PACKAGED HEAT PUMP UNIT SCHEDULE

MARK	MANUF./ MODEL #	AIR CAPACITIES				MIN ARI 240 EER (BTUH/W)	CYCLE	HEATING/COOLING CAPACITIES						ELECTRICAL DATA		REMARKS
		TOTAL CFM	OA CFM	ESP IWG	BLOWER HP			ENT AIR		AMBIENT		BTUH				
								DB	WB	DB	WB	TOTAL	SENSIBLE	MAX MCA	VOLT/ø	
HP-1	TRANE WSC060	2000	350	0.5	1	10.1	COOL	80	67	115	71	53.0	42.7	32.6	208/3	750 lbs. - DOWN DISCHARGE
							HEAT	70	32	-	-	42.6	-			
HP-2	TRANE WSC048	1600	200	0.5	1	10.7	COOL	80	67	115	71	42.9	34.2	24.4	208/3	700 lbs. - DOWN DISCHARGE
							HEAT	70	32	-	-	31.7	-			
HP-3	TRANE WSC048	1600	200	0.5	1	10.7	COOL	80	67	115	71	42.9	34.2	24.4	208/3	700 lbs. - DOWN DISCHARGE
							HEAT	70	32	-	-	31.7	-			

NOTE: PROVIDE HEAT PUMPS WITH THE FOLLOWING:
1. 8" FACTORY ROOF CURB.
2. SHORT CYCLE TIMER.
3. PROVIDE WITH "HONEYWELL" MODEL T7350 COMMERCIAL PROGRAMMABLE THERMOSTAT.
4. PROVIDE SMOKE DETECTORS IN RETURN AIR DUCTS FOR UNIT SHUT DOWN UPON DETECTION OF SMOKE.
5. PROVIDE UNIT W/ MOTORIZED OUTSIDE AIR KIT.

EXHAUST FAN SCHEDULE

MARK	MANUF./ MODEL #	TYPE	CFM	E.S.P.	HP	VOLT ø	B.D.D.	DRIVE	OPER. WT.	REMARKS
EF-1	GREENHECK SP-A190	CLG	125	0.25	113 W	115/1	YES	DIRECT	17	SWITCH W/ LIGHTS - U.N.O.
EF-2	GREENHECK SP-A250	CLG	200	0.25	83 W	115/1	YES	DIRECT	24	SWITCH @ WALL, REFER TO ELEC. DRAWINGS FOR EXACT LOCATION
EF-3	GREENHECK SP-A190	CLG	125	0.25	113 W	115/1	YES	DIRECT	17	SWITCH W/ LIGHTS - U.N.O.
EF-4	GREENHECK SP-A250	CLG	200	0.25	83 W	115/1	YES	DIRECT	24	SWITCH @ WALL, REFER TO ELEC. DRAWINGS FOR EXACT LOCATION
EF-5	GREENHECK SP-A190	CLG	125	0.25	113 W	115/1	YES	DIRECT	17	SWITCH W/ LIGHTS - U.N.O.
EF-6	GREENHECK G-075-D	ROOF	300	0.25	1/25	115/1	YES	DIRECT	14	SWITCH @ WALL, REFER TO ELEC. DRAWINGS FOR EXACT LOCATION
EF-7	GREENHECK SP-A190	CLG	125	0.25	113 W	115/1	YES	DIRECT	17	SWITCH W/ LIGHTS - U.N.O.
EF-8	BROAN ECLIPSE 2536	DOWN DRAFT	500	0.25	4.0 AMPS	115/1	YES	DIRECT	-	SWITCH @ WALL, REFER TO ELEC. DRAWINGS FOR EXACT LOCATION

NOTE: PROVIDE EXHAUST FAN WITH THE FOLLOWING:
1. FACTORY SUPPLIED EXHAUST GRILLE

SMOKE DETECTOR NOTE

SMOKE DETECTOR MOUNTED IN RETURN DUCT. AUTOMATIC SHUT-OFF SHALL BE ACCOMPLISHED BY INTERUPTING THE POWER SOURCE OF THE MECHANICAL UNIT UPON DETECTION OF SMOKE IN THE MAIN RETURN AIR DUCT. SMOKE DETECTOR SHALL BE LABELED BY AN APPROVED AGENCY FOR AIR DUCT INSTALLATION, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. SUCH DEVICES SHALL BE COMPATABLE WITH THE OPERATION VELOCITIES, PRESSURES, TEMPERATURE AND HUMIDITY OF THE SYSTEM. WHERE FIRE DETECTION OR ALARM SYSTEMS ARE PROVIDED FOR THE BUILDING, THE SMOKE DETECTOR SHALL BE SUPERVISED BY SUCH SYSTEM. DETECTOR SHALL BE 120 VOLT 4 UL. LISTED. DETECTOR SHALL BE PROVIDED AND WIRED BY ELECTRICAL AND INSTALLED BY MECHANICAL. INTERLOCK BY MECHANICAL. (TYPICAL FOR ALL UNITS)

DUCT SMOKE DETECTORS SHALL BE PROVIDED WITH A REMOTE LED INDICATOR/RESET THRU THE CEILING LEVEL PER NFPA 72 3-8.3 AND 5-10.6.8

ACCESS DOORS AND PANELS SHALL BE PROVIDED FOR CLEANING PER NFPA 90A. THE LOCATION OF ALL DETECTORS IN AIR DUCT SYSTEMS SHALL BE PERMANENTLY AND CLEARLY IDENTIFIED AND RECORDED.

GRILLE, REGISTER & DIFFUSER SCHEDULE

MARK	MANUF./ MODEL #	DESCRIPTION	FRAME	STYLE	FINISH	MATERIAL	DAMPER	MAX. NC	REMARKS
CD-1	TITUS TMS	SUPPLY DIFF.	NOTE 1	LOUV.	WHITE	STEEL	O.B.D.	30	
RG-1	TITUS 350RL	RETURN GRILLE	NOTE 1	LOUV.	WHITE	STEEL	NO	30	
EG-1	TITUS 350RL	EXH. GRILLE	NOTE 1	LOUV.	WHITE	STEEL	NO	30	

NOTE:
1. CONTRACTOR SHALL PROVIDE T-BAR BORDER IN ALL LAY-IN CEILINGS AND FLANGE TYPE BORDERS FOR ALL OTHER APPLICATIONS UNLESS OTHERWISE INDICATED.
2. CONTRACTOR SHALL PROVIDE SQUARE TO ROUND ADAPTORS AS REQUIRED FOR INSTALLATION.

OUTSIDE AIR CALCULATION

AREA	OSA REQUIRED
DENTIST OFFICE (2500 SQ. FT.)	750 CFM
TOTAL OSA REQUIRED =	750 CFM
OUTSIDE AIR FROM HP-1 =	350 CFM
OUTSIDE AIR FROM HP-2 =	200 CFM
OUTSIDE AIR FROM HP-3 =	200 CFM
TOTAL OSA PROVIDED =	750 CFM

NOTE:
1. PROVIDE AIR BALANCE REPORT TO FEILD INSPECTOR VARIFYING THAT THE OUTSIDE AIR IS SET CORRECTLY AND ARE POSTED FOR EACH UNIT (TYP.).

GRILLES, REGISTERS AND DIFFUSERS SIZING SCHEDULE

INSTALL DIFFUSERS PER SCHEDULE BELOW. DO NOT EXCEED MAXIMUM CFM INDICATED. BASIS OF DESIGN: TITUS TMS. MAX. 25 NC.

24x24 MODULE NECK SIZE	MAX CFM
8" DIA.	250
10" DIA.	500
12" DIA.	650
14" DIA.	800
15" DIA.	950

INSTALL RETURN GRILLES PER SCHEDULE BELOW. DO NOT EXCEED MAXIMUM CFM INDICATED. BASIS OF DESIGN: TITUS 350RS. MAX. 25 NC.

24 x 12 MODULE NECK SIZE	MAX CFM
12 x 22	1100
24 x 24 MODULE NECK SIZE	**MAX CFM**
22 x 22	1800

MECHANICAL LEGEND

SINGLE	DOUBLE	ABBR.	DESCRIPTION
		∘	RECTANGULAR DUCT (NEW)
		∘	TRANSITION
		∘	ROUND DUCT (NEW) (OR OVAL) Ø RD ⬭ OVAL
		∘	45 DEG. TAP, USE AT BRANCH DUCTS ONLY
		∘	DUCT SPLIT W/DAMPER; USE AT ELBOWS AND TEES. PROPORTION DUCT AREAS BY CFM'S
		∘	CURVED ELBOW-MIN. RADIUS R. 1.5 WIDTH
		∘	90 DEG. ELBOW WITH SINGLE RADIUS TURNING VANES
		∘	FLEXIBLE DUCT CONNECTION
		SD	SMOKE DETECTOR
		VD	VOLUME DAMPER W/LOCKING QUADRANT
		∘	SPIN-IN FLEX DUCT TAKE-OFF W/DAMPER
∘		SA	SUPPLY AIR
∘		EXH	EXHAUST AIR
∘		RA	RETURN AIR
∘		OSA	OUTSIDE AIR
∘	∘	AFF	ABOVE FINISHED FLOOR
∘	∘	BFF	BELOW FINISHED FLOOR
∘	∘	NTS	NOT TO SCALE
∘		T	THERMOSTAT
		FD	FIRE DAMPER
		F/S	FIRE/SMOKE DAMPER

MECHANICAL NOTES

1. FURNISH ALL LABOR, MATERIALS, TOOLS EQUIPMENT, FEES, PERMITS, CERTIFICATE OF INSPECTION, ETC., NECESSARY OR REASONABLE, REQUIRED FOR THE COMPLETE INSTALLATION OF ALL AIR CONDITIONING WORK. THE WORK SHALL BE IN STRICT ACCORDANCE WITH ASHRAE GUIDE, AND ALL LOCAL AND STATE CODES, ORDINANCES AND REGULATIONS.
2. DUCTS SHALL BE FABRICATED OF PRIME GALVANIZED LOCK FORMING QUALITY STEEL SHEETS, OR A GAUGE IN ACCORDANCE WITH THE FOLLOWING TABLE:
   DUCTS WITH LONGEST SIDE NOT MORE THAN 12" IN WIDTH..26 GA
   DUCTS WITH LONGEST SIDE 13" TO 30" IN WIDTH.....24 GA
   DUCTS WITH LONGEST SIDE 31" TO 40" IN WIDTH.....22 GA
   DUCTS WITH LONGEST SIDE OVER 40".....20 GA
3. PROVIDE RADIUS ELBOWS, TURNING VANES, AND SPLITTER DAMPERS IN BRANCHES AND EXTRACTORS WHERE APPLICABLE.
4. DUCT SIZES SHOWN ARE "CLEAR INSIDE" DIMENSIONS.
5. TEST AND BALANCE SYSTEM. SUBMIT REPORT TO OWNER WITHIN 10 DAYS OF COMPLETING TEST AND BALANCE.
6. ALL DUCTWORK TO BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH "ASHRAE GUIDE AND SMACNA STANDARDS".
7. EXACT PLACEMENT OF DIFFUSERS AND REGISTERS TO BE COORDINATED WITH ARCHITECTURAL - REFLECTED CEILING PLAN.
8. CONTRACTOR TO VERIFY LOCATION OF ALL AIR EQUIPMENT SO THAT NO INTERFERENCES ARE ENCOUNTERED WITH OTHER EQUIPMENT OR WITH STRUCTURAL ELEMENTS.
9. MECHANICAL CONTRACTOR TO VERIFY THAT ALL DUCTWORK WILL FIT WHERE INDICATED WITHOUT INTERFERENCES.
10. **CONTRACTOR TO VERIFY WITH ARCHITECT ALL T-STAT LOCATIONS.**
11. THERMOSTATS MUST BE LOCATED +48" ABOVE FINISHED FLOOR.
12. MECHANICAL CONTRACTOR SHALL INSULATE ALL NEW DUCTWORK WITH MIN. 1-1/2", 3/4 POUND DENSITY DUCTWRAP.

CONDENSATE DRAINS

TONNAGE:	MIN. PIPE SIZE.
0 - 20 TONS	3/4"
OVER 20 TONS	1"
OVER 40 TONS	1-1/4"
OVER 90 TONS	1-1/2"
OVER 125 TONS	2"

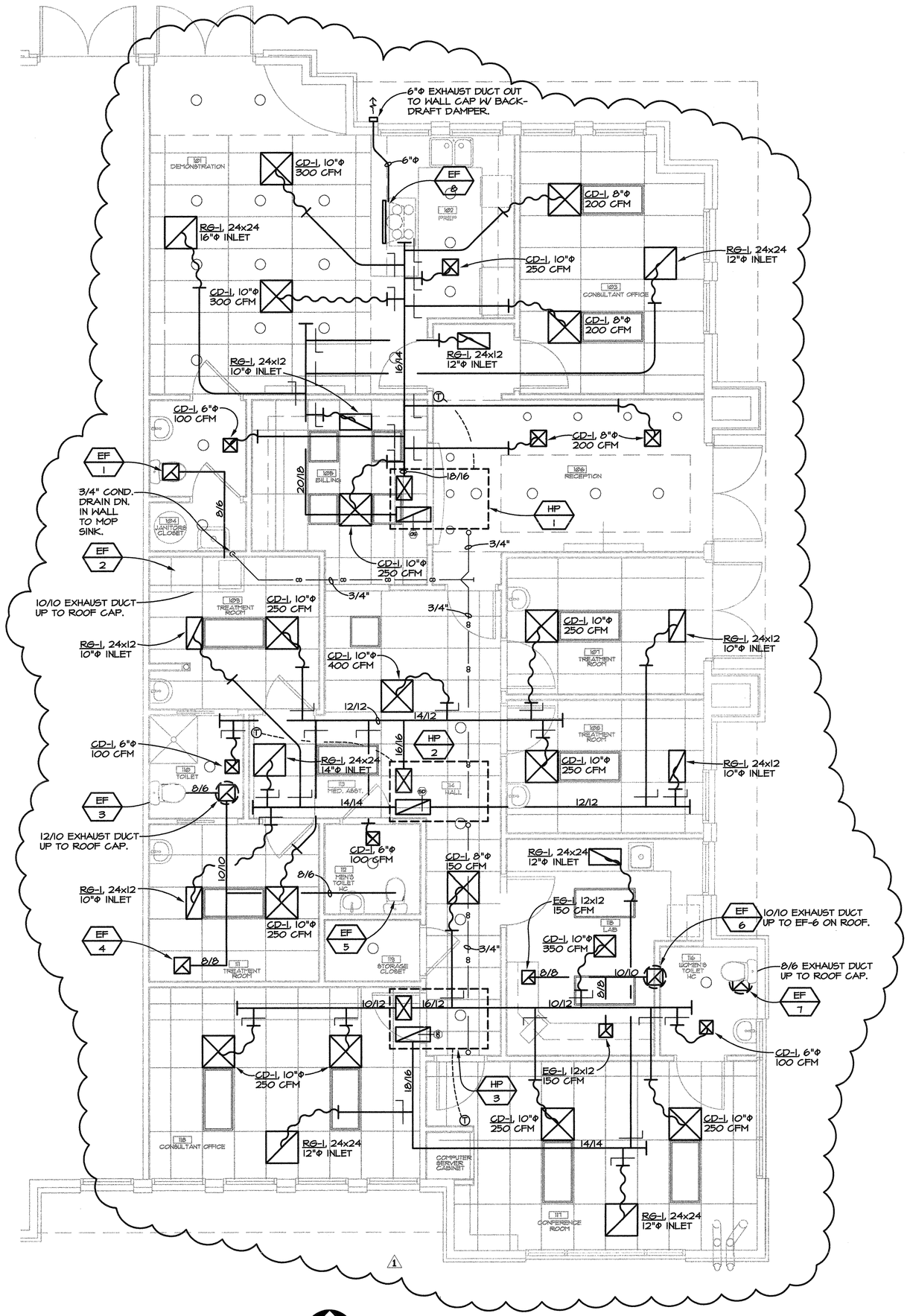
SLOPE ALL CONDENSATE DRAIN PIPING AT MINIMUM 1/8" PER FOOT.

ALL CONDENSATE DRAIN PIPING SHALL BE TYPE "M" COPPER.

GENERAL MECHANICAL NOTES:

SMOKE DETECTORS ASSOCIATED WITH SMOKE DAMPERS AND HVAC SHUTOFFS SHALL BE TESTED BY AN APPROVED TESTING AGENCY OR A QUALIFIED THIRD PARTY SPECIAL INSPECTOR. THE SPECIAL INSPECTOR / TESTING AGENCY SHALL BE AN INDEPENDANT THIRD PARTY INDIVIDUAL OR FIRM AND SHALL NOT BE THE INSTALLING CONTRACTOR. A PROFESSIONAL ENGINEER SHALL SUBMIT A FINAL SIGNED AND SEALED REPORT TO THE MECHANICAL INSPECTOR PRIOR TO CITY ISSUANCE OF FINAL INSPECTION APPROVAL OR OCCUPANCY APPROVAL, INCLUDING CONDITIONAL OCCUPANCY APPROVAL.

ALL MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHAL HAVE A FLAME-SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED RATING OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH THE TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS, UBC STANDARD 8-1.



MECHANICAL PLAN
SCALE: 1/4" = 1'-0"

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REVISIONS

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SHEET TITLE: MECHANICAL PLAN, SCHEDULES & NOTES

DATE:	01-31-2006
JOB NO.:	
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CHECKED BY:	HRS
SCALE:	1/4"=1'-0"
SHEET NUMBER:	M-1
OF	SHEETS