MECHANICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR DIFFUSER, 4 WAY U.O.I.		FIRE DAMPER (FD)		ELBOW TURNED UP
	RETURN AIR GRILLE		SMOKE DAMPER (SD)		ELBOW TURNED DOWN
	EXHAUST AIR GRILLE		FIRE / SMOKE DAMPER (FS)		TEE, OUTLET UP
TAG CFM	SUPPLY AIR DIFFUSER WITH MARKINGS, 4 WAY U.O.I.		RADIATION DAMPER (RD)		TEE, OUTLET DOWN
TAG CFM	RETURN AIR GRILLE WITH MARKINGS		MANUAL DAMPER (MD)		CONNECTION, TOP
TAG CFM	EXHAUST AIR GRILLE WITH MARKINGS	M	MOTOR OPERATED DAMPER (MOD)		CONNECTION, BOTTOM
	SUPPLY AIR SIDEWALL DIFFUSER		DUCT MOUNTED SMOKE DETECTOR		UNION, SCREWED OR FLANGED
	RETURN AIR SIDEWALL GRILLE	T	THERMOSTAT		CAP
	EXHAUST LOUVER (EL) OR OUTSIDE AIR LOUVER (OAL) AS NOTED	H	HUMIDISTAT		BALL VALVE
	EXHAUST FAN SHOWN ON FLOOR PLAN	F	FIRESTAT		BUTTERFLY VALVE
	EXHAUST FAN SHOWN ON ROOF	C	CARBON DIOXIDE SENSOR		GATE VALVE
	HVAC EQUIPMENT	AHU 1	HVAC EQUIPMENT IDENTIFIER TAG		GATE VALVE, ANGLE
	DRYWELL		POINT OF CONNECTION TO EXISTING		GLOBE VALVE
	UNIT HEATER (UH)	1	REFERENCE NOTE NUMBER		GLOBE VALVE, ANGLE
	ELECTRIC DUCT HEATER	UC	UNDERCUT DOOR		THREE WAY VALVE
10X10	DUCT SIZE INDICATION, INSIDE DIMENSIONS (WIDTH X DEPTH)	LD	LOUVER DOOR		PLUG VALVE
	DUCT WITH INTERNAL LINING OR DOUBLE WALL		SUPPLY AIR FLOW		CHECK VALVE
	TEE WITH TURNING VANES		RETURN OR EXHAUST AIR FLOW		RELIEF VALVE
	TEE WITH DOVETAIL FITTING		EXISTING TO REMAIN		SOLENOID VALVE
	ROUND BRANCH DUCT CONICAL TAP		EXISTING TO BE REMOVED		NEEDLE VALVE
	RECTANGULAR BRANCH DUCT TAKEOFF WITH SHOE FITTING	C	CONDENSATE DRAIN PIPING		PRESSURE REDUCING VALVE
	RECTANGULAR TO ROUND TAKEOFF	R	REFRIGERANT PIPING		MOTOR OPERATED 2 WAY VALVE
	TRANSITION, ECCENTRIC	CHWS	CHILLED WATER SUPPLY PIPING		MOTOR OPERATED 3 WAY VALVE
	TRANSITION, CONCENTRIC	CHWR	CHILLED WATER RETURN PIPING		ISOLATION VALVE (SEE NOTE 2)
	RISE (UP) OR DROP (DN) IN DUCT	HWS	HOT WATER SUPPLY PIPING		BALANCING VALVE (SEE NOTE 2)
	DUCTWORK TURNING UP	HWR	HOT WATER RETURN PIPING		GAS COCK
	DUCTWORK TURNING DOWN	CWS	CONDENSER WATER SUPPLY PIPING		STRAINER WITH BLOW DOWN
	FLEXIBLE CONNECTION	CWR	CONDENSER WATER RETURN PIPING		AUTOMATIC AIR VENT
AD	ACCESS DOOR	LLS	LIQUID LINE SUCTION		AIR VENT
	AIR FLOW STATION (AFS)	HG	HOT GAS		SQUARE HEAD COCK
	MITERED ELBOW	HPS	HIGH PRESSURE STEAM		THERMOMETER
	MITERED ELBOW WITH TURNING VANES	MPS	MEDIUM PRESSURE STEAM		TRAPS, STEAM (INDICATE TYPE)
	RADIUS ELBOW	LPS	LOW PRESSURE STEAM		SIGHT GLASS
	FLEXIBLE DUCT				PIPE ANCHOR
	SUPPLY DUCT SECTION				
	RETURN DUCT SECTION				
	EXHAUST DUCT SECTION				
	ROUND DUCT SECTION				
	BACKDRAFT DAMPER (BDD)				

NOTES:
1. THIS IS A STANDARD LIST OF SYMBOLS. SOME SYMBOLS SHOWN ON THIS LEGEND MAY NOT APPLY TO THE PROJECT.
2. SEE SPECIFICATIONS FOR THE EXACT TYPE OF VALVE TO BE PROVIDED IN EACH APPLICATION.

OBSERVATION RECORD

ARCHITECT OR ENGINEER MUST SIGN ALL SPACES PERTAINING TO THIS JOB.
REQUIRED OBSERVATIONS ARE CHECKED IN THE RIGHT COLUMN.

*BUILDING NUMBER:*_____

A/E OBSERVATION	*DATE*	*WHOM*	*ARCHITECT/ENGINEER*	*OBSERVATION REQUIRED*
ELECTRICAL GROUNDWORK				YES
PLUMBING ROUGH-IN				YES
GAS PIPING				N/A
FIRE SPRINKLER GROUNDWORK				N/A
DO NOT COVER WORK UNTIL ABOVE HAS BEEN APPROVED AT U.G. WALKTHRU				
REINFORCEMENT FOR CAST CONCRETE				NO
ELECTRICAL CONCEALMENT				YES
PLUMBING ROUGH-IN AND STACK-OUT				YES
HVAC DUCT ROUGH-IN				YES
GAS PIPING ROUGH-IN				N/A
HVAC PIPING				N/A
FIRE SPRINKLER ROUGH-IN				N/A
HVAC EQUIPMENT				YES
DO NOT COVER WORK UNTIL ABOVE HAS BEEN APPROVED AT 40% WALKTHRU				
HVAC INSULATION				N/A
PLUMBING INSULATION				NO
CONTROL PANELS AND WIRING				N/A
TEMPORARY POLE				NO
ELECTRICAL PRELIMINARY				NO
NO FINAL OBSERVATIONS UNTIL THE ABOVE IS COMPLETE AT 80% WALKTHRU				
SPRINKLER SUBSTANTIAL COMPLETION				N/A
FIRE ALARM SUBSTANTIAL COMPLETION				N/A
ELECTRICAL SUBSTANTIAL COMPLETION				YES
PLUMBING SUBSTANTIAL COMPLETION				YES
HVAC COMMISSIONING REPORTS				N/A
HVAC SUBSTANTIAL COMPLETION				YES
TEST AND BALANCE REPORTS				YES

NO CERTIFICATE OF SUBSTANTIAL COMPLETION WILL BE ISSUED UNTIL ABOVE IS COMPLETED
CONTRACTOR SHALL SCHEDULE ENGINEER'S OBSERVATION 72 HOURS IN ADVANCE. DEFICIENCIES
THAT REQUIRE ADDITIONAL OBSERVATIONS SHALL BE PAID BY CONTRACTOR AT $75.00 PER HOUR.
SEE SPECIFICATIONS FOR REQUIREMENTS.

MASTER ABBREVIATIONS LIST:

ATS	AUTOMATIC TRANSFER SWITCH	LAT	LEAVING AIR TEMPERATURE	RH	RELATIVE HUMIDITY
DB	DECIBEL	LWT	LEAVING WATER TEMPERATURE	RTU	ROOF TOP UNIT
DDVAV	DUAL DUCT VARIABLE AIR VOLUME BOX	MOD	MOTOR OPERATED DAMPER	SA	SUPPLY AIR
EAT	ENTERING AIR TEMPERATURE	OA	OUTSIDE AIR	SP	STATIC PRESSURE
EDH	ELECTRIC DUCT HEATER	OBD	OPPOSED BLADE DAMPER	SR	SUPPLY REGISTER
EFF	EFFICIENCY	P	PUMP	TD	TEMPERATURE DIFFERENCE
EG	EXHAUST GRILLE	PD	PRESSURE DROP	TONS	TONS OF REFRIGERATION
EWT	ENTERING WATER TEMPERATURE	PPM	PARTS PER MILLION	VAV	VARIABLE AIR VOLUME BOX
FPVAV	FAN POWERED VARIABLE AIR VOLUME BOX	PV	POWER VENTILATOR	VFD	VARIABLE FREQUENCY DRIVE
FRG	FILTER-BACK RETURN GRILLE	R	THERMAL RESISTANCE	W	WATT
GPH	GALLONS PER HOUR	RA	RETURN AIR	WB	WET BULB
IPLV	INTEGRATED PART LOAD VALUE	RG	RETURN GRILLE		

BASIS OF DESIGN

THE FOLLOWING ASSUMPTIONS WERE MADE TO DESIGN THE AIR CONDITIONING SYSTEM:

	SUMMER	*WINTER*	*NOTES*
OUTDOOR CONDITIONS	95/78	25	1
INDOOR CONDITIONS	75/50%	72/--	2,3
OCCUPANCY PERIOD	8 A.M.- 6 P.M. (M-F)	8 A.M.- 6 P.M. (M-F)	3,4
LIGHTING LOAD	2.0 W/S.F.	0 W/S.F.	5
HUMIDITY CONTROL	NONE	NONE	6

NOTES:
1. Per ASHRAE.
2. Assumed acceptable temperature for occupants. Individual occupants may prefer different conditions.
3. It is the Owner's responsibility to inform the Architect/Engineer if other conditions are desired.
4. Assumed period of occupancy (more than 10% of total occupants occupy the building). Ventilation system to be on during this period.
5. Assumed total lighting load based upon typical fluorescent lighting for the type of occupancy.
6. Active = HVAC system design includes active humidity control features (reheat).
7. NONE = NO ACTIVE HUMIDITY CONTROL PROVIDED. ASHRAE and Engineer recommend active humidity control for this project.
8. Ventilation rates are per Florida Mechanical Code and ASHRAE Standard 62 Ventilation Rate Procedure, latest addendum approved by FBC. Occupancy is based assumed occupancy per Architectural floor plan.

GENERAL NOTES:

1. ALL WORK SHALL COMPLY WITH FBC AND STANDARDS LISTED IN THE SPECIFICATIONS.
2. DRAWINGS ARE DIAGRAMMATIC IN NATURE. COORDINATE EXACT LOCATION OF ALL CEILING MOUNTED EQUIPMENT SO ALL SERVICEABLE COMPONENTS CAN BE EASILY ACCESSED BY REMOVING CEILING TILES ONLY. REMOVAL OR RELOCATION OF LIGHTING FIXTURES FOR SERVICE ACCESS IS NOT ACCEPTABLE. THE CONTRACTOR SHALL RE-INSTALL EQUIPMENT THAT HAS INADEQUATE OR UNSAFE ACCESSIBILITY. LOCATE ALL OTHER EQUIPMENT WITH MANUFACTURER RECOMMENDED ACCESS FOR OPERATION AND MAINTENANCE.
3. PRIOR TO BID, COORDINATE ALL MECHANICAL WORK WITH ELECTRICAL WORK AND OTHER TRADES. SEE SPECIFICATIONS FOR REQUIREMENTS.
4. CONTRACTOR SHALL NOT CONCEAL ANY WORK UNTIL INSPECTED BY MECHANICAL INSPECTOR AND/OR ARCHITECT/ENGINEER. CONTRACTOR SHALL NOTIFY A/E OF A SCHEDULED INSPECTION TIME WITHIN 72 HOURS. GENERAL CONTRACTOR SHALL NOT CONCEAL WORK UNTIL APPROVED, REGARDLESS OF SCHEDULE.
5. GENERAL CONTRACTOR IS RESPONSIBLE TO HAVE QUALIFIED SUBCONTRACTORS PERFORMING ALL WORK. DIVISION 23 CONTRACTORS AND FOREMEN SHALL MEET THE MINIMUM QUALIFICATIONS AND LICENSE REQUIREMENTS AS LISTED IN SECTION 230100. QUALIFICATIONS SHALL BE SUBMITTED FOR REVIEW BY A/E PRIOR TO SHOP DRAWING PHASE AND PRIOR TO ANY WORK BEING PERFORMED BY CONTRACTOR. NO PAYMENTS WILL BE AUTHORIZED BY ENGINEER FOR WORK PERFORMED BY SUBCONTRACTING FIRMS OR FOREMEN THAT DO NOT MEET THE MINIMUM QUALIFICATIONS.
6. ALL SHOP DRAWINGS SHALL BE SUBMITTED IN A FORMAT THAT IS IN STRICT ACCORDANCE WITH SECTION 230100 REQUIREMENTS.
7. ALL CHANGES MADE IN THE FIELD SHALL BE RECORDED ON AS-BUILT DRAWINGS, SHOP DRAWINGS, AND MAINTENANCE MANUALS.
8. ALL EQUIPMENT, PIPING AND VALVES SHALL HAVE IDENTIFICATION LABELS PER SPECIFICATION SECTION 230553 AND AS INDICATED.
9. THE SIZE, LOCATION, WEIGHT, ELECTRICAL REQUIREMENTS AND SERVICE CLEARANCES OF EQUIPMENT INSTALLED UNDER DIVISION 23 - MECHANICAL SHALL BE COORDINATED WITH ALL OTHER TRADES.
10. WHERE CROWDED LOCATIONS EXIST OR WHERE THERE IS A POSSIBILITY OF CONFLICT BETWEEN TRADES, CONTRACTOR SHALL MAKE COMPOSITE DRAWINGS SHOWING THE EXACT LOCATION OF PIPES, DUCTS, CONDUIT AND EQUIPMENT. DRAWINGS SHALL BE BASED ON FIELD MEASUREMENTS AND, AFTER CONSULTATION AND AGREEMENT BETWEEN THE TRADES, SHALL BE APPROVED BY THE ARCHITECT BEFORE INSTALLATION OF THE WORK.
11. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ARCHITECT AND GENERAL CONTRACTOR ON REQUIREMENTS FOR STRUCTURAL SUPPORT AND FRAMING FOR ALL MECHANICAL EQUIPMENT AND SYSTEMS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND VERIFYING STRUCTURAL SUPPORT AND FRAMING.
12. NOTIFY ARCHITECT/ENGINEER OF ANY CONFLICTS PRIOR TO PURCHASING EQUIPMENT AND PRIOR TO CUTTING OPENINGS.
13. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS PRIOR TO PURCHASING OR INSTALLING EQUIPMENT AND SYSTEMS INDICATED ON CONTRACT DOCUMENTS. SUBMIT IN STRICT ACCORDANCE WITH SECTION 230100. PRIOR TO SUBMITTAL, CONTRACTOR SHALL VERIFY THAT ADEQUATE SPACE EXISTS FOR THE SUBMITTED EQUIPMENT. SHOP DRAWINGS MUST BE REVIEWED BY ENGINEER AND ARCHITECT.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED BY OTHER TRADES DUE TO SUBSTITUTION OF OTHER THAN SCHEDULED EQUIPMENT. WHEN EQUIPMENT FURNISHED IS DIFFERENT THAN INDICATED, THE COST OF ADDITIONAL ELECTRICAL, STRUCTURAL AND RELATED WORK SHALL BE PAID BY THIS CONTRACTOR.
15. ALL BARE METAL SURFACES SHALL BE PRIMED TO PREVENT ANY RUST, INCLUDING, BUT NOT LIMITED TO, ANGLE FRAMING, UNIT SUPPORTS, MOUNTING HARDWARE, ETC.
16. ALL MATERIALS AND EQUIPMENT INSTALLED IN STORAGE ROOMS SHALL BE NON-COMBUSTIBLE AND UL APPROVED FOR USE IN A RETURN AIR PLENUM SPACE. ALL WIRING SHALL BE NON-COMBUSTIBLE OR SHALL BE ENCLOSED IN METAL CONDUIT OR PROTECTED BY A SHEET METAL COVER SECURED WITH METAL FASTENERS.
17. INSULATION, FITTINGS, COVERS AND FINISHES IN STORAGE ROOMS SHALL HAVE A MAXIMUM FLAME SPREAD RATING OF 25 AND A MAXIMUM SMOKE DEVELOPED RATING OF 50.
18. PROVIDE ACCESS PANELS AS REQUIRED FOR ALL VALVES, DAMPERS, CONTROLS, OR OTHER EQUIPMENT.
19. ALL NEW AND EXISTING PENETRATIONS THROUGH FIRE RATED CONSTRUCTION SHALL BE FIRE STOPPED BY THE CONTRACTOR AS PER NEC 300-21 USING A THROUGH
20. PENETRATION FIRESTOP SYSTEM (XHEZ) LISTED IN THE U.L. FIRE RESISTANCE DIRECTORY.
21. ALL WORK TO THE BUILDING ENVELOPE AND EXTERIOR TO THE BUILDING SHALL BE FABRICATED, INSTALLED, AND ANCHORED TO WITHSTAND THE APPLICABLE WIND LOADING PER FBC AND ASCE 7-98.

CONSTRUCTION DOCUMENTS

MEP
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GRAEF PROJECT #2009-4110

CAD DWG FILE: PLOT-M001-104110.DWG

8/26/2010 4:37 PM

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MECHANICAL NOTES, LEGEND, AND ABBREVIATIONS

MANATEE COUNTY – LINCOLN SPLASH PARK

501 17TH STREET EAST PALMETTO, FL 34221

REVISIONS:

PROJECT NO: 10-4110
DATE: 08.27.2010
DRAWN BY: CF
CHK'D BY: MR

Baltu Yorkos
LIC. NO. 60308

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