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PROJECT NO. BR-191

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MECHANICAL SYMBOLS, NOTES AND ABBREVIATIONS

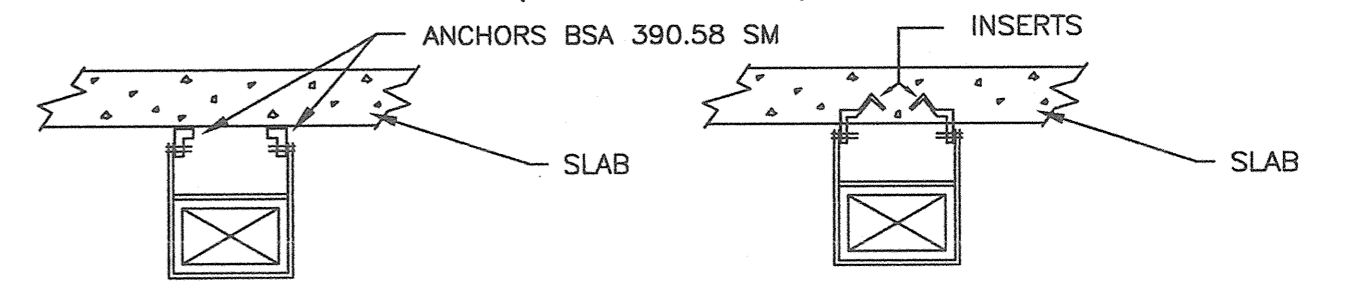
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FLORIDA STATE CODE NOTES

- GENERAL FLORIDA STATE BUILDING CODE NOTES
(LATEST APPLICABLE REVISION, TO BE COMPLIED WITH)
- MATERIALS AND EQUIPMENT SUBJECT TO CONTROLLED INSPECTION
 - MECHANICAL VENTILATION (M.V.) AIR CONDITIONING (A.C.) (1) INSPECTION AND TESTS OF REQUIRED VENTILATING SYSTEMS
 - HEATING EQUIPMENT (1) APPLICATION FOR EQUIPMENT USE PERMIT FOR HEATING SYSTEM TO BE ACCOMPANIED BY A SIGNED STATEMENT BY AN ARCHITECT OR ENGINEER INDICATING COMPLIANCE WITH CODE TEMPERATURES, ETC.
 - THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC., TO COMPLY WITH THE FOLLOWING:

ARTICLE OR REFERENCE: _____

WORK ITEM OR MATERIAL(S) STANDARD (RS) PARAGRAPH OR SUBPARAGRAPH

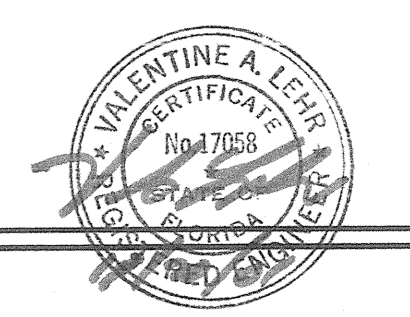
 - DUCT CONSTRUCTION
 - AIR INTAKES AND OUTLETS
 - FILTERS
 - FANS
 - ELEC. WIRING AND EQUIP.
 - AIR C.G. HTG EQUIP
 - FIRE CONTROLS
 - CONTROLS
 - HEATING CAPACITY
 - NOISE CRITERIA LEVELS
 - TEST PROCEDURE FOR SPL
 - PIPING INSULATION
 - INTAKES, EXHAUSTS, RELIEFS
 - REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALL COMPOSITIONS.
 - MINIMUM TEMPERATURE TO BE MAINTAINED DURING HEATING SEASON: 70°F. WHEN 0°F. OUTSIDE WITH 15 MPH WIND. HEATING REQUIREMENTS PER 27-740.
 - A STATEMENT WILL BE FILED BY THE OWNER THAT THE VENTILATING SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION DURING NOMINAL OCCUPANCY OF THE PREMISES.
 - THE VENTILATION INDEX FOR ALL AREAS COMPLIES WITH THE MINIMUM CODE REQUIREMENTS (27-753, 27-754). ALL CALCULATIONS OF VENTILATION INDEX MADE WITHOUT TAKING ANY CREDIT FOR EXTERIOR WINDOWS AND/OR OPENINGS.
 - DETAIL OF DUCT SUPPORTS: (FOR NEW BUILDING)
 
 - SEE NOTE 2.A. ABOVE FOR HANGERS, BRACINGS, ETC.
 - UNLESS OTHERWISE NOTED, ALL DUCTS SHALL BE CONSTRUCTED OF GALVANIZED IRON.
 - ABOVE APPLIES TO NEW BUILDING AND EXISTING BUILDING WHERE FLAT SLABS ARE AVAILABLE. THIS DETAIL DOES NOT APPLY TO EXISTING BUILDING WHERE 'REPUBLIC' BLOCK SLABS ARE USED. SEE DETAIL DRAWINGS FOR HANGER DETAILS IN THIS AREA.
 - MECHANICAL EQUIPMENT LOCATED OUTSIDE OF THE BUILDING OR WHERE EQUIPMENT OPENS TO THE EXTERIOR OF THE BUILDING SHALL BE SUBJECT TO THE NOISE LIMITATIONS OF 27-770

GENERAL NOTES

- ALL LOW PRESSURE TERMINAL BRANCH DUCTWORK (SUPPLY AND RETURN) SHALL BE PROVIDED WITH VOLUME CONTROL DAMPERS.
- ALL METAL LOUVERS, AND ALL BLANK OFF PANELS (INSULATED DR NOT INSULATED, ACTIVE OR INACTIVE) FOR LOUVERS SHALL BE PROVIDED UNDER THIS SECTION OF THE SPECIFICATIONS. WIRE MESH SCREENS FOR LOUVERS SHALL BE PROVIDED BY THE LOUVER MANUFACTURER. ALL OTHER WIRE MESH SCREENS SHALL BE PROVIDED UNDER THIS SECTION OF THE SPECIFICATIONS.
- ALL 2 HOUR RATED ENCLOSURES FOR DUCTWORK ARE TO BE UL 273 RATED WITH A MINIMUM OF 2" OF VERMICULITE AND PLASTER, OR 1-1/2" OF CALCIUM SILICATE BLOCK, OR 2 LAYERS OF 5/8" GYPSUM WALLBOARD.
- BORDER TYPES, COLORS, FINISHES, AND METHOD OF ATTACHMENT FOR ALL DIFFUSERS, GRILLES AND REGISTERS SHALL BE COORDINATED WITH THE ARCHITECTURAL CEILING DETAILS AND SPECIFICATIONS. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATIONS OF ALL AIR DEVICES.
- ALL MANSORY OPENINGS/WALL OPENINGS SHOWN ON THE PLANS SHALL BE LOCATED ABOVE THE APPROPRIATE HUNG CEILING LINE UNLESS OTHERWISE NOTED.
- THERMOSTATS SHOULD BE LOCATED 5'-0" A.F.F. AND 9" FROM EDGE OF DOOR U.O.M. FINAL LOCATIONS TO BE VERIFIED WITH THE ARCHITECT. FINISHED PAINT COLOR TO BE SELECTED BY THE OWNER.
- WHERE PIPING CONNECTIONS FOR EQUIPMENT SUCH AS PUMPS, AC UNITS, COILS, ETC. DIFFER FROM THE LINE SIZE PIPING, IT SHALL BE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO FURNISH AND INSTALL THE NECESSARY REDUCER/EXPANDER FITTINGS TO ENABLE CONNECTION BETWEEN THE PIPING SYSTEM AND EQUIPMENT.
- REFER TO DRAWINGS FOR CONNECTION DETAILS TO ALL DEVICES.

BUILDING DEPARTMENT NOTE

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.



HVAC ABBREVIATIONS

A	AMPERES	TR	TOP REGISTER
AC	AIR CONDITIONING	TRG	TRANSFER GRILLE
ACCU	AIR COOLED CONDENSING UNIT	TS	TIP SPEED
ACS	AUTOMATIC CONTROL SYSTEM	TT	TOP THROUGH
ACU	AIR CONDITIONING UNIT	TV	TURNING VANES
AD	ACCESS DOOR	TYP	TYPICAL
AF	AFTER FILTER	TX	TOILET EXHAUST
AFF	ABOVE FINISHED FLOOR	UH	UNIT HEATER
AHU	AIR HANDLING UNIT	V	VOLTS
AL	ALUMINUM	VD	VOLUME DAMPER
AMCS	AUTOMATIC MONITORING CONTROL SYSTEM	VV	VARIABLE INLET VANES
AP	ACCESS PANEL	W	WIDTH
BC	BOTTOM GRILLE	W/O	WITHOUT
BHP	BRAKE HORSEPOWER	WB	WET BULB
BI	BLACK IRON	WC	WATER COLUMN
BR	BOTTOM REGISTER	WG	WATER GAUGE
BT	BOTTOM THROUGH	WMS	WIRE MESH SCREEN
BTU	BRITISH THERMAL UNIT	WP	WORKING PRESSURE
BTU/H	BTU PER HOUR	WSP	WORKING STEAM PRESSURE
CC	COOLING COIL		
CCP	CENTRAL CONTROL PANEL		
CD	CEILING DIFFUSER		
CFM	CUBIC FEET PER MINUTE		
CG	CEILING GRILLE		
CLG	CEILING		
COO	CLEAN-OUT DOOR		
COMPR	COMPRESSOR		
COND	CONDENSATE		
CPA	CONTROL POINT ADJUST		
CR	CEILING REGISTER		
CT	COOLING TOWER		
CU	COPPER		
CU FT	CUBIC FEET		
CU IN	CUBIC INCHES		
CUH	CABINET UNIT HEATER		
CWP	CONDENSER WATER PUMP		
D	DROP		
DB	DRY BULB		
DHW	DOMESTIC HOT WATER		
DIAM	DIAMETER		
DN	DOWN		
DWG	DRAWING		
DX	DIRECT EXPANSION		
EA	EXHAUST AIR		
EAT	ENTERING AIR TEMPERATURE		
EDB	ENTERING DRY BULB TEMPERATURE		
EDH	ELECTRIC DUCT HEATER		
EDR	EQUIVALENT DIRECT RADIATION		
EF	EXHAUST FAN		
EL	ELEVATION		
ELEC	ELECTRIC		
EQ	EQUAL		
EUH	ELECTRIC UNIT HEATER		
EWB	ENTERING WET BULB		
EW	ENTERING WATER TEMPERATURE		
EXH	EXHAUST		
EXP	EXPANSION		
F	FEET		
F	DEGREES FAHRENHEIT		
F&T	FLOAT AND THERMOSTATIC		
FA	FREE AREA (SQ. FT.)		
F.A.	FACE AREA		
FC	FLEXIBLE CONNECTION		
FCU	FAN COIL UNIT		
FD	FIRE DAMPER		
FD	FINAL FILTER		
FG	FINISHED GRADE		
FIN FL	FINISHED FLOOR		
FLA	FULL LOAD AMPERES		
FL	FLOOR DRAIN		
FPI	FINS PER INCH		
PPM	FEET PER MINUTE		
PPS	FEET PER SECOND		
FR	FLOOR REGISTER		
FT	FEET		
FTR	FINNED TUBE RADIATION		
FV	FACE VELOCITY		
G	GAUGE		
GAL	GALLON		
GPH	GALLONS PER HOUR		
GPM	GALLONS PER MINUTE		
GEN	GENERAL EXHAUST		
H	HEIGHT		
HC	HEATING COIL		
HD	HEAD		
HR	HOUR		
HWP	HOT WATER PUMP		
HV	HEATING AND VENTILATING		
HZ	FREQUENCY		
IN	INCH OR INCHES		
IPS	IRON PIPE SIZE		
KW	KILOWATT		
KX	KITCHEN RANGE HOOD EXHAUST		
L	LENGTH		
LAT	LEAVING AIR TEMPERATURE		
LBS	POUNDS		
LOP	LOCAL CONTROL PANEL		
LDB	LEAVING DRY BULB TEMPERATURE		
LN FT	LINEAR FEET		
LWB	LEAVING WET BULB		
LWT	LEAVING WATER TEMPERATURE		
MAX	MAXIMUM		
MB	MIXING BOX		
MBH	THOUSAND BTU PER HOUR		
MCC	MOTOR CONTROL CENTER		
MER	MECHANICAL EQUIPMENT ROOM		
MHP	MOTOR HORSEPOWER		
MM	MINIMUM		
MM	MILLIMETER		
MOT	MOTOR		
NC	NORMALLY CLOSED		
NIC	NOT IN CONTRACT		
NO	NORMALLY OPEN		
NO.	NUMBER		
NPSH	NET POSITIVE SUCTION HEAD		
NTS	NOT TO SCALE		
OA	OUTSIDE AIR		
OA	OUTSIDE AIR INTAKE		
OD	OUTSIDE DIAMETER		
OV	OUTLET VELOCITY		
PD	PRESSURE DROP		
PF	PRE-FILTER		
PCO	PRE-COOLING COIL		
PHC	PREHEAT COIL		
PRV	PRESSURE REDUCING VALVE		
PSI	POUNDS PER SQUARE INCH		
PSIA	PSI ABSOLUTE		
PSIG	PSI GAUGE		
PVC	POLYVINYL CHLORIDE		
R	RISE		
RA	RETURN AIR		
RAD	RADIATION		
RCC	RECOOLING COIL		
REFR	REFRIGERANT		
RF	RETURN FAN		
RH	RELATIVE HUMIDITY		
RHC	REHEAT COIL		
RM	ROOM		
ROT	ROTATION		
RPM	REVOLUTIONS PER MINUTE		
SA	SOUND ATTENUATION UNIT		
SCHWP	SECONDARY CHILLED WATER PUMP		
SF	SUPPLY FAN		
SLD	STRIPLINE DIFFUSER		
SP	STATIC PRESSURE		
SPEC	SPECIFICATION		
SS	STAINLESS STEEL		
THRO	THROAT		
TDH	TOTAL DYNAMIC HEAD		
TEMP	TEMPERATURE		
TF	TERMINAL FILTER		
TG	TOP GRILLE		

PIPING SYMBOLS

	FLOW CONTROL VALVE
	QUICK CLOSING VALVE WITH FUSIBLE LINK
	DIAPHRAGM VALVE
	SOLENOID VALVE
	ELECTRIC MOTORIZED VALVE OPERATOR
	PNEUMATIC VALVE OPERATOR
	Y TYPE STRAINER
	SINGLE BASKET STRAINER
	DUPLEX BASKET STRAINER
	AUTOMATIC AIR VENT
	MANUAL AIR VENT
	VIBRATION ISOLATOR IN HANGER
	THERMOMETER WELL
	THERMOMETER AND WELL
	PRESSURE GAUGE
	DANFOSS VALVE
	CONTROL VALVE STATION
	PUMP
	SEPARATOR
	FILTER, IN LINE
	FLOW METER
	AQUASTAT
	FLOW SWITCH
	FLANGED FITTING
	SCREWED FITTING
	WELDED FITTING
	STOP CHECK VALVE
	ANGLE STOP CHECK VALVE
	EXISTING PIPING
	FLEXIBLE CONNECTION
	FLEXIBLE HOSE
	PIPE IN UNDERGROUND CONDUIT
	PIPE DROP
	PITCH UP IN DIRECTION OF FLOW
	PITCH DOWN IN DIRECTION OF FLOW
	UNION
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER, FLAT BOTTOM
	ECCENTRIC REDUCER, FLAT TOP
	FLANGED CONNECTION
	FLANGED END
	DEAD END, SCREWED CAP
	DEAD END, WELDED CAP
	EXPANSION LOOP
	PIPE EXPANSION JOINT
	BALL JOINT
	PIPE ALIGNMENT
	PIPE ANCHOR
	GATE VALVE
	ANGLE GATE VALVE
	GLOBE VALVE
	ANGLE GLOBE VALVE
	NEEDLE VALVE COCK
	DRAIN VALVE
	LOCK SHIELD VALVE
	CHECK VALVE, SWING OR LIFT
	BUTTERFLY VALVE
	BALL VALVE
	SQUARE HEAD COCK
	BALANCING VALVE
	PLUG VALVE (TYPE AS NOTED)
	RELIEF VALVE
	SAFETY VALVE
	PRESSURE REDUCING VALVE
	AUTOMATIC CONTROL VALVE
	THREE-WAY AUTOMATIC CONTROL VALVE
	PUMPED CONDENSATE RETURN
	CONDENSER WATER SUPPLY
	CONDENSER WATER RETURN
	VENT OR ATMOSPHERIC RELIEF
	HOT WATER SUPPLY
	HOT WATER RETURN

DRAWING LIST

M-1	SYMBOLS, ABBREVIATIONS, NOTES & DRAWING LIST
M-2	MECHANICAL FIRST FLOOR PLAN
M-3	MECHANICAL SECOND & THIRD FLOOR PLANS
M-4	MECHANICAL ROOF PLAN
M-5	MECHANICAL WATER RISER DIAGRAM
M-6	MECHANICAL EQUIPMENT SCHEDULES
M-7	MECHANICAL DETAILS I
M-8	MECHANICAL DETAILS II
M-9	MECHANICAL MER PART PLAN AND SECTIONS

HVAC SYMBOL LIST

	NEW SINGLE LINE DUCTWORK
	EXISTING SINGLE LINE DUCTWORK
	DUCT UNDER PRESSURE (SUPPLY AIR OR FAN DISCHARGE)
	DUCT UNDER NEGATIVE PRESSURE (RETURN, EXHAUST OR OUTSIDE AIR)
	VOLUME DAMPER
	FIRE DAMPER AND ACCESS DOOR
	BACK DRAFT DAMPER
	AUTOMATIC DAMPER (ELECTRICAL)
	RISER IN DUCTWORK (IN DIRECTION OF AIR FLOW)
	DROP IN DUCTWORK (IN DIRECTION OF AIR FLOW)
	CENTER LINE
	CUBIC FEET PER MINUTE
	DIAMETER
	SQUARE FEET
	LOUVER IN DOOR, MINIMUM 1.0 SQUARE FOOT FREE AREA
	UNDERCUT DOOR
	POINT OF CONNECTION
	POINT OF DISCONNECTION
	TYPE A CEILING DIFFUSER (400)
	400 CFM SUPPLY AIR
	10x8 CEILING REGISTER (400)
	300 CFM RETURN AIR
	10"x6" TOP REGISTER, 150 CFM SUPPLY AIR
	10"x6" TOP REGISTER (TOP GRILLE) 150 CFM RETURN AIR
	VANED ELBOW (SEE DETAIL)
	VANED ELBOW (SEE DETAIL) OR RADIUS ELBOW
	RADIUS ELBOW
	SEE DUCT DETAILS FOR TYPE OF BRANCH CONNECTION
	DUCT FLEXIBLE CONNECTION
	VERTICAL DUCT DROP
	VERTICAL DUCT RISE
	THERMOSTAT
	SMOKE DETECTOR
	PRESSURE SENSOR
	ROUND ELBOW WITH VANES
	24"x6" TOP RETURN REGISTER (300 CFM)
	300 CFM RETURN AIR
	14"x12" TRANSFER GRILLE
	CENTRIFUGAL FAN