



VAN BOERUM & FRANK ASSOCIATES INC. CONSULTING ENGINEERS

330 SOUTH 300 EAST SALT LAKE CITY, UT 84111



Original drawings remain the property of the Engineer and as such the Engineer retains total ownership and control.

UBATC Roosevelt HVAC Project AG Building HVAC UPGRADE 1100 East Lagoon Street ROOSEVELT, UTAH 84066

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UINTAH BASIN APPLIED TECHNOLOGY COLLEGE AG BUILDING HVAC UPGRADE

ROOSEVELT, UTAH



State of Utah-Department of Administrative Services DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

DFCM Project No. - 10048250

CODE ANALYSIS

Table with 4 columns: Code Name, Year, Code Name, Year. Includes International Building Code, Mechanical Code, Fire Code, Energy Conservation Code, National Electrical Code, Fuel Gas Code, ADA Accessibility Guidelines.

- A. Occupancy and Group: B
Change in Use: Yes No X Mixed Occupancy: Yes No X
Special Use and Occupancy (e.g. High Rise, Covered Mall): N/A
B. Seismic Design Category: N/A Design Wind Speed: N/A mph
C. Type of Construction (circle one): Existing Classified type IIN per 1979 drawings
D. Fire Resistance Rating Requirements for the Exterior Walls based on the fire separation distance (in hours):
North: 0 South: 0 East: 0 West: 0
E. Mixed Occupancies: NONE Nonseparated Uses:
F. Sprinklers: Required: Provided: X Type of Sprinkler System: EXISTING
G. Number of Stories: 1 Building Height: 15 FT
H. Actual Area per Floor (square feet):
I. Tabular Area: Main Level: 4,573 Sq. Ft Mezzanine: 1,915 SQ FT
J. Area Modifications:
a) Aa = A1 + [Af/100] + [As/100] If = 100 [F/P - 0.25] W/30
b) Sum of the Ratio Calculations for Mixed Occupancies: Actual Area / Allowable Area <= 1
c) Total Allowable Area for: 1) One Story: 2) Two Story: Aa(2) 3) Three Story: Aa(3)
d) Unlimited Area Building: Yes No X Code Section:
K. Fire Resistance Rating Requirements for Building Elements (hours).

Table with 4 columns: Element, Hours, Assembly Listing, Element, Hours, Assembly Listing. Lists Exterior Bearing Walls, Interior Bearing Walls, etc.

- L. Design Occupant Load: N/A - No occupants added
Exit Width Required: Exit Width Provided:
M. Minimum Number of Required Plumbing Facilities:
a) Water Closets - Required (m) (f) Provided (m) (f)
b) Lavatories - Required (m) (f) Provided (m) (f)
c) Bath Tubs or Showers:
d) Drinking Fountains: Service Sinks:

- FOOTNOTES:
1) In case of conflict with the U.S. Department of Justice Federal Registers Parts through V - ADA Guidelines and specific reference to the International Building Code Accessibility Chapters, the more restrictive requirement shall govern.
2) Additional Code Information shall be provided at the discretion of the Building Official for Complex Buildings. Including, but not limited to:
a) High Rise Requirements.
b) Atriums.
c) Performance Based Criteria.
d) Means or Egress Analysis.
e) Fire Assembly Locator Sheet.
f) Exterior and Interior Accessibility Route.
g) Fire Stopping, Including Tested Design Number.

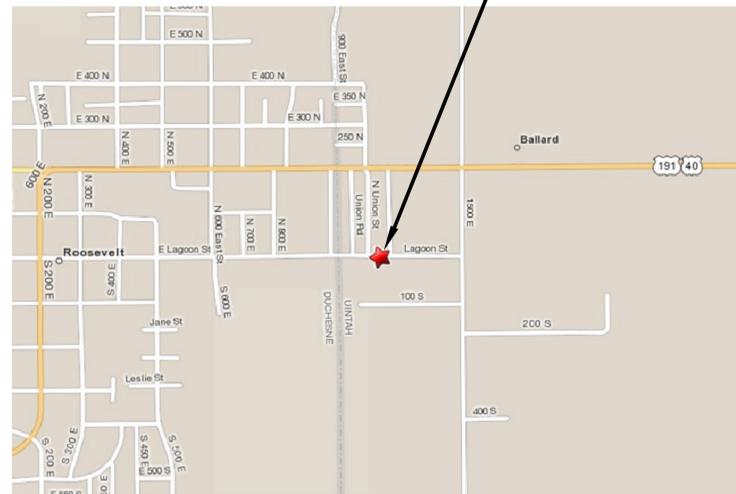
DESIGN TEAM PROJECT ENGINEER

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VICINITY MAP SITE LOCATION



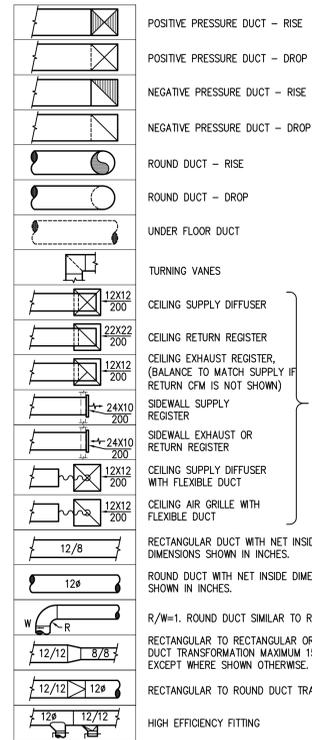
SITE LOCATION PLAN NOT TO SCALE

Table with 2 columns: REVISIONS, Description. Includes project number, checker, drawer, and date.

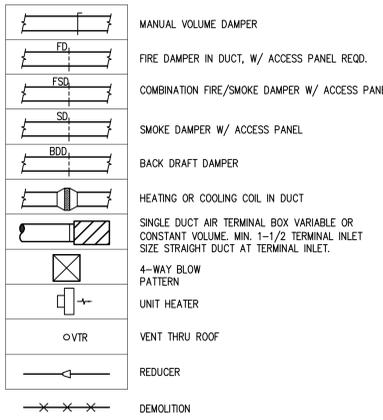
SHEET CONTENTS GENERAL PROJECT INFORMATION

# LEGEND OF MECHANICAL SYMBOLS AND ABBREVIATIONS

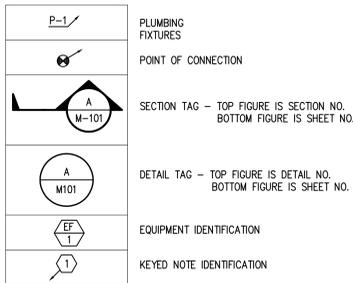
## MECHANICAL



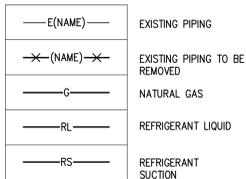
## MECHANICAL CONT.



## SYMBOLS



## LINETYPES



TOP FIGURES INDICATE NECK SIZE. BOTTOM FIGURE INDICATES CFM.

FAN SCHEDULE													
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	AIR		FAN		ELECTRICAL			PHYSICAL		NOTES
				MAXIMUM AIRFLOW RATE (CFM)	STATIC PRESSURE (IN. WATER)	OUTLET VELOCITY (FPM)	FAN SPEED (RPM)	MOTOR SIZE (HP)	MOTOR BHP (HP)	MOTOR SPEED (RPM)	VOLT/PH/Hz	DIAMETER/ HEIGHT (IN)	
EF-1	GREENHECK G8-091	ROOF	DOME - EXHAUST	775	0.4	806	1397	1/4	0.11	1725	120/1/60	24/25	(1)(2)(3)(6)
VF-1	GREENHECK AS-12-420-A	ROOF	DOME - SUPPLY	380	0.3	509	1750	1/4	0.06	1750	120/1/60	29/20	(1)(2)(4)(7)
VF-2	GREENHECK AS-12-420-A	ROOF	DOME - SUPPLY	400	0.3	509	1750	1/4	0.06	1750	120/1/60	29/20	(1)(2)(5)(7)

- ALL CONDITIONS RATED FOR 5,100 FEET ELEVATION.
- ROOF MOUNTED FAN COMPLETE WITH PREFABRICATED ROOF CURB, BACKDRAFT DAMPER (AS SPECIFIED BELOW), BIRDSCREEN, INTEGRAL THERMAL OVERLOAD PROTECTION, AND ELECTRICAL DISCONNECT.
- CONTROL: ON/OFF SWITCH BY DIVISION 26.
- CONTROL: INTERLOCK WITH FURNACE F-1 BY DIVISION 26.
- CONTROL: INTERLOCK WITH FURNACE F-2 BY DIVISION 26.
- DAMPER: GRAVITY BACKDRAFT
- DAMPER: MOTORIZED, EXTEND PIG-TAIL FROM FAN AND TO DAMPER. DAMPER SHALL MODULATE OPEN UPON FAN ACTIVATION.

GRILLES, REGISTERS AND DIFFUSERS				
ID	MANUFACTURER	MODEL	MAX NC	DESCRIPTION
CD-1	EH PRICE	SCDA	30	LOUVER FACE (4-CONE) CEILING DIFFUSERS. ADJUSTABLE AIR PATTERN. C.W./O.B.D. FRAME SHALL BE FOR SURFACE OR LAY-IN MOUNTING AS REQUIRED BY CEILING TYPE. LAY-IN FRAMES SHALL BE 24" x 24", 24" x 12" OR 12" x 12" AS REQUIRED TO FIT CEILING TILE SPACE AVAILABLE. PROVIDE ROUND NECK ADAPTER.
RG-1	EH PRICE	PDDR	30	PERFORATED FACE RETURN AIR UNIT, REMOVABLE FACE & CORE. FRAME SHALL BE FOR SURFACE OR LAY-IN MOUNTING AS REQUIRED BY CEILING TYPE. LAY-IN FRAMES SHALL BE 24" x 24", 24" x 12" OR 12" x 12" AS REQUIRED TO FIT CEILING TILE SPACE AVAILABLE. AIR QUANTITY SHALL MATCH ROOM SUPPLY UNLESS OTHERWISE NOTED.

DX COIL SCHEDULE								
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	AIR		DX			NOTES
			AIRFLOW RATE (CFM)	ENTERING TEMP. DB/WB (°F)	LEAVING TEMP. DB/WB (°F)	SEER	REFRIGERANT	
DX-1	YORK FC48C3XN1	F-1	1400	77.4/60.9	52.9/49.9	14.75	R410A	(1)(2)(3)(4)(5)
DX-2	YORK FC60C3XN1	F-2	1645	76.7/60.7	55.4/51.4	14.75	R410A	(1)(2)(3)(4)(5)

- COMPLETE WITH FACTORY BOX AND COIL.
- CAPACITIES BASED ON 5,100 FT. ELEVATION.
- COMPLETE WITH TXV KIT.
- DX COIL, CONDENSING UNIT, AND FURNACE SHALL BE PROVIDED BY THE SAME MANUFACTURER / SUPPLIER.
- SEE CONDENSING UNIT SCHEDULE FOR CORRESPONDING CONDENSING UNIT.

INFRARED HEAT SCHEDULE											
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	INPUT CAPACITY (BTUH)	FUEL TYPE	ELECTRICAL		PHYSICAL		NOTES	
						VOLTI/PH	STARTING CURRENT (AMPS)	RUNNING CURRENT (AMPS)	LENGTH (FT)		WEIGHT (LBS)
IH-1	RE-VERBER-RAY HL3-40-75	SHOP	TUBE	75,000	NAT. GAS	120/1	4.8	1.1	41	190	(1)(2)(3)
IH-2	RE-VERBER-RAY HL3-40-75	SHOP	TUBE	75,000	NAT. GAS	120/1	4.8	1.1	41	190	(1)(2)(3)(4)

- MOUNT PER MANUFACTURER'S RECOMMENDATIONS AS HIGH AS POSSIBLE.
- UNIT COMPLETE WITH 2-STAGE GAS VALVE, FACTORY WALL THERMOSTAT, ALUMINUM REFLECTORS, FACTORY GAS COCK, REFLECTOR END CAPS.
- CAPACITY AT SEA LEVEL.
- INSTALL AT 45 DEGREE MOUNTING ANGLE.

ELECTRIC COIL SCHEDULE												
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	USAGE	AIR		ELECTRICAL		PHYSICAL		NOTES		
				AIRFLOW RATE (CFM)	HEATING CAPACITY (BTUH)	ENTERING TEMP. DB/WB (°F)	LEAVING TEMP. DB/WB (°F)	MINIMUM KW	VOLTI/PH/Hz		AMPS	DUCT SIZE W x H (IN)
HC-1	WARREN SLSA	F-1	PREHEAT	380	12,287	-20	15.1	3.6	208/1/60	17.3	12/10	(1)(2)(3)(4)(5)
HC-2	WARREN SLSA	F-2	PREHEAT	400	12,287	-20	13.4	3.6	208/3/60	17.3	12/10	(1)(2)(3)(4)(5)

- UNIT COMPLETE WITH AIR PRESSURE SWITCH KIT.
- INTERLOCK HEATER WITH ASSOCIATED VENTILATION FAN.
- MECHANICAL CONTRACTOR TO PROVIDE DUCT MOUNTED THERMOSTAT DOWNSTREAM OF COIL. THERMOSTAT SHALL BE SET TO MAINTAIN THE SCHEDULED LEAVING AIR TEMPERATURE.
- EQUIPPED WITH THE FOLLOWING FACTORY OPTIONS: THERMAL SAFETY CUT-OUT, PILOT LIGHT, INSULATED CONTROL PANEL, FAN CONNECTION & RELAY ... AND ALL ASSOCIATED DEVICES NECESSARY TO INTERLOCK WITH ASSOCIATED VENTILATION FAN (115/1/60 VENTILATION FAN)
- ELECTRICAL DISCONNECT BY DIVISION 26.

GAS FIRED FURNACE SCHEDULE																		
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	INPUT LOAD (MBH)	OUTPUT LOAD (MBH)	AIRFLOW RATE (CFM)	OUTSIDE AIRFLOW RATE (CFM)	EXTERNAL STATIC PRESSURE DROP (IN H2O)	FLUE SIZE (IN)	AFUE EFFICIENCY	ASSOCIATED COOLING COIL	ASSOCIATED CONDENSING UNIT	ASSOCIATED VENTILATION FAN	ELECTRICAL			PHYSICAL		NOTES
													MIN CAPACITY	MAX OVERCURRENT PROTECTION	MOTOR SIZE (HP)	VOLTI/PH/Hz	LENGTH/ WIDTH/ HEIGHT (IN)	
F-1	YORK TMSV100C16MP11	MEZZANINE	100	76.4	1400	380	0.6	(2)	96	DX-1	CU-1	VF-1	11.5	20	3/4	115/1/60	29.5/21/33	(1)(2)(3)(4)
F-2	YORK TMSV100C16MP11	MEZZANINE	100	76.4	1645	400	0.6	(2)	96	DX-2	CU-2	VF-2	11.5	20	3/4	115/1/60	29.5/21/33	(1)(2)(3)(4)

- ALL CONDITIONS RATED AT 5,100 FEET ELEVATION.
- 2" PVC COMBUSTION AIR INTAKE AND 2" PVC EXHAUST. ALTERNATE MANUFACTURERS SHALL SIZE VENTS. EQUIPPED WITH CONCENTRIC VENT KIT.
- FURNACE COMPLETE WITH TWO STAGE GAS VALVE AND ECM BLOWER.
- PROVIDE BASYS CONTROLS S21050 365-DAY PROGRAMMABLE TEMP STAT WITH CLOCK, LOCKING COVER, AND AUTOMATIC HEATING AND COOLING CHANGE OVER & OCCUPIED/UN-OCCUPIED MODE. T-STAT SHALL BE CAPABLE OF ENABLING VENTILATION FAN. VENTILATION FAN SHALL ACTIVATE DURING OCCUPIED MODE, AND SHALL DE-ACTIVATE DURING UN-OCCUPIED MODE.

AIR COOLED CONDENSING UNIT SCHEDULE												
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	REFRIGERANT	NOMINAL CAPACITY (BTUH) (3)	SENSIBLE/TOTAL AT DESIGN CONDITIONS (MBH) (4)	EFFICIENCY SEER	ELECTRICAL			PHYSICAL		NOTES
							VOLTI/PH	MINIMUM CIRCUIT AMPACITY (MCA)	MAXIMUM OVERCURRENT PROTECTION (MOCP)	LENGTH/ WIDTH/ HEIGHT (IN)		
CU-1	YORK YCJF48S41S1	ROOF	R410A	48,000	29.9/39.2	14.75	208/1/60	27.9	45	34/34/36	(1)(2)(3)(4)	
CU-2	YORK YCJF48S41S1	ROOF	R410A	48,000	31.39/40.1	14.75	208/1/60	27.9	45	34/34/36	(1)(2)(3)(4)	

- ALL CONDITIONS RATED AT 5,100 FEET ELEVATION.
- COOLING CAPACITY RATED AT 92°F/65°F WB AMBIENT TEMPERATURE.
- CONDENSING UNIT'S RATED CAPACITY.
- SEE COOLING COIL SCHEDULE.

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Van Boerum & Frank Assoc., 2003

UBATC Roosevelt HVAC Project  
AG Building HVAC UPGRADE  
1100 East Lagoon Street  
ROOSEVELT, UTAH 84066

REVISIONS	

VSFA PROJECT #:	10230
CHECKED BY:	R.VERNON
DRAWN BY:	C.MORGAN
CURRENT/BID DATE:	08/06/10

SHEET CONTENTS  
**MECHANICAL SYMBOLS & SCHEDULES**

**M-001**

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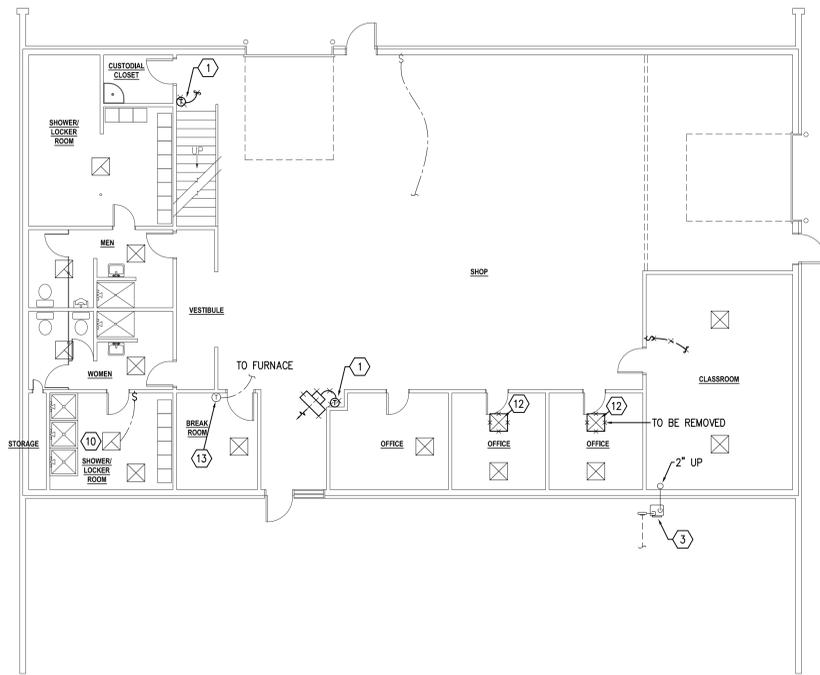
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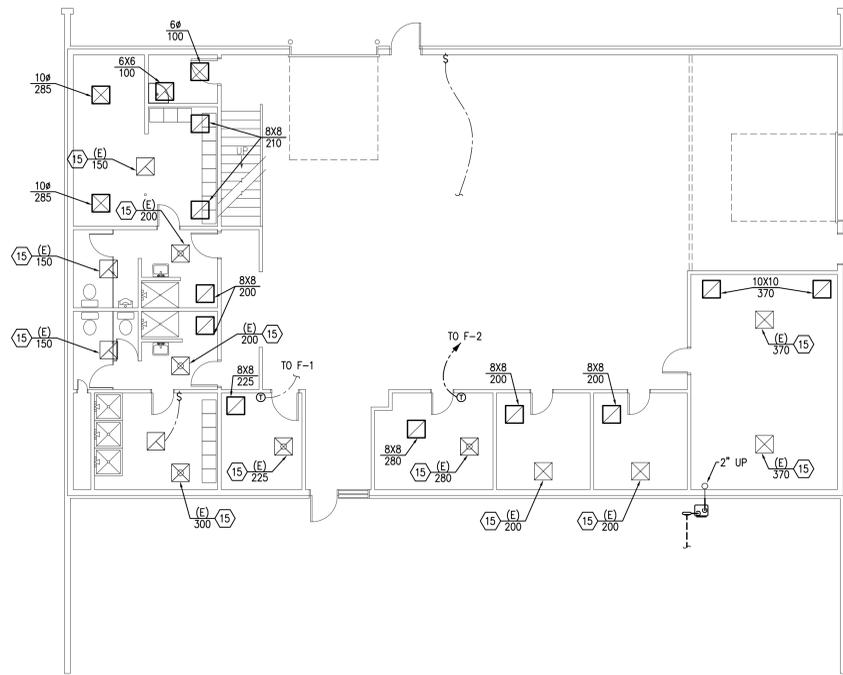
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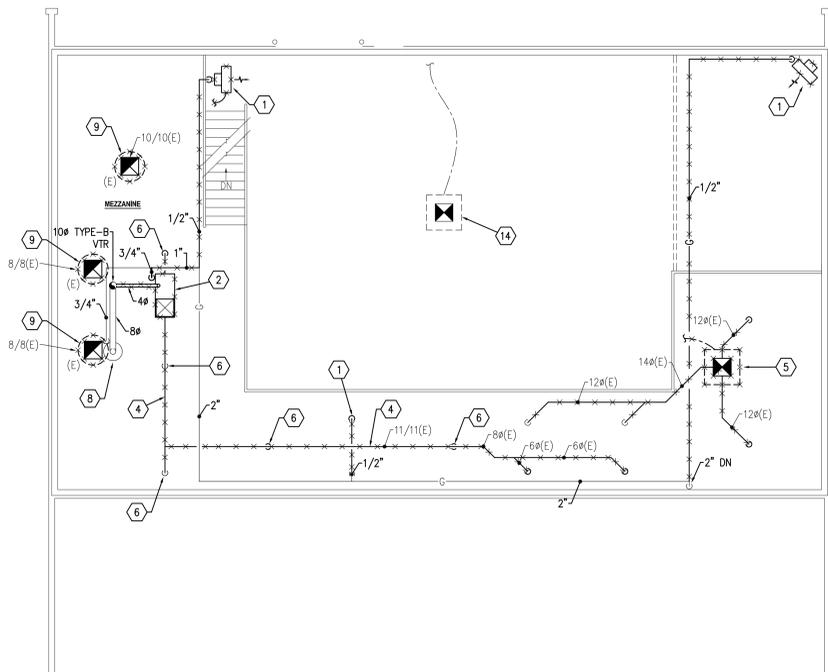
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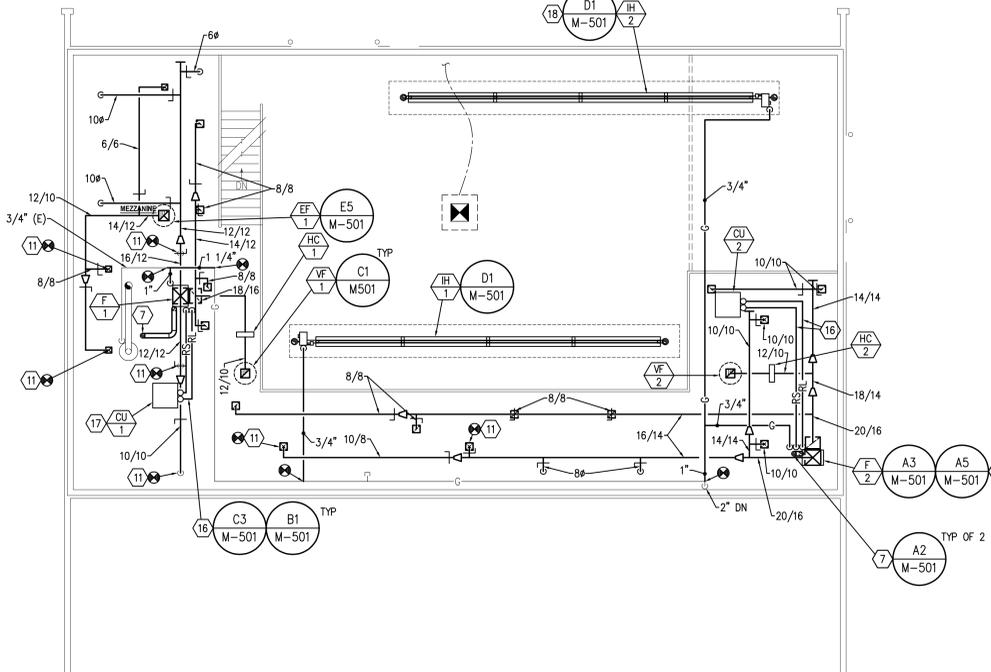
**MAIN LEVEL MECHANICAL DEMOLITION PLAN**  
SCALE: 1/8" = 1'-0"



**MAIN LEVEL MECHANICAL PLAN**  
SCALE: 1/8" = 1'-0"



**MEZZANINE MECHANICAL DEMOLITION PLAN**  
SCALE: 1/8" = 1'-0"



**MEZZANINE MECHANICAL PLAN**  
SCALE: 1/8" = 1'-0"



**KEYED NOTES**

- 1 DEMO AND REMOVE EXISTING GAS FIRED UNIT HEATER AND ASSOCIATED THERMOSTAT. REMOVE GAS PIPING AND CAP AS SHOWN.
- 2 REMOVE AND REPLACE EXISTING FURNACE AND ASSOCIATED ROOF MOUNTED VENTILATION FAN WITH NEW.
- 3 EXISTING 40Z GAS METER ON CONCRETE PAD TO REMAIN.
- 4 REMOVE EXISTING SECTION OF SUPPLY DUCT. SEE MECHANICAL PLAN FOR NEW LAYOUT.
- 5 REMOVE EXISTING ROOFTOP EVAPORATIVE COOLER AND ASSOCIATED SUPPLY DUCT WHERE SHOWN. PATCH & REPAIR ROOF.
- 6 11/11 SUPPLY DUCT DOWN TO SUPPLY GRILLE TO REMAIN.
- 7 2# PVC COMBUSTION AIR INTAKE AND EXHAUST FLUE UP TO CONCENTRIC VENT KIT. SEE DETAIL.
- 8 EXISTING GAS FIRED WATER HEATER TO REMAIN. SHOWN FOR INFORMATIONAL PURPOSES ONLY.
- 9 REMOVE AND REPLACE EXISTING ROOFTOP EXHAUST FAN WITH NEW.
- 10 EXISTING EXHAUST FAN TO REMAIN.
- 11 CONNECT TO EXISTING DUCT DROP TO DIFFUSER BELOW. BALANCE TO CFM NOTED.
- 12 DEMO AND REMOVE EXISTING CEILING GRILLE AS SHOWN. PATCH CEILING TO MATCH EXISTING.
- 13 REMOVE & REPLACE (E) T-STAT. SEE FURNACE SCHEDULE.
- 14 EXISTING ROOF MOUNTED EVAPORATIVE COOLER TO REMAIN. SHOWN FOR INFORMATIONAL PURPOSES ONLY.
- 15 BALANCE EXISTING GRILLE TO AIRFLOW NOTED.
- 16 REFRIGERANT LIQUID AND REFRIGERANT SUCTION LINES. SIZE PER MANUFACTURER'S RECOMMENDATIONS.
- 17 PROVIDE PVC DRAIN LINE FOR COOLING COIL AND CONDENSATE DRAIN FROM FURNACE. PIPE TO DRAIN.
- 18 INFRARED HEATER TO BE MOUNTED AT 45° ANGLE.



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REVISIONS

VSFA PROJECT #: 10230  
CHECKED BY: R.VERNON  
DRAWN BY: K.BEATTY  
CURRENT BID DATE: 08/06/10

SHEET CONTENTS  
**MECHANICAL PLAN**

**M-101**



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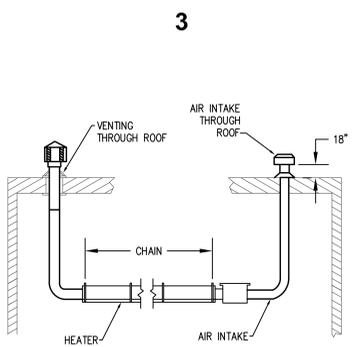
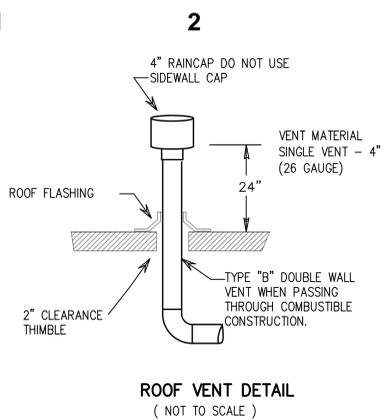
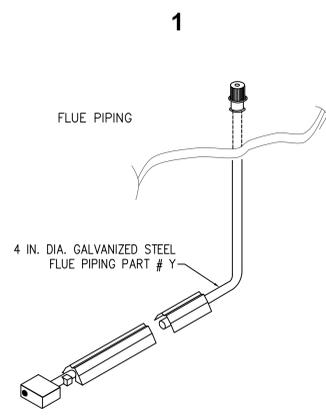
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MECHANICAL  
DETAILS

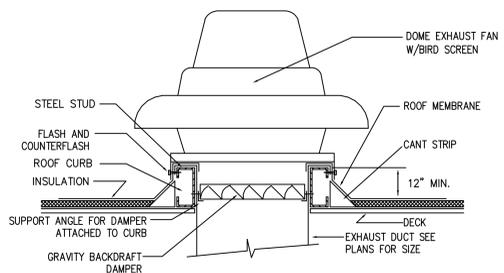
M-501



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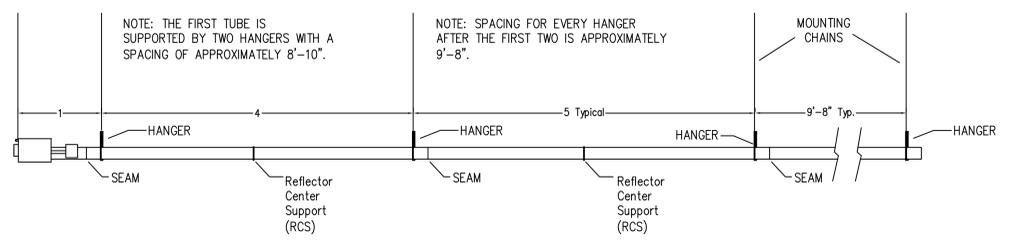
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E5 EXHAUST FAN DETAIL OR MOTORIZED WHERE SCHEDULED  
M-501 NO SCALE

E

D

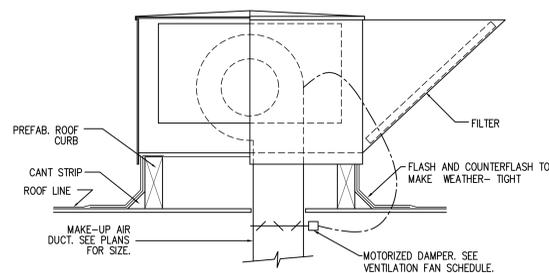


D1 RADIANT TUBE HEATER DETAIL  
M-501 NO SCALE

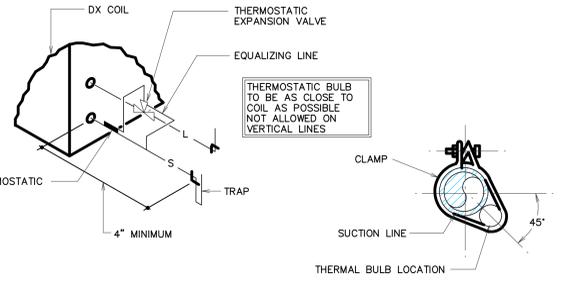
REFRIGERANT PIPING LEGEND

SYMBOL	DESCRIPTION
	EXPANSION VALVE.
	MOISTURE INDICATING SIGHT GLASS
	FILTER DRIER
	PIPE SUPPORT.
	EXTERIOR PIPE SUPPORT.
	TRAP. ONE PIECE FACTORY FABRICATED
	DIRECTION OF SLOPE DOWN
	SUCTION LINE
	LIQUID LINE

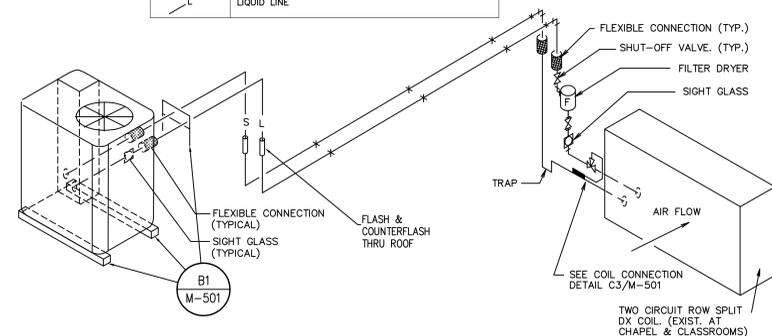
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C1 FILTERED SUPPLY FAN DETAIL  
M-501 NO SCALE

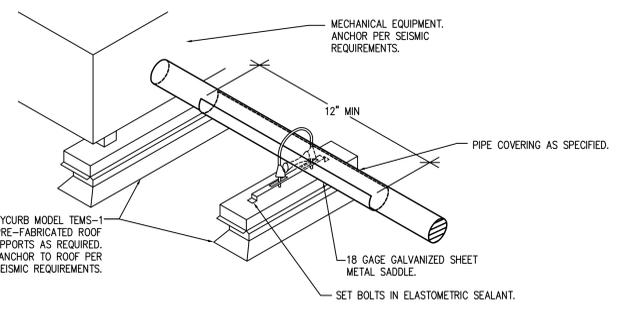


C3 REFRIGERANT COIL CONNECTION DETAIL  
M-501 NO SCALE

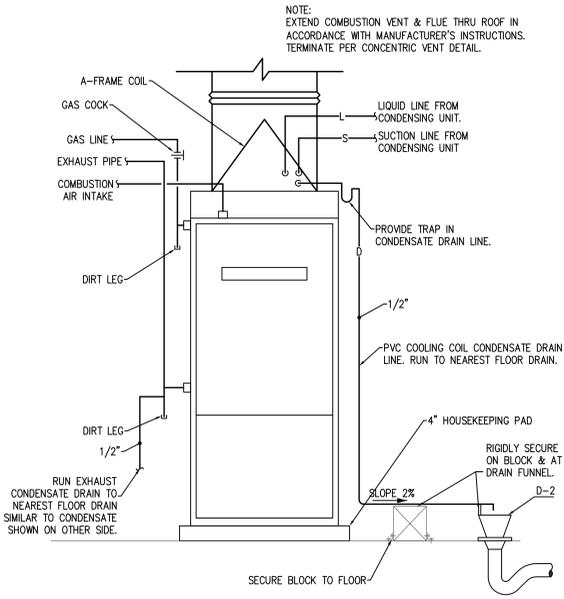


C5 REFRIGERANT SCHEMATIC  
M-501 NO SCALE

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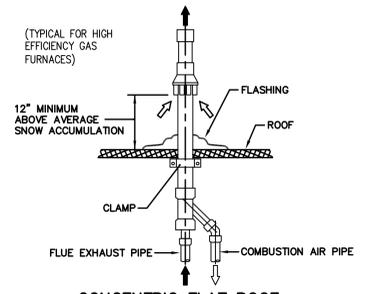


B1 ROOF PIPE SUPPORT  
M-501 NO SCALE

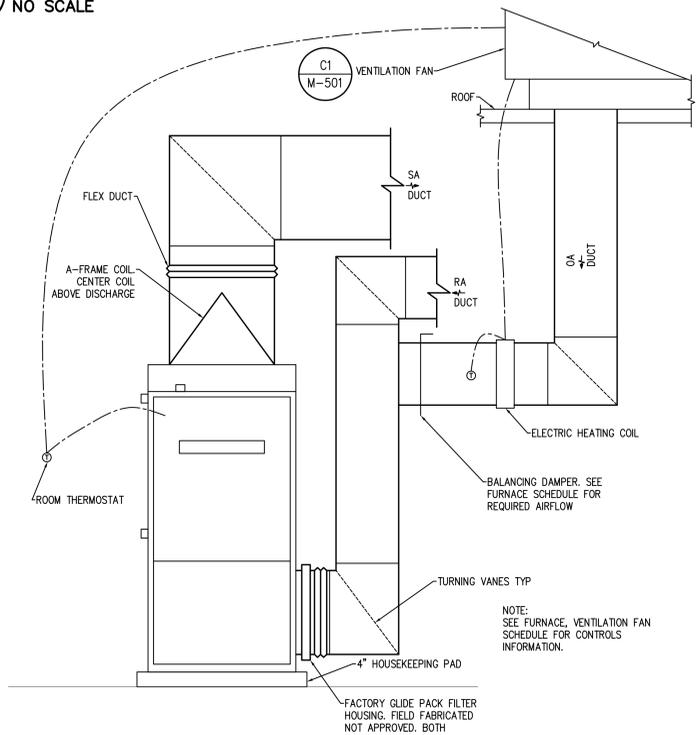


A3 FURNACE PIPING  
M-501 NO SCALE

A



A2 CONCENTRIC FLAT ROOF TERMINATION INSTALLATION  
M-501 NO SCALE



A5 FURNACE DUCTING  
M-501 NO SCALE