

EXISTING ROOF TOP UNIT SCHEDULE			
(CARRIER MODELS TO BE SPECIFIED) (LO NoX in California)			
UNIT SYMBOL	RTU SA (EXISTING)	RTU SB (EXISTING)	RTU SC (EXISTING)
LOCATION	ROOF	ROOF	ROOF
BLOWER	CFM TSP (IN W.G.)	3,000 (7.5-TON) 0.6"	3,000 (7.5-TON) 0.6"
COOLING	TOTAL (BTUHR)	85,200	85,200
	SENSIBLE (BTUHR)	67,100	67,100
	AMBIENT (F)	--	--
	COIL ENTERING	--	--
HEATING (BTUHR)	125,000 (INPUT) / 103,000 (OUTPUT)	125,000 (INPUT) / 103,000 (OUTPUT)	125,000 (INPUT) / 103,000 (OUTPUT)
ELECTRICAL	POWER SUPPLY	208V/3PH/60HZ	208V/3PH/60HZ
	COMPRESSOR (FLA)	--	--
	CONDENSER MOTOR (FLA)	--	--
	EVAPORATOR MOTOR (FLA)	--	--
	MIN. CIRCUIT AMPACITY	50, HACR = 60	50, HACR = 60
BY CARRIER 48TCD408 EXISTING UNIT TO REMAIN. ADJUST O/A TO 667 CFM PER PLANS			

EXHAUST FAN SCHEDULE			
FAN NO.	EF 1	EF 2	EF 3
LOCATION	ROOF	ROOF	ROOF
AREA SERVED	KITCHEN GREASE EXHAUST HOOD #1	KITCHEN GREASE EXHAUST HOOD #2	RESTROOMS
FAN DUTY	AIR EXHAUST	AIR EXHAUST	AIR EXHAUST
FAN TYPE	CENTRIFUGAL BELT-DRIVEN	CENTRIFUGAL BELT-DRIVEN	CENTRIFUGAL BELT-DRIVEN
FAN ARRANGEMENT	UPBLAST	UPBLAST	DOWNBLAST
MIN. WHEEL DIAMETER	-	-	-
PERFORMANCE	C.F.M.	3,225	3,225
	T.S.P.	1.25"	1.25"
	B.H.P.	1.28	1.28
	FAN R.P.M.	1189	1189
	MOTOR H.P.	2.0	2.0
MOTOR	ELEC. CHARACTERISTICS	208V/3PH/60HZ	208V/3PH/60HZ
	MOTOR R.P.M.	1725	1725
	MOTOR SPECIAL FEATURES	OPEN DRIP-PROOF	OPEN DRIP-PROOF
ACCESSORIES	1. VENTED ROOF CURB 2. HINGED AND CHAINED FAN INSTALLATION FOR DUCT ACCESS	1. VENTED ROOF CURB 2. HINGED AND CHAINED FAN INSTALLATION FOR DUCT ACCESS	1. ROOF CURB 2. BACKDRAFT DAMPER
MANUFACTURER	CAPTIVEAIRE MODEL: EABDU18 WT. 184 LBS	CAPTIVEAIRE MODEL: EABDU18 WT. 184 LBS	CAPTIVEAIRE MODEL: EABDCR7 WT. 90 LBS

HVAC CONTROL SETTINGS

EACH HVAC UNIT SHALL BE PROVIDED WITH CONTROLS AS FOLLOWS:

TERMOSTAT: CARRIER COMMERCIAL PROGRAMMABLE THERMOSTAT WITH REMOTE TEMPERATURE SENSOR. SEE SHEET M-100 FOR THERMOSTAT AND SENSOR LOCATIONS.

ALL THERMOSTATS SHALL HAVE MANUAL OVERRIDE.

EACH UNIT CONTROL SHALL BE SET UP INITIALLY AS FOLLOWS:

CONTRACTOR SHALL DETERMINE OCCUPIED PERIOD FROM OWNER.

FAN OPERATION SHALL BE CONTINUOUS DURING OCCUPIED PERIOD AND CYCLE WITH COOLING/HEATING DURING UNOCCUPIED PERIOD.

PROGRAMMED SETPOINTS (FOR EACH THERMOSTAT):
 COOLING OCCUPIED: 75°F
 COOLING UNOCCUPIED: 85°F
 HEATING OCCUPIED: 68°F
 HEATING UNOCCUPIED: 50°F

NOTE: DEVIATIONS FROM THE ABOVE MAY RESULT IN UNACCEPTABLE AIR QUALITY, COMFORT AND/OR ENERGY CONSUMPTION.

AIR CURTAIN SCHEDULE

EQUIP.	MFR/MODEL	DESCRIPTION
MBA	MARS STD242-UO-0B	UNHEATED AIR CURTAIN (SERVICE DOOR), 115/1/60 WEIGHT 65 LBS. PROVIDED BY PANDA EXPRESS

NOTES:
INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS.

MUA CONTROL SETTINGS

EACH UNIT CONTROL SHALL BE SET UP INITIALLY AS FOLLOWS:

FAN OPERATION SHALL BE CONTINUOUS DURING COOKING OPERATION INTERLOCK WITH KITCHEN EXHAUST FANS. REFER TO HOOD DRAWINGS.

PROGRAMMED SETPOINTS:
 COOLING: 85°F
 HEATING: 55°F

MAKE-UP AIR UNIT SCHEDULE

MARK	MFR/ MODEL	LOCATION	SERVICE AREA	GAS HEAT	TYPE	COOLING	CFM	ESP	MOTOR	REMARKS
MA-1	CAPTIVEAIRE A3-G18	ROOF-TOP	KITCHEN HOOD #1 & #2	INPUT: 562,385 BTU/H OUTPUT: 517,394	DIRECT FIRE GAS HEATED	N/A	5,160	0.75"	3 HP 208V/3PH/60HZ	GAS FIRED MAKEUP AIR UNIT. REFER TO SHEET M-402 FOR INFORMATION. 4-5 WEEK LEAD TIME. SHIPPING INCLUDED IN PRICE. SHIPS FROM TYLER, TX. SHIPS SEPARATE. FREIGHT INCLUDED. NOTE: FACTORY OPTIONS SHALL INCLUDE NONCORROSIVE COATING AND HAIL GUARD PROTECTION.

MUA CALCULATIONS

# OF DAYS >85 DEGREES F	<14
# OF DAYS <60 DEGREES F	>14

IF # OF DAYS EXCEEDS 14 THEN HEATED AND/OR COOLING IS TO BE PROVIDED

DIFFUSER & GRILLE SCHEDULE

DESIGNATION	MANUFACTURER	MODEL NO	TYPE	COLOR	NOM NECK SIZE	NOM FACE SIZE	FRAME TYPE	NC MAX	REMARKS
A	PRICE	PDMC3-R6	PERFORATED MODULAR CORE	B-12 WHITE	14"Ø	24" x 24"	LAY-IN T-BAR	< 30	ROUND NECK BUTTERFLY VOLUME DAMPER
B	PRICE	PDMC3-AFI	PERFORATED MODULAR CORE	B-12 WHITE	12"Ø	16" x 16"	SURFACE	< 30	ROUND NECK BUTTERFLY VOLUME DAMPER
C	PRICE	PDMC3-AFI	PERFORATED MODULAR CORE	B-12 WHITE	9" x 9"	12" x 12"	SURFACE	< 30	SQ. TO RD. DUCT ADAPTER FOR DIA. AS SHOWN, OPPOSED BLADE DAMPER
D	PRICE	PDDR3	PERFORATED RETURN	B-12 WHITE	22" x 22"	24" x 24"	LAY-IN T-BAR	< 35	
E	PRICE	PDDR3-AFI	PERFORATED RETURN	B-12 WHITE	10" DIA.	12" x 12"	SURFACE	< 35	WITH VOLUME CONTROL
F	PRICE	PDDR3	PERFORATED RETURN	PA-28 BRONZE	22"X22"	24" x 24"	LAY-IN T-BAR	< 35	
G	PRICE	AS210	LINEAR SLOT	B-12 WHITE	2@6" OVAL	1 SLOT	SURFACE	< 35	SEE PLAN FOR LENGTH. PROVIDE WITH FACTORY PLENUM
H	PRICE	PDMC3-R6	PERFORATED MODULAR CORE	PA-28 BRONZE	14" x 14"	24" x 24"	LAY-IN T-BAR	< 30	TO ROUND DUCT ADAPTER FOR DIA. AS SHOWN
J	PRICE	PDMC3-AFI	PERFORATED MODULAR CORE	B-12 WHITE	8"Ø	24" x 24"	LAY-IN T-BAR	< 30	OPPOSED BLADE DAMPER

NOTE: PROVIDE FACTORY INSTALLED BACK PAN INSULATION ON AIR DEVICES.
 HVAC CONTRACTOR IS TO PURCHASE ALL AIR DEVICES FROM PANDA APPROVED NATIONAL ACCOUNT VENDOR THERMAIR SYSTEMS INC.
 PLEASE CONTACT RON CAMPTON AT 602-705-5010 OR EMAIL: ron@thermaisystems.com

AIR BALANCE SCHEDULE

ITEM	SUPPLY AIR	RETURN AIR	MAKE-UP AIR	EXHAUST
MAU1	0	0	+5,160	0
EF-1, EF-2	0	0	0	-3,225
RTU-5(A-C)	+3,000 x 3	-2,333 x 3	667	0
EF-3	-	-	-	-
TOTAL	+9,000	-6,999	+2,001	-6,900

BUILDING PRESSURE = +260 CFM

BALANCE TOLERANCES AS FOLLOWS:
 KITCHEN EXHAUST HOODS: 0% TO +10%
 OUTDOOR AIR: 0% TO +10%
 SUPPLY & RETURN DIFFUSERS: ±10%
 TOILET EXHAUST: ±10%
 BALANCE RTU SUPPLY AND RETURN PRIOR TO TURNING ON EXHAUST FANS.
 KITCHEN EXHAUST FANS SHALL BE BALANCED WITH VELOCITY MATRIX OR A 4" ANEMOMETER

OSA VENTILATION CALCULATION-UMC

AREA TYPE	TOTAL AREA (FT²)	OCCUPANCY DENSITY (PEOPLE/FT²)	TOTAL OCCUPANTS	OSA REQ'D PER SQ.FT. (CFM)	OSA REQ'D PER PERSON (CFM)	OSA REQ'D FOR THIS OCCUPANCY CLASSIFICATION (CFM)
HALLWAYS	39	-	-	0.06	-	3
STORAGE	30	-	-	0.12	-	4
DINING ROOM	985	70/1,000	69	0.18	7.5	695

VENTILATION SHALL BE BALANCED BY AN APPROVED METHOD. A BALANCE REPORT SHALL VERIFY THAT THE VENTILATION SYSTEM IS CAPABLE OF SUPPLYING THE AIRFLOW RATES REQUIRED BY SECTION 403. SAID REPORT MUST BE PRESENTED TO THE ADMINISTRATIVE AUTHORITY.

TOTAL OSA REQUIRED (CFM)	702
TOTAL OSA PROVIDED (CFM)	2000

MECHANICAL LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	ABV	ABOVE
	AFF	ABOVE FINISHED FLOOR
	CLG	CEILING
	DN	DOWN
☒ ☒ ☒		DUCT SECTIONS (SUPPLY, EXHAUST, RETURN)
~		FLEXIBLE DUCT
—	MVD	MANUAL VOLUME DAMPER
—	OPD	OPPOSED BLADE DAMPER
	MFR	MANUFACTURER
	MIN	MINIMUM
	OSA	OUTSIDE AIR
⊕		ROUND RIGID DUCTWORK
TSP		TOTAL STATIC PRESSURE
↺ ↻		TURNING VANES
□		CONSTRUCTION NOTES
EF		MECHANICAL EQUIPMENT DESIGNATION
⊙		SMOKE DETECTOR
⊕		THERMOSTAT / UNIT
⊕		REMOTE SENSOR / UNIT

- ### MECHANICAL SPECIFICATIONS
- WORK INCLUDES INSTALLATION OF HVAC SYSTEMS, INCLUDING GREASE EXHAUST FANS AND MAKE-UP AIR UNIT FOR KITCHEN HOODS, SPACE HEATING/AIR CONDITIONING SYSTEMS, SUPPLY, RETURN, EXHAUST AND GREASE EXHAUST DUCTWORK, GRILLES, REGISTERS, DIFFUSERS, COMPLETE CONTROLS SYSTEM, INTERLOCK WIRING FOR OPERATION OF KITCHEN HOODS, EXHAUST FANS, AND MAKE-UP AIR UNIT, DUCT INSULATION, AND RELATED ITEMS NECESSARY FOR A COMPLETE FUNCTIONING SYSTEM AS INDICATED ON THE PLANS. FURNISH ALL NEW MATERIALS AND EQUIPMENT UNLESS NOTED OTHERWISE (U.N.C.).
 - DRAWINGS FOR HVAC WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT AND REQUIRED EQUIPMENT. DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. AS REQUIRED, REFER TO ARCHITECTURAL AND MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. FURNISH AND INSTALL ALL DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE SYSTEMS FUNCTIONING AS INDICATED BY THE DESIGN AND EQUIPMENT SHOWN ON PLANS.
 - CODE COMPLIANCE: ALL WORK COVERED BY THIS SECTION SHALL BE IN ACCORDANCE WITH ALL LOCAL CODES AND ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.
 - COORDINATE WORK WITH OTHER TRADES. EQUIPMENT FURNISHED BY OTHERS AND OWNER REQUIREMENTS. PROVIDE DUCT PASSES AND DROPS AS REQUIRED FOR INSTALLATION. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE STARTING WORK. WORK SHALL BE PERFORMED BY EXPERIENCED TRADESMEN AND THEIR WORK SHALL BE OF HIGH STANDARD ACCEPTABLE TO THE OWNER.
 - DUCTWORK: DUCT SYSTEMS SHALL BE CONSTRUCTED, INSTALLED, SEALED AND INSULATED IN ACCORDANCE WITH THE INTL ENERGY AND MECHANICAL CODES. SHEET METAL SHALL BE IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS. SHEET METAL SHALL BE GALVANIZED OF LOCK-FORMING QUALITY, ASTM A-525. UNLESS OTHERWISE NOTED, DUCT DIMENSIONS ON DRAWINGS ARE NET INSIDE CLEAR DIMENSIONS ON LINED DUCTS OR SHEET METAL DIMENSIONS ON UNLINED DUCTS. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. ROUND RIGID DUCTWORK SHALL CONFORM TO SMACNA TABLE 3-2.
 - INSTALL DUCT HIGH AS POSSIBLE WITHIN JOIST SPACE. CONSULT ARCHITECT AND ENGINEER FOR ALTERNATE ROUTING IF CONFLICT OCCURS.
 - SEAL ALL TRANSVERSE AND LONGITUDINAL DUCT SEAMS AIR-TIGHT. PROVIDE TURNING VANES AT ALL ELBOWS OR OFFSETS EXCEEDING 30 DEGREES.
 - GREASE EXHAUST SYSTEM: ALL GREASE EXHAUST DUCTS SHALL BE FABRICATED BY WELDED JOINT CONSTRUCTION OF 16 GAUGE WELDED STEEL OR 18 GAUGE STAINLESS STEEL. PROVIDE RATED ACCESS DOORS AT ALL ELBOWS AND OFFSETS NECESSARY FOR COMPLETE CLEANING OF GREASE DUCT. PROVIDE MINIMUM 30"x30" UNOBSTRUCTED ACCESS OR ROUTE FROM THE CEILING TO EACH ACCESS DOOR. DO NOT BLOCK ACCESS WITH PLUMBING, ELECTRICAL OR HVAC OBSTRUCTIONS. ALL ELBOWS SHALL BE LONG RADIUS. GREASE DUCT SHALL BE INSTALLED EITHER IN A RATED ENCLOSURE PROVIDED BY THE GENERAL CONTRACTOR OR WRAPPED WITH FIREMASTER GREASE DUCT WRAP.
 - DUCT INSULATION: PROVIDE DUCT WRAP FOR ALL DUCTS ABOVE CEILING, INCLUDING VERTICAL, HORIZONTAL, RIGID AND FLEXIBLE DUCTS, EXCLUDING PREFABRICATED PREINSULATED DUCTS AND GREASE DUCTS. DUCT WRAP SHALL BE JOHNS MANVILLE MICROLOTE OR EQUAL WITH FOLIOSGRIMKRAFT, 1" IN THICKNESS, 1.5 POUNDS/FT³ DENSITY. DUCT WRAP SHALL BE BONDED GLASS FIBERS IN THERMOSETTING RESIN MEETING NFPA 90A, WITH K VALUE NOT TO EXCEED 0.23 AT 75 DEGREES F. FLAME SPREAD AND SMOKE DEVELOPED RATINGS SHALL NOT EXCEED 25/50. APPLY 100% ADHESIVE COVERAGE TO SHEET METAL DUCTWORK. PROVIDE ADDITIONAL MECHANICAL FASTENERS ON DUCTS OVER 12" WIDE OR 16" HIGH. MECHANICAL FASTENERS SHALL BE "GRIPNAIL" OR WELDED PIN AND SPEED CLIPS SPACED PER SMACNA STANDARDS.
 - FLEX DUCT: PROVIDE FACTORY ASSEMBLED CLASS 1 AIR DUCT (UL 181) WITH FIBERGLASS INSULATION AND REINFORCED OUTER PROTECTIVE COVER/VAPOR BARRIER. FLEX DUCT SHALL MEET NFPA 90A WITH FLAME SPREAD UNDER 25, SMOKE DEVELOPED UNDER 50 AND SHALL BE RATED FOR 2" W.C. PRESSURE AND 0 TO 250 DEGREE TEMPERATURE. FLEX DUCT MAXIMUM ALLOWED LENGTH TO BE PER LOCAL CODE.
 - PROVIDE INSULATION APPLIED TO COMPLETE BACKPAN OF AIR DEVICES.
 - ACCESS DOOR: PROVIDE HINGED ACCESS PANELS IN DUCTWORK WHERE SHOWN AND AS REQUIRED FOR ACCESS TO DAMPERS OR EQUIPMENT. PROVIDE INSULATED ACCESS DOORS IN INSULATED DUCTWORK.
 - AUTOMATIC TEMPERATURE CONTROL: CONTRACTOR TO PROVIDE AND INSTALL 24/7 PROGRAMMABLE THERMOSTATS AND REMOTE SENSORS.
 - KITCHEN HOOD EQUIPMENT INTERLOCK: PROVIDE ALL INTERLOCK AND CONTROL WIRING FOR KITCHEN HOOD SYSTEMS, WHICH INCLUDES EF1, EF2, MAU1 AND ANSUL SYSTEM SHUT DOWN INTERLOCK TO MAKE-UP AIR FAN. UPON ACTIVATION OF ANSUL SYSTEM, MAKE-UP AIR FAN SHALL BE DEACTIVATED. PROVIDE ALL NECESSARY CONTROLS AND WIRING FOR A COMPLETE AND OPERABLE SYSTEM. INTERLOCK GREASE EXHAUST FANS AND MAKE-UP AIR UNIT TO START SIMULTANEOUSLY FROM SWITCH PROVIDED AT HOOD.
 - TEST AND ADJUST EACH PIECE OF EQUIPMENT AND EACH SYSTEM AS REQUIRED TO ASSURE PROPER AIR BALANCE AND OPERATION. PROVIDE A CERTIFIED AIR BALANCE REPORT TO OWNER SHOWING DESIGN AND MEASURED AIR VOLUMES, STATIC PRESSURES, FAN RPMs, ETC. AIR BALANCE CONTRACTOR SHALL ADJUST SYSTEMS TO MINIMIZE NOISE AND VIBRATION, AND TO ASSURE PROPER FUNCTION OF CONTROLS, MAINTENANCE OF TEMPERATURE AND OPERATION. GENERAL CONTRACTOR TO OBTAIN ALL INSPECTIONS REQUIRED BY LOCAL CODE AND GUARANTEE WORK AND INSTALLATION FOR ONE YEAR AFTER ACCEPTANCE BY OWNER. GENERAL CONTRACTOR TO FURNISH OWNER WITH TWO COMPLETE SETS OF AS-BUILT DRAWINGS INDICATING ALL INSTALLED WORK, INCLUDING ALL CONTROL WIRING DIAGRAMS AND INTERLOCK FOR SYSTEM OPERATION.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF ECONOMIZERS INCLUDING INSTALLATION OF ALL NECESSARY SENSORS AND CONNECTIONS TO THERMOSTAT. PROVIDE SUPPORT OF ECONOMIZERS PER MANUFACTURER'S REQUIREMENTS AND TEST FOR PROPER OPERATION PRIOR TO FINAL TEST AND BALANCE.



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 MECHANICAL NOTES
 SPECIFICATIONS & SCHEDULES