

MECHANICAL NOTES

1. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE AND OPERABLE SYSTEM IN ACCORDANCE WITH THESE DOCUMENTS, THE APPLICABLE BUILDING CODES AND ALL OTHER APPLICABLE STATE, COUNTY AND LOCAL ORDINANCES AND THE LATEST EDITION OF THE FOLLOWING PUBLICATIONS: FLORIDA BUILDING CODE-MECHANICAL, SMACNA, ASHRAE, NFPA 90A, 90B, 91 & ANSI B-9.1 MECHANICAL REFRIGERATION.
2. THE MECHANICAL PLANS IN GENERAL, ARE DIAGRAMMATIC IN NATURE, AND ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, PLUMBING, ELECTRICAL AND STRUCTURAL PLANS AND SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. DUCT AND PIPING OFFSETS, BENDS AND TRANSITIONS WILL BE REQUIRED TO PROVIDE AND INSTALL A COMPLETE FUNCTIONAL SYSTEM AND SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. CHANGES IN DUCTWORK SIZE AND ROUTE MAY BE REQUIRED TO AVOID STRUCTURAL, PLUMBING, FIRE SPRINKLER AND ARCHITECTURAL BUILDING FEATURES. DUCTWORK CHANGES MAY BE MADE BY CONTRACTOR USING EQUIVALENT SIZED DUCT. CONTACT ENGINEER IN WRITING IF MECHANICAL SYSTEMS WILL NOT FIT IN AREA ALLOTTED.
3. ALL INSTALLATIONS LOCATED WITHIN 3,000 FT FROM THE OCEAN SHALL UTILIZE NON-FERROUS MATERIALS FOR ALL OUTDOOR EXPOSED SUPPORTS, STANDS, FASTENERS, STRAPS, TIE DOWNS, CABLES, ANCHORS, SCREWS, ETC.
4. THE CONTRACTOR SHALL BE HELD TO HAVE VERIFIED ALL EXISTING CONDITIONS, INCLUDING REVIEW OF AS BUILT DOCUMENTATION IF APPLICABLE, PRIOR TO BIDDING, ORDERING, FABRICATION OR INSTALLATION OF MATERIALS OR EQUIPMENT ON THIS PROJECT.
5. THE CONTRACTOR SHALL PAY ALL COSTS OF PERMIT, INSPECTIONS AND ALL OTHER COSTS INCIDENTAL TO THE COMPLETION AND TESTING OF THIS WORK.
6. ENGINEER OF RECORD RECOGNIZES THE GENERAL CONTRACTOR AND ALL OTHER CONTRACTORS TO BE LICENSED IN THE STATE OF FLORIDA. GENERAL CONTRACTOR SHALL CONSIDER THE PROJECT AS ONE SET OF DOCUMENTS. GENERAL CONTRACTOR SHALL PROVIDE AN ENTIRE SET OF DOCUMENTS SHOWING ALL TRADES TO EACH SUBCONTRACTOR PRIOR TO BIDDING AND CONSTRUCTION. GENERAL CONTRACTOR SHALL COORDINATE WITH ALL OTHER CONTRACTORS TO INFORM ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR POSSIBLE CONFLICTS ON THE DOCUMENTS PRIOR TO SUBMITTING FINAL BID AND COMMENCING ANY WORK. CONTRACTOR SHALL MAKE HIMSELF AVAILABLE FOR REVIEWING DOCUMENTS WITH ARCHITECT/ENGINEER UPON REQUEST.
7. THE CONTRACTOR SHALL VISIT THE SITE AND COORDINATE WORK WITH OTHER TRADES.
8. THE CONTRACTOR SHALL SUPPLY THE ENGINEER WITH "AS-BUILT" REDLINE DRAWINGS. UPON COMPLETION OF THE PROJECT AND AUTOCAD SHOP DRAWING FILES (IF APPLICABLE).
9. CONTRACTOR SHALL SUBMIT FOR APPROVAL A DIGITAL SUBMITTAL IN PDF FORMAT OF THE MANUFACTURERS DRAWINGS FOR EACH PIECE OF EQUIPMENT AND CONTROLS INCLUDED IN CONTRACT. ALL MATERIAL SHALL BE NEW OF U.S. MANUFACTURER OF GOOD QUALITY. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER BY SKILLED TRADESMEN.
10. THE GENERAL CONTRACTOR SHALL PROVIDE IN WRITING AND ON COMPANY LETTER HEAD, ALL ITEMS VALUE ENGINEERED OR OMITTED FROM PROJECT BIDS. THIS DOCUMENT SHALL HAVE DETAILED DESCRIPTION AND TRANSPARENCY OF ALL ITEMS IN EACH DISCIPLINE AND FOR EACH TRADE. INFORMATION SHALL BE PROVIDED TO ARCHITECT AND ENGINEER FOR REVIEW PRIOR TO SUBMITTING FINAL BID. CONTRACTOR SHALL MAKE HIMSELF AVAILABLE FOR REVIEWING DOCUMENTS WITH ARCHITECT/ENGINEER/OWNER UPON REQUEST.

DUCTWORK:

11. FIBROUS GLASS DUCTS SHALL BE CONSTRUCTED OF RIGID GLASS-FIBER BOARDS WITH EDGE TREATMENT, FACTORY MOLDED AND FACED ON ONE SIDE WITH FIRE RETARDING, REINFORCED, FOIL-SCRIM-KRAFT BARRIER. THE INSIDE OF THE DUCT SHALL BE TREATED WITH A ANTIMICROBIAL AGENT EQUAL TO JOHNS MANVILLE "SUPERDUCT RC" OR KNAUF "EQUIPSEL". THE BOARD SHALL BE UL LISTED AND LABELED AS COMPLYING WITH UL 181 CLASS 1. THE FLEXURAL RIGIDITY (EI) SHALL BE 475, STANDARD DUTY, 1" (R-4.3) FOR USE IN CONDITIONED SPACE AND 800 1 1/2" (R-6) FOR USE IN UNCONDITIONED SPACE. INSTALL DUCTS AND FITTINGS IN ACCORDANCE NAIMA'S "FIBROUS GLASS DUCT CONSTRUCTION STANDARDS" OR SMACNA'S "FIBROUS GLASS DUCT CONSTRUCTION STANDARDS".
12. FLEXIBLE DUCT SHALL COMPLY UL 181 CLASS 1, FACTORY FABRICATED, INSULATED, ROUND DUCT, WITH A POLYETHYLENE FILM OUTER JACKET ENCLOSING GLASS FIBER INSULATION (R-6) AROUND A CONTINUOUS POLYETHYLENE INNER LINER. THE INNER LINER SHALL HAVE AN ENCAPSULATED STEEL WIRE HELIX. FLEXIBLE DUCT SHALL BE INSTALLED IN ACCORDANCE WITH NAIMA'S "FIBROUS GLASS DUCT CONSTRUCTION STANDARDS". INSULATION SHALL BE 1" (R-4.3) FOR USE IN CONDITIONED SPACE AND 1 1/2" (R-6) FOR USE IN UNCONDITIONED SPACE. LIMIT FLEXIBLE DUCT RUNS TO 10 FEET. PROVIDE TRANSITION BOXES AS NEEDED.
13. ALL OUTSIDE AIR DUCT INTAKES SHALL BE LOCATED BEYOND 10'0" OF ANY VENTILATION OUTLET OR SANITARY VENT PIPE AND SHALL BE SCREENED WITH A CORROSION RESISTANT MATERIAL NOT LARGER THAN 1/2" MESH.. ALL OUTSIDE AIR INTAKES SHALL BE MARKED WITH A PERMANENT PLATE TITLED "INTAKE FOR UNIT NUMBER#/" PER FMC 2007, 401.5.1. (E.G. "INTAKE FOR AHU-1", "INTAKE FOR FCU-1-1", ETC.)
16. ALL DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
20. ALL BRANCH TAKE-OFFS TO BE PROVIDED W/ MANUAL VOLUME DAMPERS. PROVIDE MANUAL VOLUME DAMPERS WITH EXTRACTOR AT ALL FLEX TAKE-OFFS.
- THERMOSTATS/CONTROLS:
21. PROVIDE NEW FILTERS FOR ALL AIR CONDITIONING EQUIPMENT BEFORE STARTING THEM. REPLACE THEM PRIOR TO FINAL ACCEPTANCE BY OWNER.
22. PROVIDE PHOTO ELECTRIC TWIST IN TYPE SMOKE DETECTORS WITH ACCESS DOORS IN ALL FANS AND AHU'S SERVING A COMMON PLENUM OF 2000 CFM OR ABOVE. ALL SMOKE DETECTORS SHALL BE BY ONE MANUFACTURER, AND SHALL COMPLY WITH UL 268A LOCATE THE SMOKE DETECTORS IN THE SUPPLY AIR DUCT FOR INSTALLATIONS IN COMPLIANCE WITH THE THE FLORIDA BUILDING CODE. THE DETECTORS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR & INSTALLED IN THE DUCT BY THE MECHANICAL CONTRACTOR. PROVIDE REMOTE TEST STATION. ELECTRICAL CONNECTION SHALL BE BY ELECTRICAL CONTRACTOR. UPON SMOKE DETECTION ALL ASSOCIATED AIR MOVING EQUIPMENT SERVING A COMMON PLENUM WILL BE SHUT DOWN. TIE FIRE ALARM DEVICES INTO EXISTING FIRE ALARM SYSTEM (IF APPLICABLE).
23. FOR ELECTRICAL OR CONTROL PANELS PROVIDE A MINIMUM OF 30" CLEARANCE IN FRONT OF ALL 120-240 VOLT PANELS AND 40" CLEARANCE IN FRONT OF ANY 480 VOLT PANEL. PROVIDE ADEQUATE SIDE CLEARANCE PER NEC. DUCTS, PIPES, AND OTHER EQUIPMENT ARE NOT ALLOWED TO RUN OVER PANELS PER NEC.
24. CONTRACTOR SHALL TEST AND BALANCE THE AIR SIDE SYSTEM UPON COMPLETION. THE FINAL TEST AND BALANCE MUST BE PERFORMED BY AN INDEPENDENT FIRM CONTRACTED BY THE GENERAL CONTRACTOR AND NOT THE MECHANICAL CONTRACTOR. THE TEST AND BALANCE FIRM SHALL HOLD A CURRENT CERTIFICATION FROM A RECOGNIZED TEST AND BALANCE ORGANIZATION. THE TEST AND BALANCE OPERATION SHALL INCLUDE ALL AIR SIDE SYSTEMS REGARDLESS OF SIZE OF EQUIPMENT AND A TEST TO CONFIRM BUILDING IS NEUTRAL OR POSITIVELY PRESSURIZED. THE T & B FIRM SHALL PROVIDE A WRITTEN REPORT TO THE ARCHITECT AND THE ENGINEER UPON COMPLETION. FBC 2007, CHAPTER 13.410.1AB4.2 AND 4.3.
25. THE MECHANICAL CONTRACTOR SHALL VERIFY THAT THE AIR CONDITIONED SPACE IS SEALED WITH AN APPROVED AIR BARRIER IN ACCORDANCE WITH CHAPTER 13 OF THE FLORIDA BUILDING CODE-MECHANICAL. (REF SECTIONS 202 AND 406.1 ABCD 1.4 BUILDING CAVITIES). THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND ARCHITECT IN WRITING OF ANY DISCREPANCIES PRIOR TO INSTALLATION OF ANY EQUIPMENT.
26. ALL OPERATIONS / MAINTENANCE MANUALS FOR EQUIPMENT SPECIFIED SHALL BE PROVIDED TO OWNER UPON COMPLETION OF PROJECT.

MECHANICAL SYMBOL LEGEND

	NEW RIGID DUCT METAL OR FIBER (REF. KEY NOTES)
	SUPPLY DUCT VERTICAL TAPS
	NEW RETURN DUCT
	NEW FLEXIBLE DUCT
	METAL EXHAUST DUCT
	OUTSIDE AIR DUCT
	REFRIGERANT LINE - COPPER
	MANUAL VOLUME DAMPER
	MOTORIZED VOLUME DAMPER
	FIRE DAMPER
	BACK DRAFT DAMPER
	FIRE SMOKE DAMPER
	SMOKE DAMPER
	SUPPLY DIFFUSER, SEE GRILL REGISTER AND DIFFUSER SCHEDULE FOR DESCRIPTION.
	T-BAR DROP IN SUPPLY DIFFUSER, SEE GRILL REGISTER AND DIFFUSER SCHEDULE FOR DESCRIPTION.
	RETURN GRILLE, SEE GRILLE REGISTER AND DIFFUSER SCHEDULE FOR DESCRIPTION.
	THERMOSTAT
	HUMIDISTAT
	EXHAUST FAN
	AIR HANDLER UNIT
	CONDENSING UNIT
	RELIEF DAMPER
	CONDENSATE LINE
	SMOKE DETECTOR/ CUTOFF
	DIFFUSER/GRILL SYMBOL
	CONNECT TO EXISTING
	POINT OF DEMO

NOTE: NOT ALL SYMBOLS MAY APPLY TO PLANS

MECHANICAL SCOPE OF WORK

- REMOVE AND PROPERLY STORE EXISTING 7.5 -TON TRANE RTU - MODEL TSC092A3.
- INSTALL EXISTING 5.0 TRANE RTU (WITH CURB ADAPTER) ON EXISTING CURB LOCATED IN BAY 101. TIE INTO EXISTING CONDENSATE LINES AND DUCT WORK AS INDICATED.
- RELOCATE SELECTED SUPPLY DIFFUSERS/GRILLES.
- REMOVE AND PROPERLY DISPOSE OF SELECTED EXISTING SUPPLY/RETURN DUCTS .
- PROVIDE AND INSTALL NEW SUPPLY/RETURN DUCTWORK AND RE-WORK EXISTING DUCTS AS INDICATED.
- PROVIDE AND INSTALL NEW POINT OF USE WATER HEATER.
- PROVIDE AND INSTALL 1 NEW SINK/FAUCET.

HVAC DESIGN CONDITIONS

	DB °F	WB °F	GR/#	COMMENTS
OUTDOOR	93	79	125	
INDOOR	75	63	67	
OUTSIDE AIR	110 CFM			
GLASS TYPE	SINGLE COATED 1/4"			
GLASS HEIGHT	VARIES: 3'-8" TO 7'-9"			
ROOF TYPE	INSULATION OVER METAL BAR JOIST			
TOTAL ROOF "R" VALUE	R12			
CEILING HEIGHT	25'			
CEILING CAVITY	VARIES: 0 TO 15'			
WALL TYPE	8" CBS			
TOTAL WALL "R" VALUE	R5			
AIR CONDITIONED SQ.FT.	707 (1ST) + 338 (2ND) = 1045			
FLOOR LEVEL(S)	2			

NOTES:

- THIS SPACE SHALL NOT OPERATE BELOW 73°F.
- PEOPLE-BASED DIVERSITY USED WHERE ALLOWED BY ASHRAE 62.1.
- ALL CONSTRUCTION METHODS AND R-VALUES PROVIDED BY ARCHITECT. SEE ARCHITECT PLANS FOR DETAILS.

MECHANICAL SHEET INDEX

M0.1	MECHANICAL NOTES, LEGEND, & DETAILS.
M1.1	MECHANICAL FLOOR PLAN - 1ST FLOOR
M1.2	MECHANICAL FLOOR PLAN - 2ND FLOOR
M1.3	MECHANICAL ROOF PLAN & DETAILS

APPLICABLE BUILDING CODES

FLORIDA BUILDING CODE, 2010 EDITION
FLORIDA BUILDING CODE MECHANICAL, 2010 EDITION
NFPA 1, FLORIDA 2009 EDITION
NFPA 101, FLORIDA 2009 EDITION
NFPA 90A, 2009 EDITION
NFPA 91, 2004 EDITION
NFPA 96, 2008 EDITION
NFPA 99, 2005 EDITION
ANSI/ASHRAE 15 MECHANICAL REFRIGERATION
ASHRAE 62.1, 2007 EDITION

BUILDING CODE INFORMATION

BASED ON FLORIDA BUILDING CODE 2010

BUILDING TYPE TYPE I-B CONSTRUCTION, SPRINKLERED			
OCCUPANCY: GROUP F-1, FACTORY INDUSTRIAL			
AREA CALCULATION :			
• FIRST FLOOR:		• OCCUPANCY LOAD:	
OFFICE AREA = 636 S.F.		636 S.F. / 100= 6 OCC.	
WAREHOUSE AREA = 1,623 S.F.		1,623 S.F. / 500= 3 OCC.	
• MEZZANINE:			
STORAGE = 552 S.F.		552 S.F. / 300= 2 OCC.	
• TOTAL AREA = 2,811 S.F.		TOTAL OCCUPANTS = 11	
LIFE SAFETY SYSTEM:			
EMERGENCY LIGHTING AND EXIT SIGNS	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
PANIC HARDWARE	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
EXIT REQUIREMENTS:			
DEAD END LIMIT-MAXIMUM CONDITION	50 FEET		
TRAVEL DISTANCE TO EXIT-MAXIMUM CONDITION	250 FEET		

OUTSIDE AIR CALCULATIONS

(BASED ON ASHRAE 62.1 - 2007)

OCCUPANCY CATEGORY	SQUARE FT	SF/P	P	CFM/P	CFM/SF	CFM (P)	CFM (AREA)	TOTAL CFM	NOTES
Storage	48			0	0.12	0	6	6	
Office	636	200	3	5	0.06	16	38	54	
Lobbies	308	33	9	2.5	0.06	23	18	42	1
TOTAL OA CFM REQUIRED:								102	
TOTAL OA CFM PROVIDED:								110	

NOTES:

- A DIVERSITY FACTOR HAS BEEN APPLIED TO THE OCCUPANCY LOAD BASED ON ASHRAE PROTOCOL.
- SEATING PLAN USED FOR OCCUPANCY COUNT.

AIR BALANCE SCHEDULE

UNIT	EXHAUST / RELIEF	OUTSIDE AIR / MAKEUP AIR	TOTAL
RTU-1		110	
EF-1	50		
BUILDING TOTALS:	50	110	60

MATERIALS AND WORKMANSHIP SHALL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES IN THEIR LATEST REVISIONS.

CONTRACTOR TO COORDINATE SPECIFIC REQUIREMENTS OF EQUIPMENT WITH MANUFACTURERS' SHOP DRAWINGS.

ALL EQUIPMENT SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.

RGD JOB# 12-1075

ISSUE & REVISIONS

#	DATE	DESCRIPTION	INL	APP
0	05.29.12	PERMIT SET	TEAM	RGD

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Drawings not signed and sealed by the engineer shall not be submitted to any authority or used for any purpose where signed and sealed documents are required.

ROBERT DAVENPORT P.E.
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MECHANICAL ENGINEER
DATE 5.31.2012

CONSTRUCTION DOCUMENTS FOR:

Suite 102 - Gardens Park of Commerce - Building 3

Palm Beach Gardens, FL

OWNERSHIP AND USE OF THESE DOCUMENTS:
Drawings and specifications as instruments of service are and shall remain the property of the engineer whether the project they are made for is executed or not; they shall not be used by the owner or any other person without the written consent of the engineer. This consent shall be in writing and shall be subject to the agreement in writing and with appropriate compensation to the engineer.

Sheet Title:

MECHANICAL
NOTES, LEGEND, &
DETAILS

M0.1

MECHANICAL NOTES, LEGEND, & DETAILS