



MECHANICAL GENERAL NOTES

- CODES, RULES AND REGULATIONS - DESIGN OF SYSTEM
 - ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, ORDINANCES AND CODES.
 - WHEN THE DRAWINGS CALL FOR MATERIALS OR CONSTRUCTION OF A BETTER QUALITY OR LARGER SIZES THAN REQUIRED BY THE ABOVE MENTIONED CODES AND RULES, WORK SHALL BE AS SPECIFIED OR SHOWN RATHER THAN AS REQUIRED BY CODE. ALL ITEMS OR FEATURES OF THE MECHANICAL SYSTEMS REQUIRED BY CODE SHALL BE INCLUDED, EVEN THOUGH NOT SPECIFIED HEREIN.
 - INSTALLATION OF THE SYSTEMS SHALL BE IN ACCORDANCE WITH THE ABOVE MENTIONED CODES AND REGULATIONS AND ALSO SHALL CONFORM TO GOOD, ACCEPTED MECHANICAL PRACTICES.
- PROVIDE AND INSTALL VOLUME DAMPERS IN ALL BRANCH DUCTS.
- FLEXIBLE CONNECTIONS AT SUPPLY AND RETURN AIR OPENINGS OF ALL AIR HANDLING UNITS.
- FLEXIBLE DUCTS TO BE GLASS-FLEX 6"-0", MAXIMUM IN LENGTH, WHERE APPLICABLE.
- COORDINATE EXACT LOCATION OF ALL AIR OUTLETS AND INLETS (DIFFUSERS, REGISTERS AND GRILLES) WITH APPROPRIATE ARCHITECTURAL PLAN, AND VERIFY THEIR LOCATION WITH ARCHITECT ON THE JOB SITE BEFORE INSTALLATION. COLOR AS DIRECTED BY OWNER.
- AUTOMATIC TEMPERATURE CONTROL DEVICE FOR REGULATION OF SPACE TEMPERATURE SHALL BE CAPABLE OF BEING SET FROM 55 TO 85°F, AND HAVE THE ABILITY TO OPERATE THE HEATING AND COOLING IN SEQUENCE. CONTROL SHALL BE ADJUSTABLE TO PROVIDE A RANGE OF UP TO 5°F BETWEEN FULL HEATING AND FULL COOLING AND HAVE CAPABILITY OF TERMINATING ALL HEATING AT A TEMPERATURE NO MORE THAN 70°F, AND COOLING AT A TEMPERATURE NOT LESS THAN 78°F.
- APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE FASTENED IN PLACE.
- A MAINTENANCE LABEL SHALL BE AFFIXED TO MECHANICAL EQUIPMENT AND A MAINTENANCE MANUAL SHALL BE PROVIDED FOR THE OWNERS USE.
- PROVIDE ACCESS PANEL FOR ALL CEILING MOUNTED EQUIPMENT & VOLUME DAMPERS.
- PROVIDE MIN. 10'-0" SEPARATION BETWEEN POINT OF EXHAUST AND ANY FRESH AIR INTAKE, OR AIR HANDLING UNIT OSA INTAKE.
- PROVIDE FIRE DAMPER OR SMOKE/FIRE DAMPER WHERE DUCT PENETRATES FIRE RATED CEILING OR WALL IF APPLICABLE.
- TRANSVERSE JOINTS FOR ALL AIR SUPPLY DUCTS INSTALLED WHERE AIR LEAKAGE WOULD BE NON-BENEFICIAL TO THE OCCUPIED AREA, TEMPERATURE REQUIREMENTS SHALL BE SEALED WITH APPROVED MASTIC OR TAPE.
- ALL DUCT SIZES SHOWN ON THE FLOOR PLANS ARE CLEAR INSIDE DIMENSIONS. CONTRACTOR SHALL ENLARGE DUCT SIZE IN ORDER TO ACCOMMODATE LINING INSIDE OF DUCT IF REQUIRED.
- THE MECHANICAL CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND FEES.
- THE PROJECT SHALL BE AIR BALANCED AND A COPY OF THE FINAL REPORT SHALL BE PRESENTED TO THE TENANT AND OWNER.
- ENERGY CONSERVATION STANDARDS FOR NEW NONRESIDENTIAL BUILDINGS HAVE BEEN REVIEWED AND DESIGN SUBSTANTIALLY CONFORMS TO THEM.
- EACH SINGLE SYSTEM PROVIDING HEATING OR COOLING AIR IN EXCESS OF 2,000 CFM SHALL BE EQUIPPED WITH AN AUTOMATIC SHUT-OFF. THE SMOKE DETECTOR SHALL BE INSTALLED IN THE MAIN SUPPLY AIR DUCT DOWNSTREAM OF THE FILTERS OR THEY MAY BE INSTALLED IN EACH ROOM OR SPACE SERVED BY THE SUPPLY AIR DUCT. DETECTORS SHALL ALSO BE INSTALLED IN THE MAIN RETURN DUCT (IF REQ'D. BY THE LOCAL CODE) AHEAD OF OSA INTAKE. SEE CODE FOR EXEMPTIONS AND LOCAL AUTHORITY FOR CODE INTERPRETATION, OR AS INDICATED ON PLAN.
- ALL EQUIPMENT AND APPLIANCES ARE LISTED PRODUCTS, AND WILL BE INSTALLED ACCORDING TO THEIR LISTING, AND ALL LISTING INFORMATION WILL BE AVAILABLE FOR INSPECTION.
- DUCTWORK CONSTRUCTION DETAILS:
 - SUPPLY AND RETURN MATERIAL: INSULATED DUCTBOARD (R-8) WITH HEAVY DUTY ALUMINUM TAPE.
 - KITCHEN EXHAUST MATERIAL: MINIMUM 16 GAUGE BLACK STEEL WITH WELDED JOINTS.
 - DISHWASHER EXHAUST MATERIAL: STAINLESS STEEL WITH WELDED JOINTS.
 - KITCHEN MAKEUP MATERIAL: GALVANIZED STEEL.
- REFER TO DETAILS OR GUIDELINES FOR MECHANICAL CONSTRUCTION REQUIREMENTS. INSTALL IN FULL ACCORDANCE WITH PROPER CODES AND GUIDELINES.
- COORDINATE IN THE FIELD THE EXACT LOCATION OF ALL CEILING MOUNTED GRILLES AND DIFFUSERS WITH LIGHT FIXTURES AND (ARCHITECTUAL) REFLECTED CEILING PLAN.
- ALL EXTERIOR BRACKETS, CLAMPS, AND HANGERS SHALL BE HOT DIPPED GALVANIZED. COAT ALL CUT ENDS AND WELDS WITH "ZRC" COLD GALVANIZING COMPOUND.
- SHOP PRIME ALL MISCELLANEOUS INTERIOR BRACKETS AND HANGERS UNLESS GALVANIZED OR STAINLESS STEEL.
- DUCTWORK INSULATION DETAILS:
 - SUPPLY AND RETURN MATERIAL: INSULATED DUCTBOARD (R-8) WITH HEAVY DUTY ALUMINUM TAPE.
 - KITCHEN EXHAUST MATERIAL: ENCLOSED IN TWO HOUR FIRE RATED CHASE TO COMPLY WITH NFPA 96.
 - DISHWASHER EXHAUST MATERIAL: EXTERNAL R5 FIBERGLASS INSULATION WITH VAPOR BARRIER.
 - KITCHEN MAKEUP MATERIAL: EXTERNAL R5 FIBERGLASS INSULATION WITH VAPOR BARRIER.
 - EXHAUST MATERIAL: EXTERNAL R5 FIBERGLASS INSULATION WITH VAPOR BARRIER.

DIFFUSER SCHEDULE									
MARK CFM	NECK SIZE	FRAME SIZE	FRAME TYPE	VOL. DMPR.	SUP.	RET.	EXH.	METAL/ALRE NUMBER	FLEX SIZE
A	6"x 6"	24"x 24"	LAY-IN	•	•	—	—	5850 LOUVER FACE	6"ø
B	8"x 6"			•	•	—	—		8"ø
C	10"x 10"			•	•	—	—		10"ø
D	12"x 12"			•	•	—	—		12"ø
E	15"x 15"			•	•	—	—		15"ø
F	6"x 6"	12"x 12"	SURFACE	•	•	—	—		
G	8"x 8"	14"x 14"		•	•	—	—		
H	10"x 10"	16"x 16"		•	•	—	—		
J	12"x 12"	18"x 18"		•	•	—	—		
K	15"x 15"	20"x 20"		•	•	—	—		
L	6"x 6"	24"x 24"	LAY-IN	—	•	•	—	SPRIB PERFORATED	6"ø
M	8"x 8"			—	•	•	—		8"ø
N	10"x 10"			—	•	•	—		10"ø
P	12"x 12"			—	•	•	—		12"ø
Q	—	24"x 24"		—	•	•	—		
R	6"x 6"	12"x 12"	SURFACE	—	•	•	—	RH PARALLEL BLADE	6"ø
S	8"x 8"	14"x 14"		—	•	•	—		8"ø
T	10"x 10"	16"x 16"		—	•	•	—		10"ø
U	12"x 12"	18"x 18"		—	•	•	—		12"ø
V	SEE PLANS	NECK SIZE +2"	SIDEWALL	•	•	•	•	VHD-DOUBLE DEFLECTION	—
W				—	•	•	—	RH-PARALLEL BLADE	—
X	48"x 24"		LAY-IN	—	•	•	—	EGGCRATE	—
Y	SEE PLANS		SIDEWALL	•	•	—	—	4000S-HD DBL. DEFLECTION	—

NOTES:

- NOT ALL DEVICES SCHEDULED ARE NECESSARILY REQUIRED.
- DEVICES SHALL BE SUITABLE FOR CEILING TYPE IN WHICH INSTALLED. CONFIRM BEFORE ORDERING.
- SEE PLANS FOR ADDITIONAL AIR DEVICES NOT SCHEDULED.

AIR HANDLING UNIT SCHEDULE		
OUTDOOR UNIT	NEW ACCU-3	
INDOOR UNIT	AHU-1	
OUTDOOR DB TEMP.	95°	
SEER	13.0	
NOTES	1,2,3,4,5,6	
INDOOR CFM	4000	
OUTSIDE AIR CFM	800	
INDOOR EAT (°F DB/WB)	80/67	
INDOOR LAT (°F DB)	54.3/53.2	
GRAND SENSIBLE MBH	111.0	
GRAND TOTAL MBH	168.8	
APPROX. UNIT TONNAGE	10	
EST. EXT. S.P.* W.G.	1.0"	
HEATING KW/V/PH	18.4/208/3	
FAN MOTOR HP (V,PH)	3,208,3	
ELECTRICAL DATA:		
ACCU MCA/MOCP	40.7/60/208V/3PH	
AHU MCA/MOCP	49.4/50/208V/3PH	
CARRIER MODEL NUMBERS: AND WEIGHT		
ACCU:	38AKS016	
AHU:	40RMD14/700 lbs.	

NOTES:

- CONTRACTOR SHALL FIELD COORDINATE REFRIGERANT LINE SIZE WITH AHU MANUFACTURER. ROUTE NEW REFRIGERANT PIPING IN NEW WALL/ROOF PENETRATIONS. MANUFACTURER TO PROVIDE SST BALANCE POINT FOR SYSTEM CAPACITY PERFORMANCE.
- INSTALL GALVANIZED DRAIN PAN BENEATH THE ENTIRE AHU. PROVIDE AND INSTALL 1 INCH MINIMUM DIAMETER INSULATED DRAIN LINE TO SPILL INTO NEAREST FLOOR DRAIN. INSTALL FLOW SWITCH IN AUXILIARY DRAIN LINE AND CONTROLS TO AUTOMATICALLY SHUT OFF AHU WHENEVER FLOW IS SENSED.
- PROVIDE ACU WITH CRANKCASE HEATER, SIGHT GLASS, LIMIT SWITCHES, ANTI-SHORT CYCLE TIMER (5 MINUTES BETWEEN COMPRESSOR CYCLES), LIQUID LINE FILTER, HIGH AND LOW AMBIENT CONTROLS, EVAPORATOR FREEZE, THERMOSTAT, WINTER START CONTROL, COMPRESSOR START ASSIST CAPACITOR AND RELAY, MOTOR MASTER CONTROL, SUPPORT FEET, WIND BAFFLE, AND BALL BEARING FAN MOTOR.

MECHANICAL SPECIFICATIONS

- THE CONTRACTOR SHALL PROVIDE A COMPLETE AND FUNCTIONAL AIR CONDITIONING SYSTEM. ALL APPURTENANCES REQUIRED BUT NOT SHOWN SHALL BE PROVIDED.
- THE CONTRACTOR SHALL COORDINATE WITH OTHER DISCIPLINES. ALL VOLTAGES AND POWER REQUIREMENTS SHALL BE COORDINATED WITH THE ELECTRICAL CONTRACTOR.
- THE EXHAUST FANS SHALL BE MANUFACTURED BY COOK, GREENHECK, PENN OR ACME.
- DUCTWORK SHALL BE GALVANIZED SHEETMETAL CONSTRUCTED TO SMACNA STANDARDS FOR 2" WG PRESSURE. EXHAUST DUCTS SHALL BE CONSTRUCTED TO 2" NEG. PRESSURE. SEAL ALL SEAMS IN THE DUCT WITH HARDCAST IRON GRIP UNLESS OTHERWISE INDICATED.
- SUPPLY, RETURN AND EXHAUST DUCTWORK ABOVE CEILING SHALL BE EXTERNALLY WRAPPED WITH 1-1/2" MINIMUM DUCT INSULATION. THE INSULATION SHALL BE MANUFACTURED BY OWENS CORNING, SCHULLER, KNAUF, OR CERTAINTED. THE INSTALLED R-VALUE OF THE INSULATION SHALL BE 6.0 OR BETTER WITH VAPOR BARRIER. THE INSULATION SHALL BE STAPLED ON 6" CENTERS AND SEALED WITH PRESSURE SENSITIVE TAPE. THE R-VALUE MUST BE INDICATED ON THE EXTERIOR SIDE OF THE INSULATION FOR THE CITY INSPECTOR TO VERIFY.
- THE AIR DEVICES SHALL BE MANUFACTURED BY TITUS, KRUEGER OR NAILOR.
- FLEXIBLE DUCTWORK TO BE INSULATED WITH R-6 INSULATION. INSULATION SHALL BE UL 181 LABELED. PROVIDE WITH 1" OVERLAP. INSTALL AND SUPPORT PER MANUFACTURERS INSTRUCTIONS. INSULATED FLEXIBLE DUCTWORK TO BE 20/50 RATED FOR SMOKE AND FLAME.
- KITCHEN HOOD EXHAUST DUCTWORK FABRICATION: FABRICATE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE AND NFPA 96. EXPOSED KITCHEN HOOD EXHAUST DUCTS SHALL BE CONSTRUCTED OF STAINLESS STEEL USING CONTINUOUS EXTERNAL WELDED JOINTS. CONCEALED KITCHEN HOOD EXHAUST DUCTS SHALL BE CONSTRUCTED OF 16 GAUGE BLACK CARBON STEEL WITH WELDED JOINTS AND GREASE TIGHT. PROVIDE DUCTWORK IN 2 HOUR RATED ENCLOSURE. ENCLOSURE SHALL BE 1-1/2" THICK REFRACTORY CERAMIC BLANKET OR CALCA, MAGNESIA AND SILICA WITH ALUMINUM FOIL, FIBERGLASS-REINFORCE SCORIN ENCINSULATION. MANUFACTURER SHALL BE 3M FIRE BARRIER DUCT WRAP; UL LISTED AS A TWO (2) HOUR DUCT ENCLOSURE. PROVIDE ONE (1) OR TWO (2) LAYERS OF DUCTWRAP TO CREATE A 2 HOUR RATED DUCT ENCLOSURE. EACH LAYER SHALL BE LAPPED A MINIMUM OF THREE (3) INCHES.
- THE ROOFTOP AIR CONDITIONING UNITS SHALL BE MANUFACTURED BY TRANE, RUUD LENNOX, CARRIER, OR YORK. PROVIDE UNITS WITH PREFABRICATED ROOF CURB, UNIT MOUNTED DISCONNECT, PRE-WIRED MOTORIZED DAMPER, PRE-WIRED ELECTRICAL CONVENIENCE OUTLET AND TRANSFORMER, HEAD PRESSURE CONTROL TO OPERATE DOWN TO 0°F AMBIENT, CORROSION RESISTANT HEAT EXCHANGER, AND SHORT CYCLE CIRCUIT. PROVIDE 2" THROW-AWAY FILTERS. PROVIDE COMPRESSOR WITH FIVE YEAR WARRANTY, VIBRATION ISOLATION, SERVICE VALVES, CRANK CASE HEATER, SIGHT GLASS AND FILTER DRYER. FURNISH UNIT WITH OUTSIDE AIR HOOD AND VOLUME DAMPER. UNITS SHALL BE EQUIPPED WITH ELECTRIC HEAT AND BE WIRED FOR SINGLE POINT ELECTRICAL CONNECTION. PROVIDE WITH 7-DAY PROGRAMMABLE THERMOSTAT WITH AUTOMATIC CHANGE-OVER. THE CONTRACTOR SHALL INSTALL UNIT PER MANUFACTURER INSTRUCTION. ALL CONTROL WIRING BY MECHANICAL CONTRACTOR. CONTRACTOR SHALL VERIFY SLOPE OF ROOF BEFORE ORDERING ROOF CURB.
- CONDENSATE DRAIN TO BE PVC WITH DRAINAGE PATTERN FITTINGS. CONDENSATE DRAIN PIPING IN PLENUM AREAS OR BELOW ROOF SHALL BE TYPE "L" COPPER WITH DRAINAGE PATTERN FITTINGS. PROVIDE CLEANOUTS EVERY 50 FEET AND AT EACH CHANGE OF DIRECTION. MAINTAIN POSITIVE SLOPE AND SUPPORT TO PREVENT SAGGING. INSULATE PIPING WITH 3/4" ELASTOMERIC INSULATION FOR ALL PIPE BELOW ROOF. SUPPORT PIPING IN THE VERTICAL. INSULATION TO BE 20/50 FLAME AND SMOKE RATING. CONDENSATE PIPING ON ROOF TO BE SUPPORTED BY 4"x4" PRETREATED REDWOOD BLOCKS AND SPACED 4'-0" ON CENTER AND AT EACH CHANGE OF DIRECTION. SECURE PIPE TO BLOCKS WITH NON CORROSIVE PIPE STRAPPING.
- EXPOSED DUCTWORK SHALL BE K27 SPIRAL ROUND DOUBLE WALL INSULATED DUCTWORK. DUCTWORK SHALL BE MACHINE MADE FROM ROUND SPIRAL LOCKSEAM DUCT WITH REINFORCING CORRUGATIONS, GALVANIZED STEEL OUTER WALL, 1 INCH THICK GLASS FIBER INSULATION, PERFORATED GALVANIZED STEEL INNER WALL; FITTINGS MANUFACTURED WITH PERFORATED INNER WALL. DUCT CONNECTIONS SHALL BE BOLTED ANGLE WITH GASKET. CONSTRUCT DUCT WITH THE FOLLOWING MINIMUM GAGES: 3"ø TO 14"ø SHALL BE 28 GAGE; 15" TO 26" SHALL BE 24 GAGE. PROVIDE TWO (2) COATS OF EPOXY PAINT OVER PRIMER. REFER TO ARCHITECT FOR COLOR AND ACCEPTABLE PAINTING MEANS, METHODS AND MATERIALS. PROVIDE DUCT SUPPORTS AS REQUIRED.

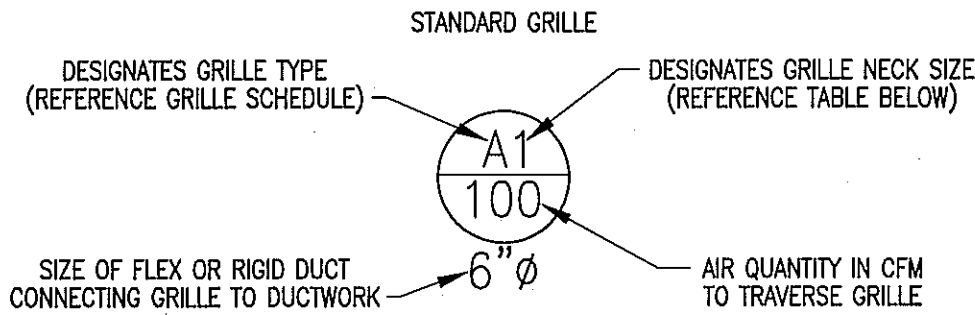
OUTSIDE AIR CALCULATIONS

EQUIPMENT	OUTSIDE AIR CFM	MAKEUP AIR CFM	EXHAUST AIR CFM
AHU-1 (EXISTING)	800	—	—
AHU-2 (EXISTING)	800	—	—
AHU-3 (NEW)	1260 MAX/500 MIN.	—	—
TOILET EXHAUST FAN (EXISTING)	—	—	500
HOOD #1 EXHAUST FAN (EXISTING)	—	1880	2250
HOOD #2 EXHAUST FAN	—	2010	2610
HOOD #3 EXHAUST FAN	—	990	1240
HOOD #4 EXHAUST FAN	—	—	880
TOTALS:	2860	4880	7480
TOTAL INCOMING FRESH AIR	=	7740 CFM	
TOTAL OUTGOING EXHAUST AIR	=	7480 CFM	
POSITIVE PRESSURE	=	260 CFM	

SYMBOL LEGEND

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
GENERAL	
Ⓕ	KEY NOTE TAG
Ⓖ	NOTE SPECIFIC TO DETAIL TAG
Ⓐ	REVISION TAG
⚡	NEW EQUIPMENT
DUCTWORK	
⌘	SUPPLY AIR DUCTWORK
⌘	RETURN AIR AND OUTSIDE AIR DUCTWORK
⌘	EXHAUST AIR DUCTWORK
⌘	FLEXIBLE DUCTWORK
⌘	SUPPLY AIR DUCTWORK THROUGH HORIZONTAL PARTITION
⌘	RETURN AIR AND OUTSIDE AIR DUCTWORK THROUGH HORIZONTAL PARTITION
⌘	EXHAUST AIR DUCTWORK THROUGH HORIZONTAL PARTITION
▲	FIRE DAMPER (VERTICAL)
MD	MANUAL BALANCING DAMPER (SEE DAMPER SCHEDULE)
MD	MOTORIZED DAMPER (SEE DAMPER SCHEDULE)
SENSORS	
Ⓘ	THERMOSTAT AND TEMPERATURE SENSOR
Ⓖ	HUMIDISTAT
Ⓕ	SMOKE DETECTOR
AIR DEVICES	
Ⓐ	AIR DEVICE TAG (REFER TO AIR DEVICE SCHEDULE)
⌘	SUPPLY AIR GRILLE WITH FOUR-WAY THROW
⌘	RETURN AIR GRILLE WITH SOUND BOOT
⌘	EXHAUST AIR GRILLE
PIPING	
—CD—	CONDENSATE DRAIN LINE

GRILLE SIZING SCHEDULE



ALL GRILLES SHOWN SHALL BE FOUR-WAY THROW UNLESS OTHERWISE SHOWN. —

GRILLE SIZE DESIGNATION	GRILLE NECK SIZE	GRILLE SIZE DESIGNATION	GRILLE NECK SIZE
1	6" x 6"	7	15" x 15"
2	8" x 8"	8	16" x 16"
3	9" x 9"	9	18" x 18"
4	10" x 10"	10	20" x 20"
5	12" x 12"	11	22" x 22"
6	14" x 14"	12	24" x 24"

ISSUE
10-24-11 LANDLORD REVIEW
11-03-11 ISSUED FOR PERMIT AND
PRICING

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PROJECT NAME

**Cafe
Express**

Cafe Express Restaurant

PROJECT ADDRESS

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PROJECT NUMBER

11039

SHEET NAME

MECHANICAL
LEGEND & SPEC'S

SHEET NUMBER

M2.1