

MECHANICAL NOTES

- 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.
- 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.
- 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.
- 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.
- THE CONTRACTOR SHALL PAY ALL COSTS OF PERMIT, INSPECTIONS AND ALL OTHER COSTS INCIDENTAL TO THE COMPLETION AND TESTING OF THIS WORK.
- 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.
- THE CONTRACTOR SHALL VISIT THE SITE AND COORDINATE WORK WITH OTHER TRADES.
- THE CONTRACTOR SHALL SUPPLY THE ENGINEER WITH "AS-BUILT" REDLINE DRAWINGS. UPON COMPLETION OF THE PROJECT AND AUTOCAD SHOP DRAWING FILES (IF APPLICABLE).
- CONTRACTOR SHALL SUBMIT, FOR APPROVAL FIVE (5) COPIES OF MANUFACTURER'S 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.
- 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

- 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 COATED WITH A SMOOTH ACRYLIC COATING EQUAL TO JOHN'S MANVILLE "SUPERDUCT RC" OR KNAAF "ECLIPSE". THE BOARD SHALL BE UL LISTED AND LABELED AS COMPLYING WITH UL 181 CLASS 1, THE FLEXURAL RIGIDITY (EI) SHALL BE 475, STANDARD DUCTY 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 NAIM'S "FIBROUS GLASS DUCT CONSTRUCTION STANDARDS" OR SMACNA'S "FIBROUS GLASS DUCT CONSTRUCTION STANDARDS".
 - INTERIOR METAL DUCT SHALL BE CONSTRUCTED OF GALVANIZED SHEET STEEL, LOCK-FORMING QUALITY, ASTM A653/A 653M, COATING DESIGNATION: MIL-PHOSPHATIZED FINISH FOR SURFACES OF DUCT EXPOSED TO VIEW. FABRICATE DUCTS, ELBOWS, TRANSITIONS, OFFSETS, BRANCH CONNECTIONS AND OTHER CONSTRUCTIONS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE". COMPLY WITH REQUIREMENTS FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, TIE-ROD APPLICATIONS, AND JOINT TYPES AND INTERVALS.
 - FLEXIBLE DUCT SHALL COMPLY UL 181 CLASS 1, FACTORY FABRICATED, INSULATED, ROUND DUCT, WITH A POLYETHYLENE FILM OUTER JACKET ENVELOPING 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 NAIM'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.
 - EXTERNAL DUCT INSULATION SHALL BE MINERAL FIBER BLANKET WITH GLASS FIBERS BONDED WITH THERMO SETTING RESIN. THE DUCT WRAP SHALL COMPLY WITH ASTM C553, TYPE II WITHOUT FACING AND WITH ALL SERVICE JACKET MANUFACTURED FROM KRAFT PAPER, REINFORCED SCRIM, ALUMINUM FOIL AND VINYL FILM. APPLY INSULATION MATERIALS, ACCESSORIES AND FINISHES ACCORDING TO THE MANUFACTURER'S WRITTEN INSTRUCTIONS WITH SMOOTH, STRAIGHT AND EVEN SURFACES, AND FREE OF VOIDS THROUGHOUT THE LENGTH OF DUCTS AND FITTINGS. INSULATION SHALL BE 1" (R-4.3) FOR USE IN CONDITIONED SPACE AND 1 1/2" (R-6) FOR USE IN UNCONDITIONED SPACE.
 - ALL INSULATION WILL HAVE FIRE/SMOKE RATING LESS THAN 25/50.
 - ALL DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
 - ALL AIR DEVICES (E.G., DIFFUSERS, REGISTERS AND GRILLES) SHALL BE ALL ALUMINUM CONSTRUCTION WITH EXPOSED SURFACE OFF WHITE BAKED ENAMEL FINISH OR AS SPECIFIED BY ARCHITECT. PROVIDE STEEL GRILLES FOR FIRE RATED DIFFUSERS IN FIRE RATED CEILINGS. PROVIDE OPPOSED BLADE DAMPERS AT ALL DIFFUSERS AND REGISTERS. PROVIDE MANUAL VOLUME DAMPERS WITH EXTRACTOR AT ALL FLEX TAKE-OFFS. IF FLEX TAPS ARE NOT ACCESSIBLE, PROVIDE REMOTE, CABLE OPERATED VOLUME DAMPERS, "YOUNG REGULATOR" OR EQUAL. COMPLY WITH FMC 2007, 601.4 AND 603.15 FOR BALANCED AIR FLOW.
 - ALL BRANCH TAKE-OFFS TO BE PROVIDED W/ MANUAL VOLUME DAMPERS. ALL ELBOWS AND TEES MUST BE FURNISHED W/TURNING VANES. PROVIDE MANUAL VOLUME DAMPERS WITH EXTRACTOR AT ALL FLEX TAKE-OFFS.
- THERMOSTATS/CONTROLS:**
- CONTRACTOR SHALL PROVIDE OWNER/BUILDING MANAGER/BUILDING ENGINEER WITH 2 HOURS OF ONSITE AND/OR OFF SITE TRAINING IN THE CONTROL AND OPERATION OF THE HVAC SYSTEM. TIME AND LOCATION TO BE DETERMINED BY CLIENT.
 - THERMOSTATS FOR VAV BOXES SHALL BE DDC, PROVIDE ROOM THERMOSTAT/SENSOR WITH OVERRIDE.
 - FOR ELECTRICAL OR CONTROL PANELS PROVIDE A MINIMUM OF 30" CLEARANCE IN FRONT OF ALL 120-240 VOLT PANELS AND 48" 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.
 - NO COMBUSTIBLE MATERIALS ARE ALLOWED IN RETURN AIR PLENUMS OR ABOVE CEILINGS USED AS RETURN AIR PLENUM.
 - THE MECHANICAL CONTRACTOR SHALL VERIFY THAT THE AIR CONDITIONED SPACE IS SEALED WITH AN APPROVED AIR BARRIER IN ACCORDANCE WITH CHAPTER 19 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.
 - 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
	CHILLED WATER RETURN - BLACK STEEL/COPPER
	CHILLED WATER SUPPLY - BLACK STEEL/COPPER
	CONDENSER WATER RETURN - BLACK STEEL/COPPER
	CONDENSER WATER SUPPLY - BLACK STEEL/COPPER
	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 GRILL 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
	VARIABLE FREQ. DRIVE CONTROL PANEL
	EQUIPMENT TAG
	EQUIPMENT NUMBER
	EQUIPMENT FLOOR/LOCATION
	ACCESS PANEL
	SUPPLY AIR
	RETURN AIR
	DOOR UNDER CUT

NOTE: NOT ALL SYMBOLS MAY APPLY TO PLANS

MECHANICAL ABBREVIATIONS

ACCH	AIR COOLED CHILLER	IL	INTAKE LOUVERED PENTHOUSE
AFF	ABOVE FINISHED FLOOR	KVU	KITCHEN VENTILATION UNIT
ACP	AIR COMPRESSOR	MAU	MAKE UP AIR UNIT
AEL	AIR ELIMINATOR	MCP	MAIN CONDENSATE PUMP
AHU	AIR HANDLING UNIT	NEW	NEW
BDD	BACK DRAFT DAMPER	OA	OUTSIDE AIR
BF	BOOSTER FAN	P	PUMP
CC	COOLING COIL	PF	PRE-FILTER
CFF	CHEMICAL FEED PUMP	PHC	PREHEAT COIL
CHP	CHILLED WATER PUMP	PIU	POWERED INDUCTION UNIT W/ EL. HEAT
CH	CHILLER	PRV	PRESSURE REDUCING VALVE
CONV	CONVERTER	PUX	PUMP/HEAT EXCHANGER
CP	CONDENSATE PUMP	RD	RELIEF DAMPER
CRAC	COMPUTER ROOM A/C UNIT	RE	RELOCATE EXISTING
CT	COOLING TOWER	RF	RETURN FAN
CWP	CONDENSER WATER PUMP	RGH	ROOF MOUNT RELIEF GRAVITY HOOD
DHC	DUCT RE-HEAT COIL	RH	RELIEF HOOD
EDH	ELECTRIC DUCT HEATER	RHC	REHEAT COIL
EF	EXHAUST FAN	RL	RELIEF LOUVERED PENTHOUSE
E/A	EXHAUST AIR	SA	SOUND ATTENUATOR
ERU	ENERGY RECOVERY O/A PRECONDITIONER UNIT	SEF	SMOKE EXHAUST FAN
F	FILTER	SEP	SEPARATOR
FCU	FAN COIL UNIT	SF	SUPPLY FAN
FDP	FLUID DISTRIBUTION POINT	SH	SUPPLY HOOD
FF	FINAL FILTER	SIH	ROOF MOUNT SUPPLY INTAKE HOOD
FMS	FLOW MEASURING STATION	SBF	SMOKE SUPPLY FAN
FTK	FLASH TANK	TK	TANK
GLYP	GLYCOL PUMP	TRP	TRANSFER PUMP
GX	GENERAL EXHAUST	TRF	TRANSFER AIR FAN
H	HUMIDIFIER	TX	TOILET EXHAUST
HC	HEATING COIL	UH	UNIT HEATER
HV	HEATING & VENTILATION UNIT	UPACUSP	ROOM A/C UNIT
HOA	HAND OFF AUTOMATIC	VAV	VARIABLE AIR VOLUME TERMINAL
IH	INFRARED HEATER	VFD	VARIABLE FREQUENCY DRIVE
N	NEW	WCCH	WATER COOLED CHILLER
E	EXISTING	WTS	WATER TEMPERATURE SENSOR
RE	RELOCATED EXISTING		

NOTE: NOT ALL ABBREVIATIONS MAY APPLY TO PLANS

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M4.1	MECHANICAL SCHEDULES & DETAILS

MECHANICAL NOTES & LEGEND

ISSUE & REVISIONS				
#	DATE	DESCRIPTION	INL	APP
0	02.03.12	PERMIT RELEASE	GB	MJB
1	03.16.12	VAV LOCATIONS REVISED	GB	MJB

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DATE: 3.16.2012

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