

HVAC SYMBOLS	
SYMBOL	DESCRIPTION
	NEW DUCT WORK
	FLEXIBLE DUCT
	SUPPLY AIR DUCT WORK UP THRU PLAN
	RETURN AIR OR EXHAUST DUCT WORK UP THRU PLAN
	DUCT WORK TRANSITION
	90° ELBOW WITH TURNING VANES
	MANUAL AIR VOLUME CONTROL DAMPER
	SUPPLY AIR DEVICE
	RETURN AIR DEVICE
	EXHAUST AIR DEVICE
	WALL MOUNTED THERMOSTAT
	DUCT SMOKE DETECTOR
	DIFFUSER DEVICE TYPE - AIR QUANTITY
	EQUIPMENT DESIGNATION TAG
	REFRIGERATION PIPING
	CONDENSATE PIPING

AIR DEVICE SCHEDULE						
TAG	MFG./CAT. #	TYPE	NECK	FRAME	FINISH	NOTES
A	TITUS - TMS-AA	CD	0 - 125 CFM = 6" RND 130 - 150 CFM = 6" RND 160 - 275 CFM = 6" RND 280 - 390 CFM = 10" RND 400 - 600 CFM = 12" RND	12 x 12 24 x 24	BAK. WHT. ENAMEL	1,2,3,4,5
B	TITUS - 50F	RAR	22 x 22 (MAX 1280 CFM)	24 x 24	BAK. WHT. ENAMEL	1,2,4,6

DEVICE TYPE LEGEND:  
 CD = CEILING DIFFUSER  
 RAR = RETURN AIR REGISTER  
 EAR = EXHAUST AIR REGISTER  
 SAG = SUPPLY AIR GRILLE

NOTES:  
 1. PROVIDE CEILING DEVICES WITH PROPER FRAME STYLE TO MATCH CEILING TYPE AS CALLED FOR BY ARCHITECT.  
 2. DEVICES SHALL BE PROVIDED WITH FACTORY FINISH.  
 3. CEILING DIFFUSERS SHALL BE 4-WAY THROW UNLESS NOTED OTHERWISE OR SHOWN ON PLANS WITH DIRECTIONAL ARROWS.  
 4. IF NECESSARY, PROVIDE TOP HAT FOR GRILLES REGISTERS AND DIFFUSERS.  
 5. PROVIDE EQUALIZING GRID (TITUS MODEL EG) FOR DIFFUSERS TAPPED DIRECTLY FROM BOTTOM OF DUCT, PROVIDE OPPOSED BLADE DAMPER (TITUS MODEL D-57).  
 6. PROVIDE OPPOSED BLADE DAMPER FOR REGISTERS.

GRAVITY ROOF VENT SCHEDULE						
TYPE	CFM	SERVICE	THROAT SIZE	MANUFACTURER	MODEL	NOTES
GRV-1	100	EXHAUST	0.394	COOK	PR 8	1,2

NOTES:  
 1. PROVIDE MANUFACTURER'S ROOF CURB. COORDINATE WITH ROOF TYPE.  
 2. PROVIDE INSECT SCREEN.

- ### MECHANICAL GENERAL NOTES
- CONTRACTOR TO VISIT SITE AND VERIFY ALL CLEARANCES BEFORE FABRICATION OF DUCTWORK AND PROVIDE ADDITIONAL OFFSET AND/OR CHANGES IN DUCT SIZES TO MEET FIELD CONDITIONS AND COORDINATE WITH ELECTRICAL, PLUMBING AND FIRE PROTECTION SUBCONTRACTOR BEFORE ANY CONSTRUCTION WORK.
  - SUPPLY, RETURN AND OUTSIDE AIR DUCTWORK SHALL BE EXTERNALLY INSULATED SHEET METAL CONSTRUCTION IN ACCORDANCE WITH LATEST SMACNA STANDARDS. INSULATION SHALL HAVE VAPOR BARRIER AND AN INSTALLED MINIMUM THERMAL RESISTANCE (R) VALUE OF 6.0. ALL EXHAUST DUCTWORK SHALL BE UNINSULATED SHEET METAL CONSTRUCTION IN ACCORDANCE WITH LATEST SMACNA STANDARDS. ALL JOINTS SHALL BE SECURELY TAPED WITH 3" WIDE GLASS FABRIC TAPE WITH FOSTER 3005 MASTIC OR EQUAL.
  - DUCT SHALL BE SECURELY SUPPORTED, HUNG OR SUSPENDED IN ACCORDANCE WITH THE LATEST SMACNA EDITION AND SECTION 603 OF THE 2007 FLORIDA BUILDING CODE, MECHANICAL WITH 2009 SUPPLEMENT.
  - ROOF TOP UNIT OUTSIDE AIR INTAKE SHALL MAINTAIN A MINIMUM OF 10'-0" FROM ANY EXHAUST OR SANITARY VENT THROUGH ROOF PIPING. ALL TRANSFER DUCTWORK LEADING TO REST ROOMS SHALL HAVE A ZERO LEAKAGE BACK DRAFT DAMPER AS SHOWN ON MECHANICAL DRAWINGS.
  - PROVIDE ALL MECHANICAL EQUIPMENT WITH MANUFACTURER'S RECOMMENDED SERVICE AREA CLEARANCES.
  - ALL ROOF TOP UNITS SHALL BE REINFORCED TO WITHSTAND LOCAL WIND LOAD DESIGN. SEE STRUCTURAL DRAWING(S) FOR DETAIL(S) /CONSULT WITH BUILDING STRUCTURAL ENGINEER.
  - DUCT SMOKE DETECTORS SHALL BE FURNISHED BY THE FIRE ALARM CONTRACTOR, INSTALLED IN DUCT BY THE MECHANICAL CONTRACTOR AND WIRED BY THE FIRE ALARM CONTRACTOR. SMOKE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72, NATIONAL FIRE ALARM CODE, NFPA 90A, STANDARD FOR INSTALLATION OF AIR-CONDITIONING AND VENTILATING SYSTEMS, 2007 FLORIDA BUILDING CODE, MECHANICAL WITH 2009 SUPPLEMENT AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. COORDINATE LOCATION OF SMOKE DETECTORS WITH FIRE ALARM CONTRACTOR. PROVIDE A VISIBLE/AUDIIBLE NOTIFICATION PANEL, MAKE SYSTEM SENSOR SKS49 OR EQUAL, COMPATIBLE WITH BUILDING FIRE ALARM SYSTEM.
  - IN GENERAL, PLANS AND DIAGRAMS ARE SCHEMATIC ONLY AND SHOULD NOT BE SCALED.
  - HVAC CONTRACTOR IS RESPONSIBLE FOR ANY ADDED ELECTRICAL COSTS WHICH MAY RESULT FROM SUBSTITUTED EQUIPMENT.
  - DUCTWORK INSULATION SHALL BE F01L FACED FIBERGLASS DUCT WRAP WITH A MINIMUM THERMAL RESISTANCE (R) OF 6.0. INSULATION SHALL HAVE VAPOR BARRIER. INSTALL PER MFR. REQUIREMENTS.
  - COORDINATE AIR DEVICE LOCATIONS WITH LIGHTING FIXTURES.
  - TURNING VANES SHALL BE PROVIDED IN ALL SUPPLY DUCT RECTANGULAR ELBOWS WITH ANGLES BETWEEN 15 DEGREES AND LESS THAN 90 DEGREES PER FIG. 2-5 OF THE SMACNA MANUAL.
  - DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. DUCTWORK, DIFFUSERS, REGISTERS, GRILLES, AND OTHER ITEMS OF THE AIR HANDLING SYSTEM SHALL NOT BE SUPPORTED BY THE CEILING OR CEILING SUSPENSION SYSTEM.
  - UNLESS OTHERWISE NOTED, INSTALL DUCTWORK AS HIGH AS POSSIBLE, TIGHT TO BOTTOM OF STRUCTURE. COORDINATE DUCT ELEVATION WITH STORM LEADERS, WATER PIPING, SANITARY DRAINS AND MAJOR ELECTRICAL CONDUITS.
  - CONTRACTOR TO PROVIDE ALL SUPPLEMENTARY STEEL REQUIRED TO SUSPEND MECHANICAL EQUIPMENT & MATERIALS. INSTALLATION OF EQUIPMENT SHALL COMPLY WITH MANUFACTURER'S SPECIFICATIONS AND CLEARANCE REQUIREMENTS FOR SERVICING OF EQUIPMENT.
  - VERIFY VOLTAGE WITH ELECTRICAL CONTRACTOR BEFORE ORDERING EQUIPMENT.
  - PROVIDE A TRAP IN ALL CONDENSATE PIPING LOCATED AT AIR HANDLING UNITS. SLOPE CONDENSATE LINES 1/8" PER FOOT. CONDENSATE LINES SHALL BE PVC SCH. 40. ALL CONDENSATE DRAIN PIPING SHALL BE PROPERLY SUPPORTED. SEE "CONDENSATE DRAIN TRAP" DETAIL.
  - ALL MECHANICAL WORK SHALL MEET ALL THE REQUIREMENTS OF THE 2007 FLORIDA BUILDING CODE, MECHANICAL AND 2009 SUPPLEMENT.
  - GUARANTEE, FOR ONE YEAR AFTER DATE OF ACCEPTANCE BY THE OWNER, ALL EQUIPMENT, MATERIALS AND WORKMANSHIP TO BE FREE FROM DEFECT.
  - DO NOT CUT STRUCTURAL MEMBERS WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OR ARCHITECT. ARRANGE FOR REPAIRS REQUIRED TO RESTORE OTHER WORK, BECAUSE OF DAMAGE CAUSED AS A RESULT OF MECHANICAL INSTALLATIONS.
  - FLEXIBLE AND RIGID ROUND DUCT TAKE-OFFS FOR DIFFUSERS SHALL BE THE SAME SIZE AS DIFFUSER NECK. MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 8'-0". FLEXIBLE DUCT SHALL BE THERMAFLEX TYPE M-KC OR EQUAL. FLEXIBLE DUCT SHALL BE INSULATED FIBERGLASS, R-6, CLASS 1, UL181 LISTED AND COMPLY WITH NFPA 90A AND NFPA 90B.
  - ALL WALL MOUNTED THERMOSTATS SHALL BE INSTALLED AT AN ELEVATION OF 54" ABOVE FINISHED FLOOR TO THE TOP UNLESS OTHERWISE NOTED ON DRAWINGS. LOCATION OF THE WALL MOUNTED THERMOSTAT SHALL BE COORDINATED WITH OTHER TRADES FOR A NEAT APPEARANCE. FINAL LOCATION OF THERMOSTAT SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER OR HIS REPRESENTATIVE IN THE FIELD.
  - ALL UNITS SHALL BE BALANCED TO WITHIN 10 PERCENT OF THE DESIGN AIR QUANTITY. BALANCE DIFFUSERS AND REGISTERS TO WITHIN 10 PERCENT OF QUANTITIES SHOWN ON DRAWINGS.
  - PROVIDE FLEXIBLE NEOPRENE DUCT CONNECTORS ON THE DISCHARGE AND ENTERING SIDES OF ALL VIBRATING EQUIPMENT TO WHICH DUCTWORK IS ATTACHED.
  - CONTRACTOR SHALL PROVIDE 3 COPIES OF A TEST AND BALANCE REPORT. AIR BALANCING SHALL BE PERFORMED BY AN INDEPENDENT TESTING AND BALANCING CONTRACTOR WHICH SHALL BE QUALIFIED AND CERTIFIED BY EITHER ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). THIS REPORT MUST BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO THE FINAL INSPECTION.
  - THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL TRADES' INSTALLATION SCHEDULES. COORDINATE WORK SCHEDULE WITH GENERAL CONTRACTOR.
  - WHEN THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS NOT CLEAR, OR IS CAPABLE OF MORE THAN ONE INTERPRETATION, SUCH MATTERS WILL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER IN WRITING BEFORE THE SUBMISSION OF BIDS. THE ARCHITECT/ENGINEER SHALL MAKE CORRECTION OR EXPLANATION IN WRITING.
  - PLANS AND SPECIFICATIONS ARE INTENDED AS A GENERAL DESCRIPTION OF THE WORK TO BE PERFORMED. ALL ITEMS NOT SPECIFICALLY MENTIONED OR SHOWN, BUT NECESSARY FOR THE COMPLETION OF THE INSTALLATION, SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. THIS CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE MECHANICAL, ARCHITECTURAL, STRUCTURAL AND ELECTRICAL PLANS BEFORE SUBMITTING HIS FINAL BID. NO ADDITIONAL COMPENSATION WILL BE ALLOWED DUE TO THE CONTRACTOR'S FAILURE TO FAMILIARIZE HIMSELF/HERSELF WITH THE PLANS.

ROOF TOP UNIT SCHEDULE																				
MARK	AREA SERVED	NOMINAL TONS	FAN		ELECTRIC HEATER			UNIT POWER			WEIGHT (LBS)	COOLING CAPACITY			SEER [EER]	EQUAL TO		NOTES		
			CFM	O/A	E.S.P. (IN.)	HP	KW	CONTROL STAGES	V/Ø	MCA		MOCPP	TC (MBH)	SC (MBH)		AMBIENT DB°F/WB°F	ENTERING DB°F/WB°F		MFG.	MODEL
RTU-1	103	4	1,600	390	0.6	1.0	13.1	2	208/208	51.6	60	800	49.4	37.3	95/80	80/67	13.0	TRANE	TSC048E3	1-11
RTU-2	104	4	1,600	390	0.6	1.0	13.1	2	208/208	51.6	60	800	49.4	37.3	95/80	80/67	13.0	TRANE	TSC048E3	1-11

NOTES:  
 1. REFER TO CONTROL SYSTEM NOTES FOR CONTROL COMPONENTS REQUIREMENTS.  
 2. PROVIDE 5-MINUTE ANTI-SHORT CYCLE TIMER.  
 3. PROVIDE THRU THE BASE ELECTRICAL AND SINGLE POINT CONNECTION.  
 4. PROVIDE WITH FACTORY FILTERS.  
 5. PROVIDE WITH FACTORY ROOF CURB.  
 6. PROVIDE POWERED CONVENIENCE OUTLET.  
 7. PROVIDE WITH FACTORY INSTALLED DISCONNECT.  
 8. PROVIDE UNIT WITH HALL GUARD.  
 9. PROVIDE WITH MOTORIZED DAMPER AND OUTSIDE AIR INTAKE HOOD.  
 10. PROVIDE AUTOMATIC PROGRAMMABLE THERMOSTAT.  
 11. PROVIDE MANUFACTURER'S MOTOR AND DRIVE PACKAGE AS REQUIRED TO MEET SCHEDULED AIR CAPACITIES AND PRESSURE DROP.

FAN SCHEDULE												
MARK	SERVICE	CFM	EXT. STATIC PRESSURE (IN. WATER)	FAN TYPE	DRIVE	SONES	WATTS	RPM	V/Ø	MANUFACTURER	MODEL	NOTES
EF-1	EXHAUST	100	0.375	CEILING	DIRECT	3.2	98	1100	120/1	COOK	GC-144	1,2

NOTES:  
 1. WITH PLUG-IN DISCONNECT.  
 2. PROVIDE CONTROL BY MANUAL LIGHT WITH OCCUPANCY SENSOR. COORDINATE WITH ELECTRICAL DRAWINGS FOR LOCATION OF SWITCH.

ROOM AIR CONDITIONER UNIT SCHEDULE							
MARK	BTU/HR COOLING	BTU/HR HEATING	EER	V/Ø	MANUFACTURER	MODEL	NOTES
RAC-1	8,000	4,000	9.4	115/1	CARRIER	52FE108-1-E	SEE NOTES

NOTES:  
 1. INSTALL PER MANUFACTURER'S REQUIREMENTS.  
 2. BOTTOM OF UNIT HEIGHT = 7'-4" A.F.F. IF NOT LOCATED ABOVE DOOR.  
 3. PROVIDE WITH REMOTE CONTROL AND REMOTE CONTROL HOLDER, LOCATE NEAR DOOR.  
 4. FIELD CONNECT CONDENSATE LINE TO UNIT. RUN CONDENSATE LINE TO NEAREST LANDSCAPING AREA OR TO STORM.  
 5. GENERAL CONTRACTOR TO COORDINATE LOCATION OF RAC WITH OTHER EQUIPMENT IN ROOM.

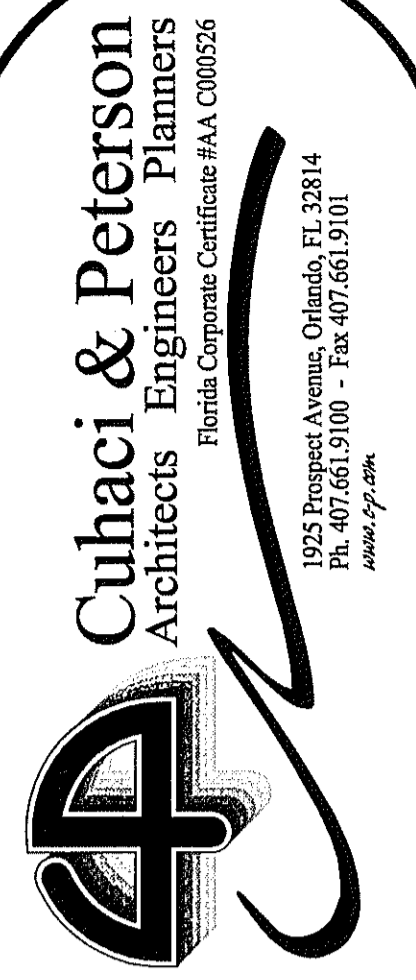
OUTSIDE AIR CALCULATION							
AREA SERVED	AREA (SQFT)	PEOPLE / 1,000 (SQFT) (1)	# PEOPLE	CFM / PERSON (1)	CFM / SQFT (1)	CFM CALCULATED	CFM SUPPLIED
103	1,300	-	-	-	0.30	390	390
104	1,235	-	-	-	0.30	371	390

(1) PER TABLE 403.3 - FLORIDA BUILDING CODE - MECHANICAL 2007

**TYPICAL SEQUENCE OF OPERATION**

THE A/C UNIT SHALL BE STARTED AND STOPPED FROM A ROOM THERMOSTAT. ON A CALL FOR COOLING, THE THERMOSTAT SHALL ENERGIZE THE COMPRESSOR(S) TO MAINTAIN SET POINT. ON A CALL FOR HEATING, THE THERMOSTAT SHALL ENERGIZE THE ELECTRIC HEAT IN STAGE(S) TO MAINTAIN SET POINT. SUPPLY FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS.

DRAWING INDEX	
SHEET NUMBER	TITLE
M001	Mechanical General Information
M101	Mechanical Floor Plan
M201	Mechanical Roof Plan
M501	Mechanical Details



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**Parcel 5 @ Palm Coast Landing**  
 N.E.C. Sk 100 and Belle Terre Parkway  
 Palm Coast, Florida

PROJECT NAME: Parcel 5 @ Palm Coast Landing  
 PROJECT NO.: 200950  
 DATE: 08/28/08  
 DRAWN: TAB  
 CHECKED: JPK

SHEET TITLE: Mechanical General Information

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RELEASE

M001