



REVISIONS

Δ	DESCRIPTION	DATE



GENERAL MECHANICAL NOTES

- ALL WORK SHALL BE IN COMPLIANCE WITH STATE AND LOCAL CODES.
- THE CONTRACTOR SHALL PAY FOR ALL FEES, PERMITS, LICENSES, ETC., NECESSARY FOR PROPER COMPLETION OF THE WORK.
- INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- VERIFY ALL EXISTING CONDITIONS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN CONTRACT DRAWINGS AND ACTUAL CONDITIONS.
- EXISTING UTILITIES TO BE ABANDONED SHALL BE PROPERLY DISCONNECTED AND CAPPED AS REQUIRED BY CODE OR LOCAL ORDINANCE.
- THESE DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. ADDITIONAL DATA SHALL BE FROM THE ENGINEER THROUGH WRITTEN CLARIFICATION ONLY. VERIFY ALL EXISTING CONDITIONS, ELEVATIONS, AND DIMENSIONS BEFORE PROCEEDING WITH ANY PORTION OF ANY WORK. THE CONTRACTOR SHALL PROVIDE ALL OFFSETS AND TRANSITIONS REQUIRED TO MEET EXISTING CONDITIONS.
- THE CONTRACTOR SHALL PERFORM WORK IN A SKILLED AND PROFESSIONAL MANNER.
- ALL CONTRACTORS ARE RESPONSIBLE TO FIELD COORDINATE WORK SCHEDULE WITH OWNER REPRESENTATIVE.
- THE CONTRACTOR SHALL WORK AND COORDINATE WITH THE OTHER TRADES.
- ALL EQUIPMENT SHALL BE NEW AND IN UNDAMAGED CONDITION. ANY EQUIPMENT FOUND DEFECTIVE SHALL BE IMMEDIATELY REMOVED FROM THE PROJECT.
- PROVIDE 3 COPIES OF AN OPERATION AND MAINTENANCE MANUAL FOR ALL MAJOR EQUIPMENT REQUIRING SERVICE. MAJOR EQUIPMENT INCLUDES BUT IS NOT LIMITED TO COILS, FANS, AND CONTROL WIRING DIAGRAMS. EACH PIECE OF EQUIPMENT SHALL STATE THE CONTRACT DATE AND THE NAME, ADDRESS AND PHONE NUMBER FOR THE PRIME CONTRACTOR, SUBCONTRACTOR PERFORMING THE INSTALLATION, AND THE LOCAL VENDOR FOR SPARE PARTS. THE MANUALS SHALL CONTAIN MAINTENANCE INSTRUCTIONS REQUIRED FOR THE INSTALLED EQUIPMENT. MANUALS SHALL BE BOUND IN A THREE RING HARD COVER BINDER. O & M MANUALS SHALL BE SUBMITTED TO THE OWNER PRIOR TO FINAL WALK THROUGH OF THE PROJECT.
- PROVIDE 8 HOURS OF OWNER TRAINING FOR THE INSTALLED EQUIPMENT. TRAINING SHALL BE HELD ONLY AFTER ALL OF THE EQUIPMENT IS INSTALLED AND PROPER OPERATION IS VERIFIED.
- CONTRACTOR SHALL SUBMIT A CERTIFIED REPORT INDICATING SYSTEM PERFORMANCE INCLUDING, BUT NOT LIMITED TO, VOLTAGE AND AMPERAGE MEASUREMENTS OF ALL EQUIPMENT GREATER THAN 1/3 H.P. WATER BALANCE MEASUREMENTS OF EACH COIL AND PUMP. AIR BALANCE MEASUREMENTS OF OUTSIDE AIR DELIVERY, AIR HANDLING UNIT SUPPLY, SUPPLY DIFFUSERS, EXHAUST AND RETURN GRILLES. AIR BALANCE SHALL BE WITHIN 10% OF DESIGN CONDITIONS. THE REPORT CERTIFICATION SHALL BE AS FOLLOWS:

I (name of company) CERTIFY THAT ALL MEASUREMENTS, FIGURES AND STATEMENTS INDICATED IN THIS REPORT WERE TAKEN BY ME OR UNDER MY SUPERVISION AND ARE ACCURATE AS OF (date). DESIGN FLOWS WERE BASED UPON PLANS DATED (xxx/xx/xx).
- DUCT MATERIAL SHALL BE GALVANIZED OR ALUMINUM CONSTRUCTION IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARD 2005 FOR THE PRESSURE AND SEAL CLASS LISTED IN DUCTWORK/INSULATION SCHEDULE.
- DUCT SIZES LISTED ON PLANS ARE THE REQUIRED CLEAR INTERIOR DIMENSIONS.
- SUPPLY AND RETURN BRANCH DUCTS MAY BE INSULATED FLEX DUCT IF THE RUN IS LESS THAN 5 FEET IN LENGTH. ANY LENGTHS OVER 5 FEET SHALL BE RIGID DUCTWORK. DUCT SHALL BE THE SAME SIZE AS THE LISTED DIFFUSER THROAT UNLESS NOTED OTHERWISE.
- PROVIDE VOLUME CONTROL DAMPERS WHERE INDICATED AND AT ALL TAKEOFFS, BOTH SUPPLY AND RETURN SYSTEMS, AND MAJOR DUCT RUNS. DAMPERS SHALL BE FACTORY-FABRICATED WITH ZINC-PLATED, DIE-CAST CONTROL HARDWARE. CONTROL HARDWARE SHALL INCLUDE HEAVY GAUGE DIAL AND HANDLE WITH ELEVATED PLATFORM FOR INSULATED DUCT MOUNTING.
- PROVIDE TURNING VANES IN ALL RECTANGULAR ELBOWS CONFORMING TO SMACNA DUCT CONSTRUCTION STANDARD 2005 FIG. 4-2 TYPE RE-3 WITH STANDARD RADIUS. WHERE SPACE PERMITS, PROVIDE RADIUS ELBOWS IN ACCORDANCE WITH FIGURES 4-2, TYPE RE-1.
- ALL RECTANGULAR MAIN TO RECTANGULAR BRANCH CONNECTIONS, BOTH CONVERGING AND DIVERGING CONFIGURATIONS, SHALL HAVE A 45 DEG. ENTRY TAP CONSTRUCTED IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARD 2005 FIG. 4-6.
- DIFFUSER PATTERN 4-WAY UNLESS OTHERWISE INDICATED. PROVIDE FIBERGLASS DUCT INSULATION WITH VAPOR BARRIER AS SCHEDULED UNLESS NOTED OTHERWISE.
- MECHANICAL CONTRACTOR TO REPAIR ANY DAMAGE DONE TO THE FIRE PROOFING WHILE INSTALLING THE MECHANICAL TRADES. SEAL ALL PENETRATIONS THROUGH RATED STRUCTURES WITH UL LISTED FIRE SEAL DESIGNED FOR THE SPECIFIED APPLICATION.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE PUBLIC AND ADJACENT PROPERTIES FROM DAMAGE THROUGHOUT CONSTRUCTION.
- THE CONTRACTOR SHALL GUARANTEE ALL WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OR AS OTHERWISE REQUIRED IN THE SPECIFICATIONS.
- MECHANICAL CONTRACTOR TO INCLUDE THE TEST AND BALANCE, AND ANY PERMIT FEES IN THEIR BID.
- MECHANICAL CONTRACTOR SHALL VERIFY ALL ROOFTOP EQUIPMENT WEIGHTS, SIZES, LOCATIONS AND OPENINGS REQUIRED AND SHALL COORDINATE ANY CHANGES WITH THE ARCHITECT.
- UPON PROJECT COMPLETION, RECORD (AS-BUILT) DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR TO THE BUILDING OWNER. ALL CHANGES MADE TO EQUIPMENT, DUCTWORK, AND GENERAL DESIGN SHALL BE NOTED ON THE DRAWINGS. PROVIDE IN PDF FORMAT OR PRINTED SET AT THE OWNER'S REQUEST.

MECHANICAL SHEET INDEX

M000	MECHANICAL TITLE SHEET
MD101	MECHANICAL DEMOLITION PLAN - EAST
MD102	MECHANICAL DEMOLITION PLAN - WEST
M101	MECHANICAL PLAN - EAST
M102	MECHANICAL PLAN - WEST
M501	MECHANICAL DETAILS
M601	MECHANICAL SCHEDULES

MECHANICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)	PIPING
GENERAL		
Ⓢ	KEY NOTE TAG	-CWS&R- CONDENSER WATER SUPPLY & RETURN (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
△	REVISION TAG	-CWS- CONDENSER WATER SUPPLY
▨	NEW EQUIPMENT	-CWR- CONDENSER WATER RETURN
EQUIP-1	EQUIPMENT TAG	-CHWS&R- CHILLED WATER SUPPLY & RETURN (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
DUCTWORK		
▭	SUPPLY AIR DUCTWORK	-CHWS- CHILLED WATER SUPPLY
▭	RETURN AIR AND OUTSIDE AIR DUCTWORK	-CHWR- CHILLED WATER RETURN
▭	EXHAUST AIR DUCTWORK	-HWS&R- HOT WATER FOR HYDRONIC HEATING SUPPLY & RETURN (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
▭	FLEXIBLE DUCTWORK	-HWS- HOT WATER FOR HYDRONIC HEATING SUPPLY
▭	SUPPLY AIR DUCTWORK THROUGH HORIZONTAL PARTITION	-HWR- HOT WATER FOR HYDRONIC HEATING RETURN
▭	RETURN AIR DUCTWORK THROUGH HORIZONTAL PARTITION	-D- CONDENSATE DRAIN LINE
▭	EXHAUST AIR DUCTWORK THROUGH HORIZONTAL PARTITION	-AD- AUXILIARY CONDENSATE DRAIN LINE
⊗	ROUND DUCTWORK	-RLR- REFRIGERANT LIQUID & GAS RECIRCULATION LINE (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
▲	FIRE DAMPER (VERTICAL)	-RL- REFRIGERANT LIQUID LINE
▲	FIRE DAMPER (HORIZONTAL)	-HG- REFRIGERANT HOT GAS LINE
▲	SMOKE DAMPER (VERTICAL)	-RS- REFRIGERANT SUCTION LINE
▲	SMOKE DAMPER (HORIZONTAL)	-O- ELBOW UP
▲	COMBINATION FIRE & SMOKE DAMPER (VERTICAL)	-O- ELBOW DOWN
▲	COMBINATION FIRE & SMOKE DAMPER (HORIZONTAL)	↗ 90° ELBOW
▲	MANUAL BALANCING DAMPER (SEE DAMPER SCHEDULE)	↘ 45° ELBOW
▲	MOTORIZED DAMPER (SEE DAMPER SCHEDULE)	⊕ TEE
SENSORS		
⊕	THERMOSTAT AND TEMPERATURE SENSOR	⊕ TEE DOWN
⊕	HUMIDISTAT	⊕ TEE UP
⊕	SMOKE DETECTOR	⊕ TOP BRANCH CONNECTION
⊕	HEAT DETECTOR	⊕ BOTTOM BRANCH CONNECTION
AIR DEVICES		
⊕	GRILLE SIZE TAG (REFER TO GRILLE SIZE LEGEND)	⊕ FLANGE
⊕	SUPPLY AIR GRILLE WITH FOUR-WAY THROW	⊕ CAP
⊕	SUPPLY AIR GRILLE WITH THREE-WAY THROW	⊕ CONTINUATION
⊕	SUPPLY AIR GRILLE WITH TWO-WAY THROW	⊕ FLOOR DRAIN (REFER TO PLUMBING DRAWINGS)
⊕	SUPPLY AIR GRILLE WITH TWO-WAY CORNER THROW	⊕ GATE VALVE
⊕	SUPPLY AIR GRILLE WITH ONE-WAY THROW	⊕ GLOBE VALVE
⊕	RETURN AIR GRILLE	⊕ CHECK VALVE
⊕	RETURN AIR GRILLE WITH SOUND BOOT	⊕ BUTTERFLY VALVE
⊕	EXHAUST AIR GRILLE	⊕ BUTTERFLY VALVE WITH OPERATOR
⊕	SUPPLY AIR SIDEWALL GRILLE	⊕ PLUG VALVE
⊕	RETURN AIR SIDEWALL GRILLE	⊕ TWO-WAY CONTROL VALVE
⊕	RETURN AIR OPENING ABOVE CEILING	⊕ THREE-WAY CONTROL VALVE
RENOVATIONS		
⊕	POINT OF CONNECTION FROM NEW TO EXISTING	⊕ PRESSURE REDUCING VALVE
⊕	ITEM TO REMAIN	⊕ PRESSURE RELIEF VALVE
⊕	ITEM TO BE REMOVED	⊕ BALL VALVE
		⊕ STRAINER
		⊕ UNION
		⊕ THERMOMETER WELL
		⊕ PETE'S PLUG
		⊕ PRESSURE GAUGE
		⊕ TEMPERATURE SENSOR IN PIPE
		⊕ VENTURI FLOW METER
		⊕ FLOW SWITCH
		⊕ FLOW MEASURING STATION
		⊕ EXPANSION JOINT
		⊕ FLEXIBLE CONNECTION
		⊕ GAUGE COCK
		⊕ SITE GLASS
		⊕ DIFFERENTIAL PRESSURE SENSOR
		⊕ TURBINE FLOW METER
		⊕ ANCHOR
		⊕ PIPE GUIDE

ABBREVIATIONS

A	AMP	I/O	INPUT/OUTPUT
ADD	ADDENDUM	IN	INCH
ADJ	ADJUSTABLE	LAT	LEAVING AIR TEMPERATURE
AFF	ABOVE FINISH FLOOR	LB	POUND
AHU	AIR HANDLER UNIT	LWT	LEAVING WATER TEMPERATURE
AI	ANALOG INPUT	MAX	MAXIMUM
ALT	ALTERNATE	MBH	1000 BTU PER HOUR
AO	ANALOG OUTPUT	MC	MECHANICAL CONTRACTOR
APPRX	APPROXIMATE	MCA	MINIMUM CIRCUIT AMPS
ARCH	ARCHITECT, ARCHITECTURAL	MECH	MECHANICAL
BDD	BACK DRAFT DAMPER	MIN	MINIMUM
BLDG	BUILDING	MFR	MANUFACTURER
BTUH	BRITISH THERMAL UNIT PER HOUR	NTS	NOT TO SCALE
C	CENTER	OA	OUTSIDE AIR
CD	CEILING DIFFUSER	OC	ON CENTER
CFM	CUBIC FEET PER MINUTE	P	PUMP
CO	CLEAN OUT	PC	PLUMBING CONTRACTOR
COND	CONDENSATE	PLBG	PLUMBING
CONT	CONTINUOUS	PSI	POUNDS PER SQUARE INCH
COP	COEFFICIENT OF PERFORMANCE	QTY	QUANTITY
DB	DRY BULB	RA	RETURN AIR
DET	DETAIL	REQD	REQUIRED
DG	DOOR GRILLE	REV	REVERSE OR REVISION
DI	DIGITAL INPUT	RG	RETURN AIR GRILLE
DIA/Ø	DIAMETER	RPM	REVOLUTIONS PER MINUTE
DM	DIMENSION	RTU	ROOF TOP UNIT
DN	DOWN	SA	SUPPLY AIR
DO	DIGITAL OUTPUT	SQFT	SQUARE FEET
DWG	DRAWING	SG	SUPPLY GRILLE
EA	EXHAUST AIR	SP	STATIC PRESSURE
EAT	ENTERING AIR TEMPERATURE	SPEC	SPECIFICATIONS
EC	ELECTRICAL CONTRACTOR	SS	STAINLESS STEEL
EER	ENERGY EFFICIENCY RATIO	T&B	TEST AND BALANCE
EF	EXHAUST FAN	TEMP	TEMPERATURE OR TEMPORARY
EG	EXHAUST GRILLE	TG	TRANSFER GRILLE
ELEC	ELECTRICAL	TYP	TYPICAL
ERV	ENERGY RECOVERY VENTILATOR	V	VOLT
ESP	EXTERNAL STATIC PRESSURE	VAR	VARIABLE OR VARIES
EWT	ENTERING WATER TEMPERATURE	VEL	VELOCITY
EXIST	EXISTING	VFD	VARIABLE FREQUENCY DRIVE
FA	FRESH AIR	VTR	VENT THRU ROOF
FFM	FEET PER MINUTE	W/	WITH
FT	FOOT (FEET)	WIN	WITHIN
GA	GAUGE/GAGE	W/O	WITH OUT
GALV	GALVANIZED	WB	WET BULB
GC	GENERAL CONTRACTOR	WC	WATER COLUMN (INCHES OF)
GPM	GALLONS PER MINUTE	WT	WEIGHT
GYP	GYPSUM		
HORIZ	HORIZONTAL		
HP	HORSEPOWER		
HT	HEIGHT		