MECHANICAL GENERAL NOTES

- CODES, RULES AND REGULATIONS DESIGN OF SYSTEM

 A) ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, ORDINANCES AND CODES. <u>B</u>
- 3) 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.
- PROVIDE ACCESS PANEL FOR ALL CEILING MOUNTED EQUIPMENT & VOLUME DAMPERS. A MAINTENANCE LABEL SHALL BE AFFIXED TO MECHANICAL EQUIPMENT AND A MAINTENANCE MANUAL SHALL BE PROVIDED FOR THE OWNERS USE.
- <u>1</u>0. PROVIDE MIN. 10'-0" SEPARATION BETWEEN POINT OF EXHAUST AND ANY FRESH AIR INTAKE, OR AIR HANDLING UNIT OSA INTAKE.
- <u>1</u> 12. PROVIDE FIRE DAMPER OR SMOKE/FIRE DAMPER WHERE DUCT PENETRATES FIRE RATED CEILING OR WALL IF APPLICABLE.
- ANSVERSE JOINTS FOR ALL AIR SUPPLY DUCTS INSTALLED WHERE AIR AKAGE WOULD BE NON-BENEFICIAL TO THE OCCUPIED AREA, TEMPERATURE QUIREMENTS SHALL BE SEALED WITH APPROVED MASTIC OR TAPE.
- 14. 13. 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.

15.

- 17. 16.
- 16. ENERGY CONSERVATION STANDARDS FOR NEW NONRESIDENTIAL BUILDINGS HAVE BEEN REVIEWED AND DESIGN SUBSTANTIALLY CONFORMS TO THEM.

 17. 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.
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- 19. 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:

 A) SUPPLY AND RETURN MATERIAL: INSULATED DUCTBOARD (R-8) WITH HEAVY DUTY ALUMINUM TAPE.

 B) KITCHEN EXHAUST MATERIAL: MINIMUM 16 GAUGE BLACK STEEL WITH WELDED TOUTS.
- 20. REFER TO DETAILS OR GUIDELINES FOR MECHANICAL CONSTRUCTION REQUIRMENTS. INSTALL IN FULL ACCORDANCE WITH PROPER CODES AND GUIDELINES. JOINTS.

 C) DISHWASHER EXHAUST MATERIAL: STAINLESS STEEL WITH WELDED JOINTS.

 D) KITCHEN MAKEUP MATERIAL: GALVANIZED STEEL.
- 21. COORDINATE IN THE FIELD THE EXACT LOCATION OF ALL CEILING MOUNTED GRILLES AND DIFFUSERS WITH LIGHT FIXTURES AND (ARCHITECTUAL) REFLECTED CEILING PLAN.
- 22.
- 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.
- 24. DUCTWORK INSULATION DETAILS:
 A) SUPPLY AND RETURN MATERIAL: INSULATED DUCTBOARD (R-8) WITH HEAVY DUTY ALUMINUM TAPE.
 B) KITCHEN EXHAUST MATERIAL: ENCLOSED IN TWO HOUR FIRE RATED CHASE TO COMPLY WITH NFPA 96.
 C) DISHWASHER EXHAUST MATERIAL: EXTERNAL R5 FIBERGLASS INSULATION WITH VAPOR BARRIER.
 D) KITCHEN MAKEUP MATERIAL: EXTERNAL R5 FIBERGLASS INSULATION WITH VAPOR BARRIER.
 E) EXHAUST MATERIAL: EXTERNAL R5 FIBERGLASS INSULATION WITH VAPOR BARRIER.

	DIFFU	SER, RI	DIFFUSER, REGISTER & GRIL	& GRI	LLE SCHEDULE	IEDULE		
MARK	MANUFACTURER	MODEL	SERVICE	MATERIAL	DESCRIPTION	FACTORY FINISH	BLOW PATTERN	NOTES
A	TITUS	TMS	SEE PLANS	STEEL	Supply diffuser	WHITE	4-WAY	
В	TITUS	350RL	SEE PLANS	STEEL	RETURN AIR GRILLE	WHITE	NA	1
С	TITUS	TMS	SEE PLANS	STEEL	SUPPLY DIFFUSER	WHITE	3-WAY	2
NOTES: 1. 3/4" BLADE SPACII 2. BLANK OFF QUADR	NOTES: 1. 3/4" BLADE SPACING, 35° DEFLECTION, LONG BLADE 2. BLANK OFF QUADRANT ON DIFFUSER TO PROVIDE 3-WAY THROW.	ONG BLADE PROVIDE 3-WAY THROW						

			EXHA	EXHAUST FAN SCHEDULE	N SCI	IED	ULE		
MARK	MANUFACTURER	MODEL	SERVICE	AIRFLOW	ESP	RPM	ELECTRI	ELECTRICAL DATA	NOTES
				(CFM)	(in wg)		V/PH/HZ	WATTS/AMPS/SONES	
EF-1	COOK	SQN-D	WOMENS	225	0.375	1,350	115/1/60	95/4.4/5.8	1,2,3
EF-2	C00K	SQN-D	MENS	225	0.375	1,350	115/1/60	95/4.4/5.8	1,2,3
EF-3	BROAN	L-200	MECHANICAL	150	0.375	740	115/1/60	127/1.8/2.9	1,2,3
TES:									

EXISTING EQUIPMENT SCHEDULE

1. PROVIDE FAN WITH DEDICATED WALL SWITCH.
2. PROVIDE SPEED CONTROLLER FOR FAN SPEED ADJUSTMENT.
3. PROVIDE ALL EXHAUST FANS WITH DISCHARGE BACKDRAFT DA

(E)RTU-1 3750 CFM, 400 CFM O.A., 10 TONS COOLING AND 25 KW HEAT MINIMUM. RUUD #RLKB-A120DL
(E)RTU-2 3750 CFM, 350 CFM O.A., 10 TONS COOLING AND 25 KW HEAT MINIMUM. RUUD $\#\text{RLKB-A120DL}$
(E)RTU-3 1400 CFM, 200 CFM O.A., 4 TONS COOLING AND 7 KW HEAT MINIMUM. RUUD #RLKB-A048DK
(E)RTU-4 2600 CFM, 250 CFM O.A., 7.5 TONS COOLING AND 25 KW HEAT MINIMUM. RUUD #RLKB-A073DL
<u>(E)KEF-1</u> 2500 CFM @ 0.375 sp DAYTON #4HX96A
<u>(E)KEF-2</u> 2500 CFM @ 0.375 sp DAYTON #4HX96A
(E)KEF-3 1500 CFM @ 0.375 sp DAYTON #4HX94A
(E)MAU-1 3450 CFM @ 0.375 sp DAYTON #4YC47
(E)MAU-2 2150 CFM @ 0.375 sp DAYTON #4YC47

NOTE **T0** PLAN CHECKE 교

ALL MECHANICAL ROOFTOP UNITS ARE EXISTING TO REMAIN. THEREFORE THIS PROJECT IS EXEMPT FROM THE REQUIREMENTS OF THE 2009 I.E.C.C..

MECHANICAL SPECIFICATIONS

YMBOL

LEGEND

ISSUE

1/2012

02/28/12

ISSUED FOR PERMIT AND PRICING

- THE CONTRACTOR SHALL PROVIDE A COMPLETE AND FUNCTIONAL AIR CONDITION SYSTEM. ALL APPURTENANCES REQUIRED BUT NOT SHOWN SHALL BE PROVIDED. NING
- 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 BROAN.
- DUCTWORK SHALL BE GALVANIZED SHEETMETAL CONSTRUCTED TO SMACNA STANDARDS FOR 2" WG PRESSURE. EXHAUST DUCTS SHALL BE CONSTRUCTED NEG. PRESSURE, SEAL ALL SEAMS IN THE DUCT WITH HARDCAST IRON GRIP UN OTHERWISE INDICATED.) TO 2" NLESS
- 5 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 CERTAINTEED. 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 RATE FOR SMOKE AND FLAME.

7.

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 REFACTORY CERAMIC BLANKET OR CALCIA, MAGNESIA AND SILICA WITH ALUMINUM FOIL, FIBERGLASS-REINFORCE SCRIM ENCAPSULATION. 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. KITCHEN HOOD EXHAUST DUCTWORK FABRICATION: FABRICATE IN 0 RATED

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- 9. 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.
- ONDENSATE DRAIN TO BE PVC WITH DRAINAGE PATTERN FITTINGS. CONDENSATE RAIN PIPING IN PLENUM AREAS OR BELOW ROOF SHALL BE TYPE "L" COPPER WITH RAINAGE PATTERN FITTINGS. PROVIDE CLEANOUTS EVERY 50 FEET AND AT EACH HANGE OF DIRECTION. MAINTAIN POSITIVE SLOPE AND SUPPORT TO PREVENT SAGGING. ISULATE PIPING WITH 3/4" ELASTOMERIC INSULATION FOR ALL PIPE BELOW ROOF. UPPORT PIPING IN THE VERTICAL. INSULATION TO BE 20/50 FLAME AND SMOKE ATING. CONDENSATE PIPING ON ROOF TO BE SUPPORTED BY 4"x4" PRETREATED EDWOOD BLOCKS AND SPACED 4'-0" ON CENTER AND AT EACH CHANGE OF RECTION. SECURE PIPE TO BLOCKS WITH NON CORROSIVE PIPE STRAPPING.

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SENSORS = SYMBOL SUPPLY AIR DUCTWORK

RETURN AIR AND OUTSIDE AIR DUCTWORK

- FLEXIBLE DUCTWORK

SUPPLY AIR DUCTWORK THROUGH HORIZONTAL PARTITION

RETURN AIR AND OUTSIDE AIR DUCTWORK THROUGH HORIZONTAL PAIR EXHAUST AIR DUCTWORK THROUGH HORIZONTAL PARTITION

FIRE DAMPER (VERTICAL)

MD

MANUAL BALANCING DAMPER (SEE DAMPER SCHEDULE) AIR DEVICE TAG (REFER TO AIR DEVICE SCHEDULE)
SUPPLY AIR GRILLE WITH FOUR-WAY THROW
RETURN AIR GRILLE WITH SOUND BOOT
EXHAUST AIR GRILLE KEY NOTE TAG

NOTE SPECIFIC TO DETAIL TO REVISION TAG

NEW EQUIPMENT THERMOSTAT AND TEMPERATURE SENSOR HUMIDISTAT MOTORIZED DAMPER (SEE DAMPER SCHEDULE) SMOKE DETECTOR DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS) CONDENSATE DRAIN LINE TAG PARTITION

GRILLE		SIZING SCHEDULE	ULE
DESIGNATES GRILLE TYPE (REFERENCE GRILLE SCHEDULE)	STANDARD GRILLE LE TYPE SCHEDULE)		DESIGNATES GRILLE NECK SIZE (REFERENCE TABLE BELOW)
SIZE OF FLEX OR RIGID DUCT CONNECTING GRILLE TO DUCTWORK	RIGID DUCT 6"Ø		AIR QUANTITY IN CFM TO TRAVERSE GRILLE
ALL GRILLES S	HOWN SHALL BE FOUR-W	ALL GRILLES SHOWN SHALL BE FOUR-WAY THROW UNLESS OTHERWISE SHOWN.	WISE SHOWN.
GRILLE SIZE DESIGNATION	GRILLE NECK SIZE	GRILLE SIZE DESIGNATION	GRILLE NECK SIZE
1	6" × 6"	7	15" x 15"
2	8" × 8"	8	16" x 16"
3	9" x 9"	9	18" x 18"
4	10" x 10"	10	20" × 20"
5	12" × 12"	11	22" × 22"
6	14" × 14"	12	24" × 24"

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·			1)
OUTSIDE	AIR /	ANALYSIS	/SIS
AREA	SQ. FEET	0.A./S.F.	CFM
<u>RTU-1</u>			
DINING	1405	0.25	351.25
<u>RTU-2</u>			
DINING	1025	0.25	256.25
VESTIBULE	110	0.05	5.50
WOMENS	180	0.00	0.00
MENS	180	0.00	0.00
PICKUP	180	0.25	45.00
<u>RTU-3</u>			
MECHANICAL	40	0.05	2.00
CORRIDOR	85	0.05	4.25
OFFICE	60	0.08	4.80
KITCHEN	295	0.30	88.50
RTU-4			
KITCHEN	605	0.30	181.50
TOTAL - MINIMUM REQUIRED	RED		939.05
OUTDOOR AIR CALCULATIONS BASED ON HOUSTON AMENDMENTS	ns based on	I HOUSTON AN	ENDMENTS
SEE SCHEDULES FOR ACTUAL OUTDOOR AIR VENTILATION RATES	UAL OUTDOOR	AIR VENTILAT	ion rates

X)
TO A

Cafe Express Restaurant

PROJECT ADDRESS 1111 Eldridge Parkway #100 Houston, Texas 77077

PROJECT NUMBER

11052 SHEET NAME

MECHANICAL

LEGEND & SPEC'S