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# Midwestern State University Fain Fine Art - Ceramics Lab Ventilation

3410 Taft Blvd.  
Wichita Falls, TX 76308



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**ISSUES:**

ISSUED FOR REVIEW 09/11/2017  
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ADDENDUM #1 11-13-2017

**SHEET CONTENTS:**  
MECHANICAL NOTES  
AND DETAILS

**SHEET NUMBER:**

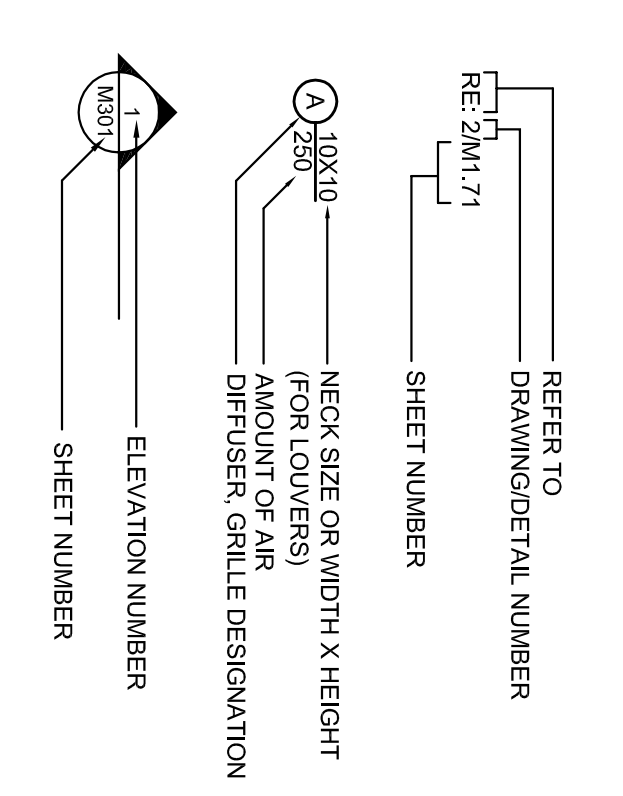
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**MECHANICAL SYMBOLS AND ABBREVIATIONS**

**ABBREVIATIONS**

AD	ACCESS DOOR	L	LENGTH
AC	AIR CONDITIONING UNIT	LAT	LEAVING AIR TEMPERATURE
AE	ARCHITECT/ENGINEER	LPC	LOW PRESSURE CONDENSATE
AF	ABOVE FINISHED FLOOR	LPS	LOW PRESSURE STEAM
AG	AIR HANDLING UNIT	LRA	LOOKED MOTOR AIPS
AH	APPROXIMATE	LRT	LEAVING WATER TEMPERATURE
APPROX	BUILDING AUTOMATION SYSTEM	MAX	MAXIMUM
BAS	BRAKE HORSE POWER	MBH	1000 BRITISH THERMAL UNITS / HOUR
BHP	BRITISH THERMAL UNIT PER HOUR	MCA	MANUAL CIRCUIT APPACITY
BTU	COOLING CAPACITY	MFR	MANUFACTURER
CA	CUBIC FEET PER MINUTE	N/A	NOT APPLICABLE
CFM	CUBIC FEET PER MINUTE	NO/NC	NORMALLY OPEN, NORMALLY CLOSED
CLG	CEILING	O/A	OUTSIDE AIR/FRESH AIR
CG	CONDENSING UNIT	OBD	OPPOSED BLADE DAMPER
DG	DRY BULB	PEF	PHASE EXHAUST FAN
DB	DUST COLLECTOR SYSTEM	PH	PHASE
DCS	EXISTING	PRV	FURNISH AND INSTALL PRESSURE REDUCING VALVE
(E)	ENTERING AIR TEMPERATURE	PSI	POUNDS PER SQUARE INCH
EAT	EXHAUST DUCT HEATER	RA	RETURN AIR
EH	EXHAUST FAN	REF	REFRESH AIR
EF	EQUIPMENT	RL	REFRIGERANT LIQUID
EQUIP	ENTERING WATER TEMPERATURE	R/LA	ROOM
F	DEGREES FAHRENHEIT	RM	ROOM
FLOOR	DEGREES PER MINUTE	RPM	REVOLUTIONS PER MINUTE
FLR	FAN POWERED VAV	RS	SMOKE DETECTOR
FS	FIRE SMOKE DAMPER	SF	SQUARE FOOT, SUPPLY FAN
FT	FEET	SP	SPECIFICATIONS
FT	FEET GAUGE	T, TSTAT	THERMOSTAT ROOM SENSOR
GA	U.S. GAUGE	THRU	THROUGH AIR
GPM	GALLONS PER MINUTE	TSP	TOTAL STATIC PRESSURE
H	HEIGHT	TS/AT	TYPICAL
HP	HORSEPOWER	UL	UNDERWRITERS LABORATORIES, INC.
HPC	HIGH PRESSURE CONDENSATE	V	VENT
HHR	HEATING WATER RETURN	VAV	VARIABLE AIR FLOW
HWS	HEATING WATER SUPPLY	VEL	VELOCITY
HZ	HERTZ	VFD	VARIABLE FREQUENCY DRIVE
IN.	INCH, INCHES	W	WITH
IN.	INCHES WATER GAUGE	WB	WEI BULB
IN.	INCHES WATER BOX	WB	WITHOUT
KW	KILOWATT	W/O	WITHOUT

**DRAWING/DETAIL REFERENCE**



**MISCELLANEOUS**

- 1 DRAWING NOTE REFERENCE (I.E. NOTES BY SYMBOL)
- 2 CONNECTION INTO EXISTING

**SYMBOLS**

SYMBOL	DESCRIPTION
	ACOUSTICAL DUCT LINING (FIGURES SHOWN ARE INSIDE DUCT DIMENSIONS)
	SUPPLY AIR DUCT UP (POSITIVE PRESSURE)
	RETURN EXHAUST OR OUTSIDE AIR INTAKE DUCT UP (NEGATIVE PRESSURE)
	SUPPLY AIR DUCT DOWN (POSITIVE PRESSURE)
	RETURN EXHAUST OR OUTSIDE AIR INTAKE DUCT DOWN (NEGATIVE PRESSURE)
	ROUND DUCT UP
	ROUND DUCT DOWN
	ARROW INDICATES DIRECTION OF AIR FLOW
	CHANGE OF ELEVATION, RISE(UP) OR DROP (DN) IN DIRECTION OF ARROW
	ACCESS DOOR, SIDE, SIZE AS NOTED OR SPECIFIED
	ACCESS DOOR, BOTTOM, (UNLESS OTHERWISE NOTED) SIZE AS NOTED OR SPECIFIED
	RECTANGULAR DUCT SQUARE ELBOW WITH TURNING VANES
	RECTANGULAR DUCT RADIUS ELBOW
	ROUND DUCT RADIUS ELBOW
	TRANSITION CONCENTRIC UNLESS TOP LEVEL(TOP LV) OR BOTTOM LEVEL(BOT LV) IS NOTED
	TRANSITION, RECTANGULAR TO ROUND CONCENTRIC UNLESS TOP LEVEL (TOP LV) OR BOTTOM LEVEL (BOT LV) IS NOTED
	DUCT FLEXIBLE CONNECTION
	SOUND ATTENUATOR
	SQUARE CEILING DIFFUSER (SUPPLY) (RETURN) UNLESS OTHERWISE INDICATED
	SQUARE CEILING GRILLE (RETURN OR EXHAUST)
	THERMOSTAT (OR) TEMP SENSOR
	DUCT SPLITTER WITH DAMPER
	MOTORIZED DAMPER
	MANUAL VOLUME DAMPER
	FIRE DAMPER

**GENERAL NOTES**

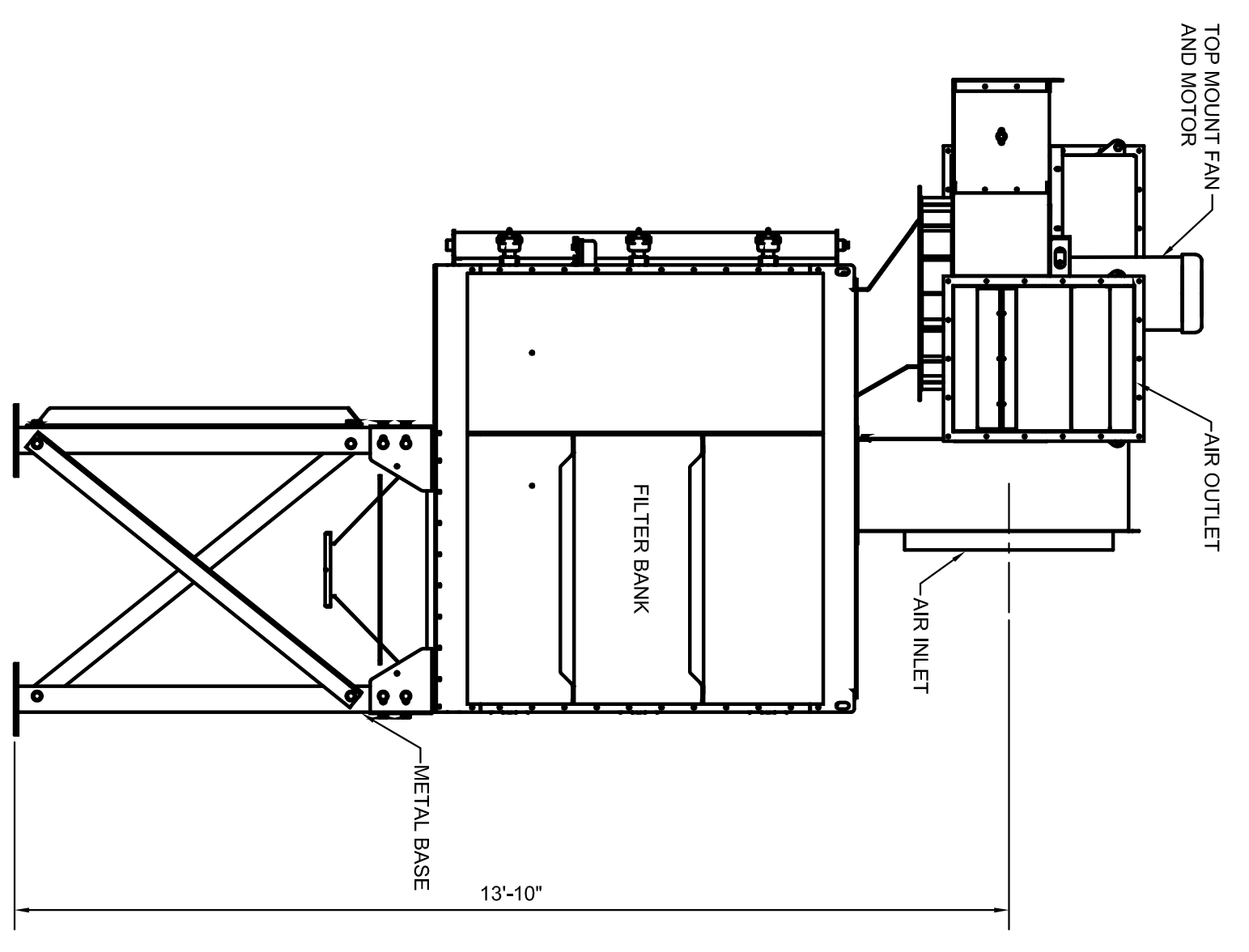
- PERFORM ALL WORK IN ACCORDANCE WITH ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION. PROVIDE ALL PERMITS, INSPECTIONS, LICENSES AND FEES. FURNISH ALL LABOR, EQUIPMENT, SUPPLIES AND MATERIALS NECESSARY TO PROVIDE COMPLETE AND OPERATIONAL SYSTEMS.
- THE DRAWINGS AND SPECIFICATIONS INDICATE THE GENERAL DESIGN AND ARRANGEMENT OF CHARACTER AND DOES NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DO NOT SCALE THE DRAWINGS FOR DIMENSIONS. TAKE ALL DIMENSIONS, MEASUREMENTS, EQUIPMENT LOCATIONS, LEVELS, ETC FROM THE ARCHITECTURAL DRAWINGS AND FROM THE DRAWINGS OR TO AVOID CONFLICTS WITH OTHER TRADES. THE DESIGN PRESENT IS THE PROPERTY OF SUMMIT CONSULTANTS, INC. AND IS TO BE USED ONLY FOR THE PROJECT IDENTIFIED WITHOUT THE APPROVAL OF THE ARCHITECT. THE COST OF THESE DEVIATIONS TO AVOID INTERFERENCES SHALL BE PART OF THE ORIGINAL CONTRACT BID.
- COORDINATE AND COOPERATE WITH ALL OTHER TRADES TO COORDINATE THEIR WORK. CONSTRUCTION SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO MATERIALS AND EQUIPMENT TO BE PROVIDED BY OTHER TRADES. NOTIFY THE ARCHITECT OF ANY CONFLICTS INCLUDING EQUIPMENT CLEARANCE, REQUIREMENTS, ELEVATIONS, AND DIMENSIONS OF STRUCTURAL MEMBERS AND OPENINGS, ETC. NOTIFY THE ARCHITECT OF ANY CONFLICTS.
- BASE FINAL INSTALLATION OF MATERIALS AND EQUIPMENT ON ACTUAL DIMENSIONS AND CONDITIONS AT THE PROJECT SITE. FIELD MEASURE FOR MATERIALS AND EQUIPMENT TO BE PROVIDED BY OTHER TRADES. NO EXTENDS WILL BE GIVEN FOR THE CONTRACTORS FAILURE TO FIELD COORDINATE.
- THE OWNER OR ENGINEER ARE NOT RESPONSIBLE FOR SAFETY PRECAUTIONS OR FOR MEANS, METHODS, TECHNIQUES, CONSTRUCTION SEQUENCES, OR PROCEDURES REQUIRED TO PERFORM THE WORK.
- LOCATE ALL EQUIPMENT THAT MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITIONS. EQUIPMENT SHALL INCLUDE, BUT NOT LIMITED TO, VALVES, MOTORS, CONTROLLERS, SWITCHGEAR, AND DRAIN POINTS IF REQUIRED FOR BETTER ACCESSIBILITY. FURNISH ACCESS DOORS FOR THIS PURPOSE. MINOR DEVIATIONS FROM THE DRAWINGS MAY BE ALLOWED TO PROVIDE FOR BETTER ACCESSIBILITY. ANY CHANGES SHALL BE APPROVED BY THE ARCHITECT PRIOR TO MAKING THE CHANGE.
- PROVIDE ACCESS DOORS, WALL OPENINGS, ROOF OPENINGS OR ANY OTHER CONSTRUCTION REQUIREMENT NEEDED TO ACCOMMODATE THE MECHANICAL EQUIPMENT. LOCATIONS OF THESE OPENINGS SHALL BE SUBMITTED IN SUFFICIENT TIME TO BE INSTALLED IN THE NORMAL COURSE OF WORK. ALL ACCESS DOORS SHALL HAVE GASKETS AND BE RATED FOR 10W.G.
- COORDINATE ELECTRICAL REQUIREMENTS OF APPROVED EQUIPMENT WITH ALL TRADES PRIOR TO THE PURCHASE AND INSTALLATION OF ANY ELECTRICAL GEAR OR CONDUIT.
- ALL DIMENSIONS SHOWN ON THE DRAWINGS FOR DUCTWORK ARE NET INSIDE CLEAR DIMENSIONS. FOR RECTANGULAR DUCT, THE FIRST FIGURE OF THE DUCT SIZE INDICATES THE DIMENSION OF THE FACE SHOWN. VERIFY THAT THE DUCTWORK SPECIFIED WILL FIT IN THE SPACE PROVIDED. THE SECOND FIGURE OF THE DUCT SIZE INDICATES THE DIMENSION OF THE OTHER FACE. VERIFY THAT THE DUCTWORK SPECIFIED WILL FIT IN THE SPACE PROVIDED. THE THIRD FIGURE OF THE DUCT SIZE INDICATES THE DIMENSION OF THE OTHER FACE. VERIFY THAT THE DUCTWORK SPECIFIED WILL FIT IN THE SPACE PROVIDED. THE DIMENSION OF THE OTHER FACE SHALL BE THE SAME AS THE DIMENSION OF THE OTHER FACE UNLESS OTHERWISE INDICATED.
- PROVIDE TURNING VANES ON ALL RECTANGULAR SUPPLY, EXHAUST AND RETURN DUCTWORK INCLUDING THE TOP AND BOTTOM OF VERTICAL DUCTS.
- PROVIDE A HEAVY DUTY, LOCKING, QUADRANT VOLUME DAMPER AT THE TOP OF EACH RUN-OUT TO DIFFUSERS FOR BALANCING PURPOSES, UNLESS OTHERWISE INDICATED. THE RUN-OUT DUCT SIZE IS THE SAME SIZE AS THE DIFFUSER OR GRILLE NECK SIZE UNLESS OTHERWISE INDICATED.
- ALL DUCTWORK SHALL BE SHEET METAL FABRICATED IN ACCORDANCE WITH SMACNA STANDARDS. ROUND DUCTWORK SHALL BE SPWAL TYPE WITH AT -10V/ASBESTOS WITH SEALING TO SMACNA CLASS A.
- PROVIDE VIBRATION ISOLATORS FOR MOTOR DRIVEN EQUIPMENT UNLESS NOTED OTHERWISE. PROVIDE ISOLATION AS INDICATED OR AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.
- SOME PIPES AND DUCTS SHOWN ON EACH FLOOR PLAN MAY BE SHOWN WITH AN OFFSET FOR CLARITY.
- SEAL ALL PIPE AND DUCT PENETRATIONS THROUGH FIRE RATED BUILDING ELEMENTS WITH AN APPROVED FIRE PROOFING MATERIAL.
- EXPAND OR REDUCE DUCTS AT EQUIPMENT CONNECTIONS BASED ON THE EQUIPMENT PURCHASED, WITH TRANSITIONS NOT TO EXCEED 30 DEGREES. SIZES SHOWN ON SCHEDULES, ETC. ARE FOR GUIDANCE ONLY. ASPECT RATIO SHALL BE NO GREATER THAN 4:1, PER SMACNA'S GUIDELINES.
- ALL DUCTS WITH A DIMENSION GREATER THAN 12" PASSING THRU A UNPATED WALL SHALL HAVE THE OPENING FRAMED IN WITH METAL STUDS. COORDINATE OPENING SIZE AND LOCATION WITH OTHER TRADES.
- TEST AND BALANCE SHALL BE PERFORMED BY AN AABC LICENSED FIRM IN THE TESTING, ADJUSTING, AND BALANCING (TAB) BUSINESS FOR A MINIMUM OF 10 YEARS. AABC FIRM SHALL SUBMIT A REPORT TO THE ENGINEER OF RECORD INDICATING EQUIPMENT NAME/PLATE DATA, TEST METHOD USED, TEST RESULTS, AND PERFORMANCE REPORT. PERFORMANCE REPORT TO JOB CLOSE-OUT. TAB SHALL BE PERFORMED IN A TIMELY FASHION PRIOR TO JOB CLOSE-OUT. TAB FIRM SHALL PERFORM A FUNCTIONAL PERFORMANCE TEST OF THE SYSTEM BASED ON THE CONTRACT DOCUMENTS HEREIN SHALL AND RELAY ALL DISCREPANCIES AND OUTSTANDING CONSTRUCTION ITEMS RELATING TO THE MECHANICAL EQUIPMENT AND PERFORMANCE TO THE ENGINEER OF RECORD.

**DUST COLLECTOR SCHEDULE**

MARK	LOCATION	CFM	TOTAL SP IN WG	MOTOR DATA HP	DRIVE VOLTS	PHI	MANUFACTURER AND MODEL NUMBER	REMARKS
DCS-1	EQUIPMENT YARD	4000	5.9	7.5	480	3	DOVALUSON TORIT DEB-6	1,2,3,4

- OR APPROV/ET EQUAL
- PROVIDE WITH TOP MOUNT DOVALUSON TORIT BACKWARD INCLINED FAN TB7/5 AND M/TCHING FAN MOTOR
- PROVIDE WITH DELTA PLUS CONTROL DISCONNECT
- PROVIDE WITH MATCHING SILENCER REFER TO UNISILENCER ORGNATATION

**2 DUST COLLECTOR DCS-1 SIDE ELEVATION**  
SCALE: NO SCALE



**1 DUST COLLECTOR DCS-1 FRONT ELEVATION**  
SCALE: NO SCALE

