR SHALL ACTIVATE A VISIBLE AND AN AUDIBLE SUPERVISORY SIGNAL AT A CONSTANTLY ATTENDED LOCATION. THE SMOKE DETECTOR(S) SHALL BE LOCATED IN THE RETURN AIR DUCT OF ALL UNITS WITH RETURN AIR THAT SUPPLY MORE THAN 2,000 CFM WHERE MECHANICAL EQUIPMENT IS LOCATED WITHIN 10 FEET OF A ROOF EDGE, AND SUCH EDGE OR OPEN SIDE IS MORE THAN 30" ABOVE THE FLOOR, ROOF OR GRADE BELOW. EQUIPMENT MUST BE GUARDED. THE GUARD SHALL EXTEND NOT LESS THAN 30" BEYOND EACH END OF THE EQUIPMENT AND THE TOP OF THE GUARD SHALL BE LOCATED NOT LESS THAN 42 INCHES ABOVE THE ELEVATED SURFACE ADJACENT TO THE GUARD. THE GUARD SHALL PREVENT THE PASSAGE OF A 2 1/2" DIAMETER SPHERE.
- GENERAL CONTRACTOR SHALL PROVIDE A PERMANENT MEANS OF EGRESS FOR APPLIANCES INSTALLED ON ROOFS OR ELEVATED STRUCTURES WITH A HEIGHT EXCEEDING 16 FEET. ACCESS SHALL NOT REQUIRE CLIMBING OVER OBSTRUCTIONS GREATER THAN 30 INCHES, OR WALKING ON ROOFS HAVING A SLOPE GREATER THAN 4/12.
- THESE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE INTENT OF THE PLANS AND SPECIFICATIONS. SOME FIELD CHANGES THAT DO NOT AFFECT THE PERFORMANCE OR INTENT OF THE DESIGN ARE ACCEPTABLE AND SHOULD BE EXPECTED. DO NOT SCALE DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY ALL MEASUREMENTS AND ACCEPT RESPONSIBILITY FOR THEIR ACCURACY.
- OWNERSHIP OF INSTRUMENTS OF SERVICE: THESE PLANS AND ALL RELATED WORK PERFORMED AND PROVIDED, INCLUDING BUT NOT LIMITED TO LOAD CALCULATIONS ARE INTENDED FOR USE ONLY BY THE SPECIFIC HVAC CONTRACTOR NAMED IN THE TITLE BLOCK CONTAINED IN AND SHOWN ON THIS PLAN. TRANSFER OF THIS PLAN ALONG WITH ANY AND ALL RELATED WORK SHALL NOT BE PERMITTED WITHOUT THE SPECIFIC WRITTEN AUTHORIZATION FROM THE GUSTAVE A. LARSON COMPANY. IF SAID WRITTEN AUTHORIZATION IS NOT OBTAINED, THE GUSTAVE A. LARSON COMPANY SHALL NOT BE RESPONSIBLE FOR THE DESIGN OR PERFORMANCE OF THE HVAC SYSTEM ON THIS PARTICULAR PROJECT.
- THE DESIGN AND INSTALLATION OF THE HVAC SYSTEM FOR THIS PARTICULAR PROJECT SHALL BE STRICTLY ADHERED TO WITH REGARDS TO THE TYPE OF HVAC EQUIPMENT AND THE MANUFACTURER OF SAID EQUIPMENT AS LISTED IN THE EQUIPMENT SCHEDULES. IF ANY CHANGES ARE REQUESTED, PRIOR WRITTEN APPROVAL OF EQUIPMENT AND SHOP DRAWING APPROVAL MUST BE OBTAINED. IF THE TYPE AND MANUFACTURER OF THE HVAC EQUIPMENT UTILIZED ON THIS PROJECT IS NOT PROVIDED AS SCHEDULED, THE GUSTAVE A. LARSON COMPANY SHALL NOT BE RESPONSIBLE FOR THE DESIGN OR PERFORMANCE OF THE HVAC SYSTEM.
- THE HVAC ENGINEER/DESIGNER AND/OR THE GUSTAVE A. LARSON COMPANY HEREBY ASSUMES ABSOLUTELY NO RESPONSIBILITY FOR THE ABILITY OF THE EXISTING OR NEW ROOF STRUCTURE TO ADEQUATELY SUPPORT ANY OR ALL ROOF MOUNTED HVAC EQUIPMENT SHOWN ON THIS PLAN. THE REGISTERED ARCHITECT SHALL PROVIDE ALL STRUCTURAL CALCULATIONS ALONG WITH ALL ADDITIONAL OR NEW STRUCTURAL SUPPORTS TO ADEQUATELY SUPPORT ALL ROOF MOUNTED HVAC EQUIPMENT SHOWN ON THIS PLAN.

INSULATION REQUIREMENTS

COMMERCIAL BUILDINGS
IECC 503.2.7.

DUCT INSULATION

MUST HAVE MANUFACTURER PROVIDED R-VALUE, INSTALLED THICKNESS, FLAME SPREAD & SMOKE DEVELOPMENT RATINGS VISIBLE ON EXTERIOR INSULATION JACKET EVERY 36" OR LESS.

SUPPLY AIR, RETURN AIR, EXHAUST AIR AND OUTSIDE AIR INTAKE DUCTS TO BE INSULATED PER THE FOLLOWING:

- NOT REQUIRED WITH TEMPERATURE DIFFERENCE < 15 DEGREES F.
- MINIMUM R-5 REQUIRED IN UNCONDITIONED SPACES.
- MINIMUM R-8.0 REQUIRED WHEN DUCT LOCATED OUTSIDE BUILDING ENVELOPE.

PIPING INSULATION

REQUIRED IF FLUID TEMPERATURE > 105 DEGREES F.

REQUIRED IF FLUID TEMPERATURE < 55 DEGREES F.

DUCT SEALING REQUIREMENTS

LOW PRESSURE DUCT SYSTEMS.

ALL LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS OF SUPPLY, RETURN & EXHAUST DUCTS OPERATING AT A STATIC PRESSURE LESS THAN OR EQUAL TO 2 INCHES W.G. (500 PA) SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS OR TAPES INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. PRESSURE CLASSIFICATIONS SPECIFIC TO THE DUCT SYSTEM SHALL BE CLEARLY INDICATED ON THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE.

TAPES AND MASTICS USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A AND SHALL BE MARKED "181A-P" FOR PRESSURE-SENSITIVE TAPE, "181A-M" FOR MASTIC OR "181A-H" FOR HEAT-SENSITIVE TAPE.

EXHAUST FAN SCHEDULE

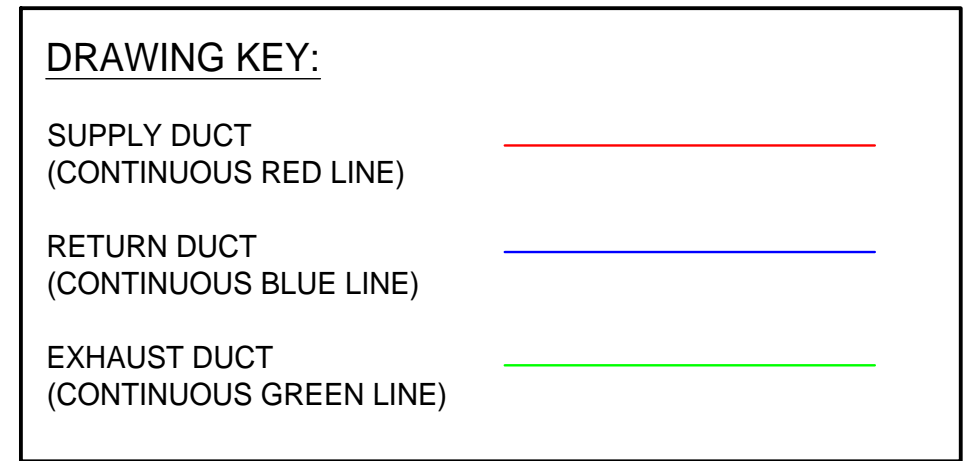
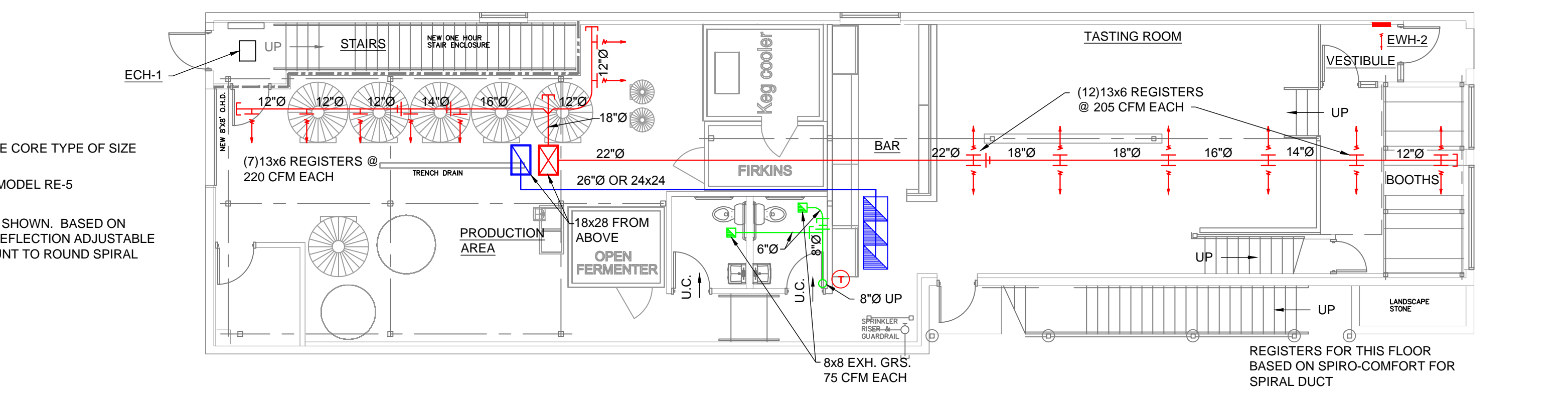
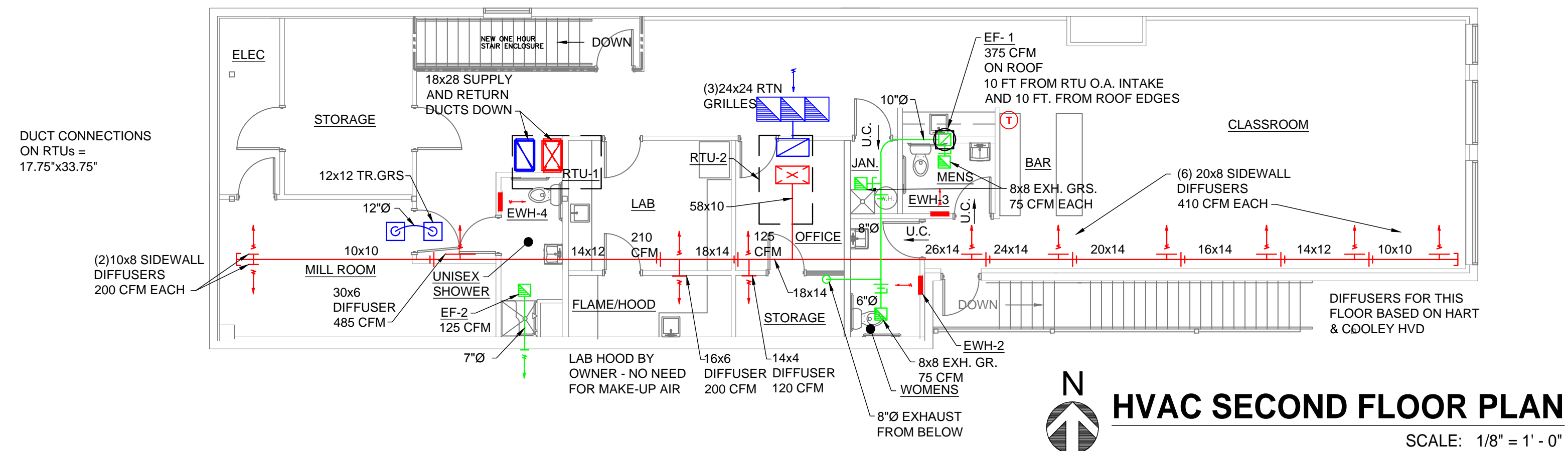
MARK	EXHAUST FAN MODEL	MANUFACTURER	EXHAUST CFM	MOTOR SIZE	ESP	MOTOR VOLTAGE	NOTE:
EF-1	SDBD10	SOLAR & PALAU	375	1/4 HP	0.5	115 - 1 - 60	2,3,5
EF-2	PC150	SOLAR & PALAU	125	0.34 AMPS	0.25	115 - 1 - 60	1,4,5

- PROVIDE WALL CAP WITH BACKDRAFT DAMPER.
- PROVIDE WITH ROOF CURB, BACKDRAFT DAMPER AND DISCONNECT SWITCH.
- MUST BE INTERLOCKED TO OPERATE DURING BUILDING OCCUPIED HOURS.
- MUST BE INTERLOCKED TO OPERATE DURING ROOM OCCUPIED HOURS.
- VERIFY ALL ELECTRICAL REQUIREMENTS WITH ELECTRICAL CONTRACTOR.

ELECTRIC HEATER SCHEDULE

MARK	HEATER MODEL	MANUFACTURER	HEATER TYPE	AMPS	TOTAL K.W.	BTU/HR	NOTE:
EWH-1	FRC4024	BERKO	WALL	16.7	4.0	13,652	1,2,3,4,5
EWH-2	SRA2020DSF	BERKO	WALL	9.6	2.0	6,820	1,2,3,4,5
EWH-3	SRA1012DS	BERKO	WALL	8.3	1.0	3,413	1,2,3,4,5
EWH-4	SRA2020DSF	BERKO	WALL	9.6	2.0	6,820	1,2,3,4,5
ECH-1	FFCH548	BERKO	CEILING	19.2	4.0	13,652	1,4,6

- INTEGRAL CONCEALED DOUBLE POLE LINE VOLTAGE THERMOSTAT.
- PROVIDE WITH RECESS WALL SLEEVE.
- INTEGRAL FAN ASSEMBLY.
- VERIFY ALL ELECTRICAL REQUIREMENTS WITH ELECTRICAL CONTRACTOR.
- MOUNT ELECTRIC WALL HEATER 1'-0" ABOVE FINISH FLOOR.
- PROVIDE WITH SURFACE MOUNT ENCLOSURE.



HVAC CONTRACTOR:
PALISADES HEATING & COOLING
1475 RACINE ROAD
MENASHA, WI 54952

PROJECT:
McFLESHMAN'S BREWING COMPANY
115 S. STATE STREET
APPLETON, WI 54911

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Sheet: 1 of 1
Date: 03-13-17
Scale: 1/8" = 1'-0"

PRELIMINARY
HVAC FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"
NOT FOR CONSTRUCTION
3-13-17