

Prepared for:

Department of Veterans Affairs  
Medical Center  
3200 Vine Street  
Cincinnati, OH 45220

## Logistics HVAC Modifications

VA Project Number

Heapy Engineering No. 2015-04025

Prepared by:



1400 W Dorothy Lane, Dayton, OH 45409-1310  
Ph 937-224-0861 Fax 937-224-5777 [www.heapy.com](http://www.heapy.com)

**Date: November 17, 2015**



## INTRODUCTION

This set of work instructions, along with all attachments, is intended to provide direction for modifying the HVAC system serving second floor Logistics. This work is to include switching the order of the heating and cooling coils in RTU-13, and adding a humidifier in the main duct serving Clean Supply Room B201. Specifications for VA Project No. 539-13-104, Relocate Kitchen and SPD, shall also apply and can be provided by COR.

## ROOFTOP AIR HANDLING UNIT RTU-13 HEATING AND COOLING COILS

### Background information:

RTU-13 was installed in 2008 on the roof, at the fourth floor level, to serve the third floor kitchen. RTU-13 ductwork is currently being modified under VA Project No. 539-13-104, Relocate Kitchen and SPD, to serve second floor Logistics. Second floor Logistics was SPD. It is now split into SPS, which is moving to third floor where the kitchen used to be, and the remaining functions on second floor are being called Logistics for our purposes. RTU-13 was designed as a constant volume rooftop unit delivering 9,300 CFM supply air with 7,000 CFM return air. RTU-13 consists of a mixed air section with 100% enthalpy economizer, return fan, chilled water cooling coil, steam distributing heating coil, supply fan, and discharge air section. The 2" chilled water pipes for RTU-13 are routed from the north A/C shaft, above the fourth floor ceiling, thru the exterior wall, and over eight to ten feet where they extend down to the cooling coil. Exterior piping includes heat trace. The 2.5"-30 PSI steam and 1.5" condensate piping extends up from the sub-basement service room, within the north wall at column lines O / 12.1 where the piping offsets thru the new SPS suite on third floor over near RTU-13 and thru the roof. Once above the roof, the piping offsets again to the steam distributing coil. The new ductwork from RTU-13 is routed down the exterior of the building into the second floor.

### Work Instructions:

Disconnect the chilled water piping from the cooling coil and remove back as far as necessary for access to the coil. Remove heat trace as required and protect for reinstallation. Remove the cooling coil and associated blank-offs, coil supports/frames, drain pan, etc. from the unit and set aside for relocation. Refer to attached instruction drawing. Remove freeze-stat for relocation to preheat coil.

Disconnect the steam and condensate piping from the heating coil and remove back as far as necessary for access to the coil. Remove all exterior piping insulation for replacement. Remove the heating coil and associated blank-offs, coil supports/frames, etc. from the unit and set aside for relocation. Refer to attached instruction drawing.

Install the heating coil and associated blank-offs, coil supports/frames, etc. in the section where the cooling coil was. Refer to attached instruction drawing. The coil will now be in the preheat position. Extend the piping and connect to the coil in its new location. Provide new shut-off valves and unions at the coil connection. All piping work shall be above the roof. Insulate all exterior piping per specifications. Relocate freeze-stat from chilled water coil and install on steam preheat coil.

Install the cooling coil and associated blank-offs, coil supports/frames, drain pan, etc. in the section where the heating coil was. Refer to attached instruction drawing. Extend the piping and connect to the coil per the attached chilled water coil piping detail. All piping work shall be outside of the building. Re-install heat trace and re-insulate piping per specifications.

Replace sheaves for supply fan and balance fan to 6,210 CFM.

Replace sheaves for return fan and balance fan to 2,275 CFM.

Modify all drain piping as required. Field verify all dimensions.

Seal all unit openings water tight.

Attachments: Sheet H1, RTU-13 shop drawing, Cooling Coil Instruction Drawing, Heating Coil Instruction Drawing, Cooling Coil Piping Detail (H1.1).

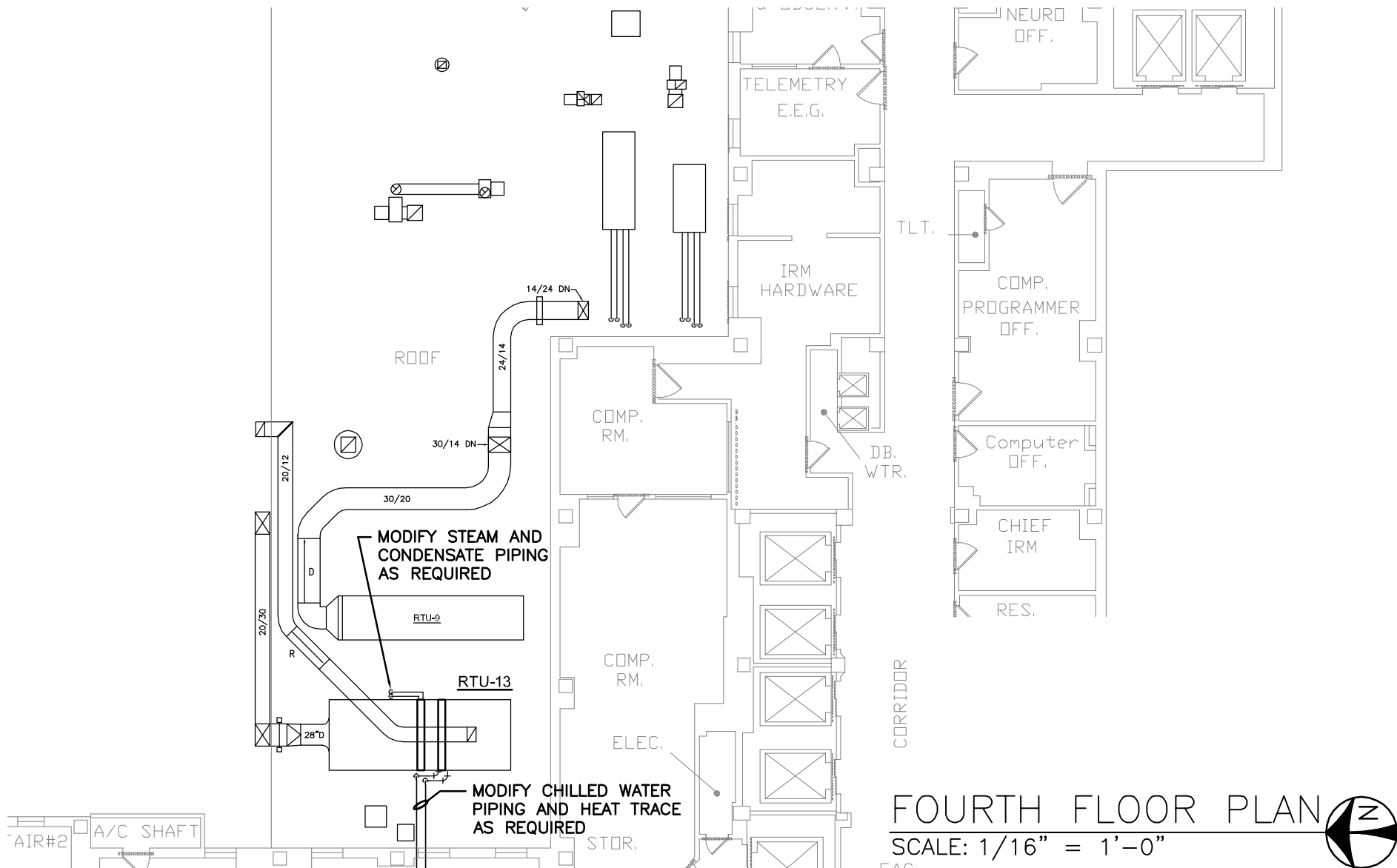
## **Humidification for Clean Supply Room B201**

### Work Instructions:

Provide duct mounted humidifier with single dispersion tube sized for 14.0 lbs/hr and maximum 12" absorption distance in 20x10 duct upstream of CVD1 (1860 CFM). Extend 0.75" steam and condensate piping from the 2.5"-30 PSI steam and 1.5" condensate piping in the north wall at column lines O / 12.1 and connect to humidifier per the attached humidifier piping detail. Provide duct mounted humidity sensor in return duct from Clean Supply Room B201. Humidifier to maintain 25% RH. Provide humidistat on wall in Clean Supply Room B201. Controls shall be stand alone.

Field verify all dimensions.

Attachments: Sheet H2, Humidifier Piping Detail.



**FOURTH FLOOR PLAN**  
 SCALE: 1/16" = 1'-0"

**Heapy Engineering**  
 Mechanical Electrical Commissioning Technology  
*Nationally Recognized Leader in Sustainability / LEED*

1400 W Dorothy Lane, Dayton OH 45409-1310  
 Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com

PROJECT NO. 2015-04025 FIRM LICENSE: 01528

Project Title

## LOGISTICS HVAC MODIFICATIONS

Date

11/04/2015

Checked

DLE

Drawn

WJS

Project Number

- -

Drawing Number

H1

**Office of  
Construction  
and Facilities  
Management**



Department of  
Veterans Affairs



1108 City Park Avenue, 3rd Floor  
Phone (614) 443-1178

Fax (614) 443-1594

Columbus, Ohio 43206  
www.dynamix-ltd.com

## Shop Drawing Submittal Comments

**Project:** DOVA Cincinnati AHU Replacements  
**In regard to:** 237413 Outdoor Air Handling Unit

REVIEW IS FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS. NO RESPONSIBILITY IS ASSUMED FOR CORRECTNESS OF DIMENSIONS OR DETAILS.	
NO EXCEPTIONS TAKEN	<input type="checkbox"/>
MAKE CORRECTIONS NOTED	<input checked="" type="checkbox"/>
AMEND & RESUBMIT	<input type="checkbox"/>
REJECTED-SEE REMARKS	<input type="checkbox"/>
DYNAMIX ENGINEERING LTD.	
DATE RECEIVED BY DYNAMIX: 10.13.08	
DATE RETURNED: 10.13.08	
BY: IWC	

### REMARKS

1. The insulation for floor panels shall be a R value of no less than 8, see specification 237413 (2.1)(C)(4).
2. Confirm controls have been coordinated with controls supplier.

# ELITAIRE

Cincinnati Office

11325 Reed Hartman Hwy, Suite 100  
Cincinnati, OH 45241  
(513) 475-3800

Columbus Office

6155A Huntley Road  
Columbus, OH 43229

Dayton Office

Location Coming Soon

July, 29 2008

Submittal Number: 08-101-1728

## AIR HANDLING UNIT SUBMITTAL DATA

**Job Name:** Department of Veteran Affairs  
AHU Replacement

**Customer:** Geiler  
6561 Glenway Ave.  
Cincinnati, OH 45211

**Engineer:** Dynamix Engineering Ltd.  
1108 City Park Ave. – 3<sup>rd</sup> Floor  
Columbus, OH 43206

### McQuay Outdoor Air Handling Units

Tag(s)	Qty	Description
AHU-13	1	Rooftop Air Handling Unit – Model: RDS800C

**Notes:**

- Curb Adapter to Existing Trane Curb is included

**As-Built Notes:**

- Voltage has been changed to 208/3. Please see the revised electrical data!
- Unit is Single Point Power.

SCHRUDDE & ZIMMERMAN, INC.  
GENERAL CONTRACTORS  
REVIEWED 10/11/08 pbc



## VISION AIR HANDLING UNIT SPECIFICATION

JOB NAME	1M2JFPXX.000	REP. OFFICE	ElitAire - Cincinnati
JOB DESCRIPTION	VA Cinti AHU Replacement		
ENGINEER			
UNIT TAGGING	AHU-13		

**Unit Construction**

Unit cabinet shall be completely insulated with a nominal 2 in thick, 1.5 density, R6.5, glass fiber that is sandwiched between the exterior sheet metal cabinet and internal sheet metal liners. No insulation shall be exposed to the air stream.

All access doors shall be provided with solid galvanized steel liners to protect insulation during service and maintenance.

The floor shall be constructed as follows:

The walking side of the floor shall be galvanized steel, with no exposed insulation, and insulation attached on the bottom of the floor. All floor panels shall be double wall construction and include a nominal 2 in thick, 1.5 psf density, R6.5 glass fiber insulation. Exterior surfaces shall be constructed of pre-painted galvanized steel for aesthetics and long term durability. Paint finish to include a base primer with a high quality, polyester resin top coat of a neutral beige color. Finished surface to withstand a minimum 750-hour salt spray test in accordance with ASTM B117 standard for salt spray resistance. Service doors shall be provided on both sides of each section in order to provide user access to all unit components. Service doors shall be constructed of heavy gauge galvanized steel with a galvanized steel interior liner. All service doors shall be mounted on multiple, stainless steel hinges and shall be secured by a latch system that is operated by a single, flush mounted handle. The latch system shall feature a staggered engagement for ease of operation and a second catch to protect the user from injury when opening positive pressure doors. Removable panels, or doors secured by multiple, mechanical fasteners are not acceptable.

**Fan Sections**

All fan assemblies shall be statically and dynamically balanced at the factory, including a final trim balance prior to shipment. All fan assemblies shall employ solid steel fan shafts. Heavy-duty pillow block type, self-aligning, grease lubricated ball bearings shall be used. Bearings shall be sized to provide an L-50 life at 200,000 hours.

The entire fan assembly shall be isolated from the fan bulkhead and mounted on spring isolators.

V-belt drives with matching belts shall be provided. Fan motors shall be heavy-duty 1800 rpm. Motors shall be mounted on an adjustable base that provides for proper alignment and belt tension adjustment.

**Forward curved supply fans**

Supply fan shall be double width, double inlet forward curved centrifugal fan. All fans shall be mounted using shafts and hubs with mating keyways. The forward curved fan wheel and housing shall be fabricated from galvanized steel.

**Forward curved return fans**

Double width, double inlet (DWDI) forward curved centrifugal return air fans shall be provided. Fans shall be mounted using shafts and hubs with mating keyways. The fan wheels and housings shall be fabricated from painted steel.

**Electrical**

A Unit wiring shall comply with NEC requirements and with all applicable UL standards. All electrical components shall be UL recognized where applicable. All wiring and electrical components provided with unit shall be number and color coded and labeled according to the electrical diagram provided for easy identification. The unit shall be provided with a factory wired weatherproof control panel. Unit shall have a [single] [dual] point power terminal block for main power connection. A terminal board shall be provided for low voltage control wiring. Branch short circuit protection, 115-volt control circuit transformer and fuse, system switches, high temperature sensor, and a 115-volt receptacle with a separate electrical connection shall also be provided with unit. Supply and return fan motors shall have contactors and external overload protection. Knockouts shall be provided in the bottom of the main control panels for field wiring entrance. All 115-600 voltage wire shall be protected from damage by raceways or conduit.

**Coil Sections**

The coil section shall include hinged access doors on both sides of the section. Cooling coil sections shall include stainless steel, positively sloped drain pan shall be provided. The drain pan shall have a minimum slope of 1/8" per foot to provide positive

## VISION AIR HANDLING UNIT SPECIFICATION

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draining. The drain pan shall extend beyond the leaving side of the coil and underneath the cooling coil connections. The drain pan shall be connected to a threaded drain connection extending through the unit base.

Coils can be removed through the access doors, RDS 800–802 only.

Any coil piping vestibule shall be 16" deep and include sufficient space to allow piping access to the heating coil and be shipped loose and knocked down for field assembly. The vestibule shall be constructed of the same materials as the unit casing.

ARI Certified coils shall be provided. All coils shall be factory leak tested with high-pressure air under water. All coils are fabricated of seamless 5/8" diameter copper tubing that is mechanically expanded into high efficiency plate fins. Coils shall be multi-row, staggered tube design per the job schedule.

All water coils shall have copper headers complete with supply, return and threaded vent connections. Chilled water coils shall also include threaded drain connections.

### Outdoor/Return Air Section Options

The 0 to 100% outside air economizer section shall include outdoor, return, and exhaust air dampers. Outdoor air shall enter from both sides of the economizer section through horizontal, louvered intake panels complete with rain lip and bird screen. The floor of the outdoor air intakes shall provide for water drainage. The economizer section shall allow return air to enter from the bottom of the unit. A barometric exhaust damper shall be provided to exhaust air out of the back of the unit. Exhaust louvers and a bird screen shall be provided to prevent infiltration of rain and foreign materials. Exhaust damper blades shall be lined with urethane gasket on contact edges. The outside and return air dampers shall be sized to handle 100% of the supply air volume. The dampers shall be opposed sets of parallel blades, arranged vertically to converge the return air and outdoor air streams in multiple, circular mixing patterns.

McQuay UltraSeal™ low leak dampers shall be provided. Damper blades shall be fully gasketed and side sealed. Damper leakage shall be 0.2% at 1.5 inches static pressure differential. Leakage rate to be tested in accordance with AMCA Standard 500. Damper blades shall be operated from multiple sets of linkages mounted on the leaving face of the dampers.

### Controls

Controls shall be field installed by the installing contractor.

## TECHNICAL DATA

Date Saved : 01/10/2008 15:56:00

JOB NAME	1M2JFP(RH001)	REP. OFFICE	ElitAire - Cincinnati
JOB DESCRIPTION	VA Cinti AHU Replacement	SALESMAN	RH
MODEL NUMBER	RDS800C	ENGINEER	-
UNIT TAGGING	RTU-13	VERSION	4.44

SUPPLY		RETURN / EXHAUST	
Air volume	9300	7000	s cfm
External static	1.75	0.70	ins WC
Total static	2.64	0.70	ins WC

CASING DETAILS	
Unit dimensions (H x W x L ins)	56 x 94 x 244
Unit weight ( lbs )	5889
Exterior	Beige polyester paint exceeding ASTM B117 salt spray standard
Liner	Solid galvanized steel
Insulation	Nominal 2" thick, 1 1/2lb. density fiberglass
Doors	Single lever access doors on both sides

ELECTRICAL DETAILS	
Unit voltage	208/60/3
MCA ( amps )	51.2
MROPD ( amps )	80.0
SCCR ( kAIC )	10.0
Field connection	1 Thru-door disconnect
Control box location	None

CONTROLS DETAILS	
Temperature controls	Power package
Airflow controls	None
Auxiliary controls	None
Starting options	Across the line

SPECIALS			
Static pressure	0.00	ins WC	Weight
			0.00
			lbs

RETURN AIR SECTION			
Return air option	0-100% Economizer with barometric damper	Plenum options	None
Opening location	Bottom	Smoke detector	None
Air pressure drop	0.07	ins WC	

RETURN FAN SECTION			
Air volume	7000	cfm	Motor power
			3.00
			hp
Total static pressure	0.70	ins WC	Motor type
			ODP, High efficiency
Fan type/Class	DWDI FC / Class I	Motor efficiency	High
Fan wheel diameter	15.00	ins	Full load current
			9.9
			A
Brake horsepower	1.73	hp	Lock rotor current
			79.0
			A
Operating speed	645.5	rpm	Drive ser. factor/Type
			Standard / Fixed pitch
Air modulation	No modulation	Fan isolation	Rubber in shear
DRIVES			
Fan sheave	AK104H	Motor sheave	AK41H
Number of belts	1	Belt	A56

## TECHNICAL DATA

Date Saved : 01/10/2008 15:56:00

FILTER SECTION				
Type	Angular	Face area	50.0	ft2
Efficiency	30 %	Air pressure drop	0.08	ins WC
Face velocity	186 fpm			

## COMBINATION COOLING COIL &amp; HEATING COIL SECTION

## CHILLED WATER COIL

Coil model	5WL1106B	Number of coils	1
Total capacity	309141 Btu/h	Number of rows	6
Sensible capacity	248611 Btu/h	Fins per inch	11
Entering db/wb	79.0 / 65.0 F	Entering water	46.0 F
Leaving db/wb	54.6 / 53.9 F	Leaving water	57.9 F
Finned height x length	36.0 x 79.0 ins	Water flow rate	52.00 gpm
Face area	19.8 ft2	Coil water PD	7.20 ftHD
Face velocity	471 ft/m	Valve water PD	0.00 ftHD
Coil air pressure drop	0.64 ins WC	Piping water PD	0.00 ft/HD
Connection type	C steel (Threaded)	Water velocity	3.10 Ft/s
Connection Qty x size	2.50 ins	Fin material	0.0075" Aluminum
Connection location	Opposite drive side	Tube material	0.020" Nom Cu std
Mod 3 - way valve	None	Header material	Copper
Glycol type (%)	None	Case material	Galvanized steel
		Drain pan	Stainless steel
Coil code	5WL1106B0360007900HLHRCGACH2OSC017A7ST0300C000300C0001500150TAYAAAY YYYYYYYYYYYYYYYYYYYYYYYYYYYY		

## STEAM HEAT

Type	Steam	Rows / FPI	1 / 6
EDB/LDB	51.8 / 109.2 F	Mod 2-way valve	None
Capacity	583999 Btu/h	Steam pressure	30.00 psi
Air pressure drop	0.10 ins WC		

## SUPPLY FAN SECTION

Air volume	9300 cfm	Motor power	10.00 hp
Total static pressure	2.64 ins WC	Motor type	ODP, High efficiency
Fan type/Class	DWDI FC / Class I	Motor efficiency	High
Fan wheel diameter	15.00 ins	Full load current	33.0 A
Brake horsepower	6.89 hp	Lock rotor current	290.0 A
Operating speed	1171.9 rpm	Drive ser. factor/Type	Standard / Fixed pitch
Air modulation	No modulation	Fan isolation	Rubber in shear

## DRIVES

Fan sheave	2BK65H	Motor sheave	2BK45H
Number of belts	2	Belt	BX53

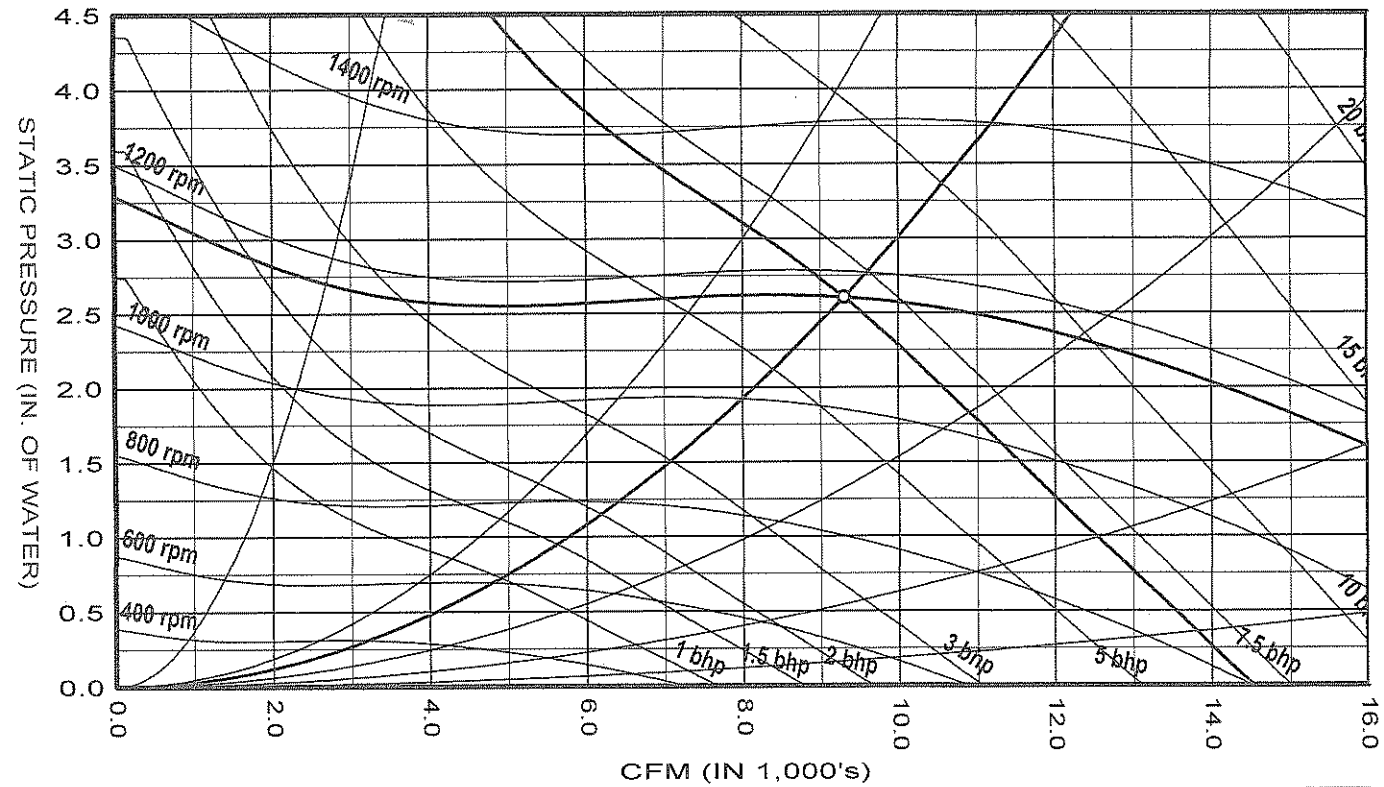
## DISCHARGE PLENUM SECTION

Opening location	Bottom	Smoke detector	None
Plenum options	None	Air pressure drop	0.00 ins WC

## NOTES




## McQUAY INTERNATIONAL FAN SELECTION



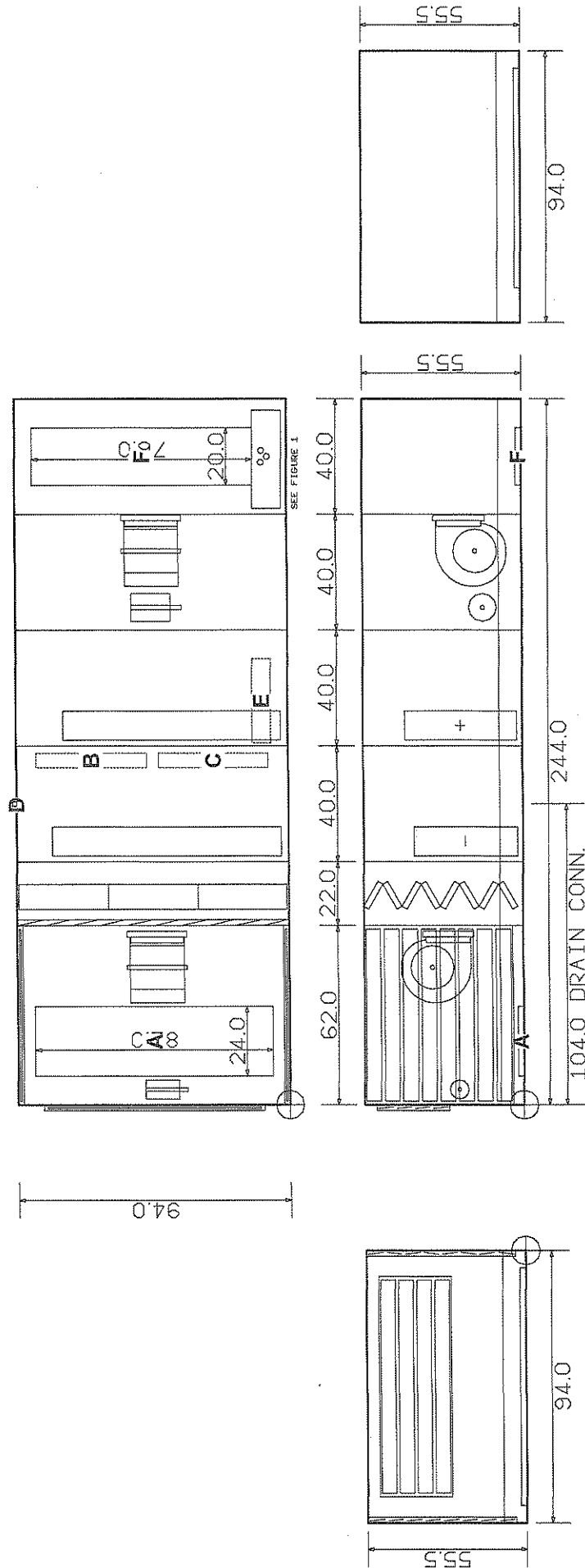
## 15X15 Forward Curved Supply Fan at Standard Conditions

Air volume	9300	cfm	Fan speed	1163	rpm
Total static	2.60	insWg	Max speed	1500	rpm
Brake horsepower	6.8	bhp	Efficiency	56.0	%

Unit tagging	RTU-13	Date	01-August-2008
Job name	VA Cinti AHU Replacement	Time	12:22

Opening	X	Y	Z	W(Width)	H(Height)
A Return air inlet	10.00	6.00	0.00	82.00	24.00
B Coil piping entrance	116.50	49.00	0.00	38.00	5.00
C Coil piping entrance	116.50	7.00	0.00	38.00	5.00
D Condensate drain connection (1.5 MPT)	104.00	95.50	2.70	-	-
E Coil piping entrance	125.00	6.00	0.00	6.50	29.00
F Discharge air outlet	214.00	12.00	0.00	76.00	20.00

Dimensions measured from ⊕

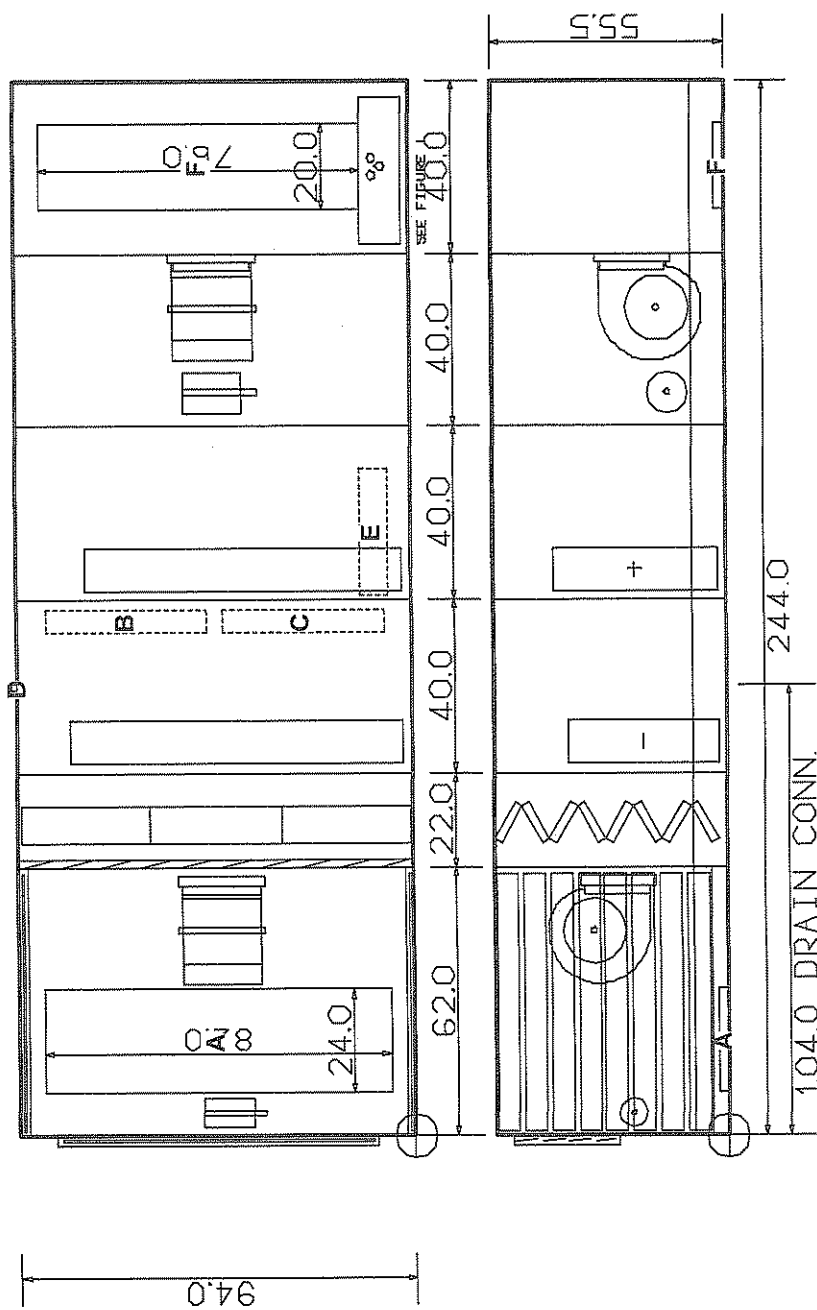


VIEW: General Arrangement  
 DRAWN: 01-August-2008 (10:34)  
 JOB NAME: VA Cinti AHU Replacement  
 UNIT TAGGING: RTU-13  
 MODEL: RDS800C



Opening	X	Y	Z	W(Width)	H(Height)
A Return air inlet	10.00	6.00	0.00	82.00	24.00
B Coil piping entrance	116.50	49.00	0.00	38.00	5.00
C Coil piping entrance	116.50	7.00	0.00	38.00	5.00
D Condensate drain connection (1.5 MPT)	104.00	95.50	2.70	-	-
E Coil piping entrance	125.00	6.00	0.00	6.50	29.00
F Discharge air outlet	214.00	12.00	0.00	76.00	20.00

Dimensions measured from ⊕



VIEW: General Arrangement No Ends

DRAWN: 31-July-2008 (09:54)

JOB NAME: VA Cinti AHU Replacement

UNIT TAGGING: RTU-13

MODEL: RDS800C

McQuay®

Air Conditioning

Z

Y

X

## Lifting Points

To determine the required lifting cable lengths and whether four-point or six-point lifting is required, use Tables 4 and 5 and Figure 29.

Referring to Figure 29, note that dimension A is the distance between the outer lifting points. The four outer rigging cables must be equal to or longer than dimension A. Dimension B shows the minimum distance between the outer and the inner lifting points for six-point lifting. Use this to roughly determine the required length of the middle cables for six-point lifting. Determine dimension A by subtracting dimensions X and Y from dimension Z (e.g.,  $A = Z - X - Y$ ).

- Where:
- Z = Total unit length in inches (refer to certified drawings for this dimension).
- X = Outdoor/return air section length (refer to Figure 29 and Table 5 for this dimension).
- If  $A \leq 288"$  (7315 mm), 4-point lifting is sufficient.
- If  $A > 288"$  (7315 mm), 6-point lifting is required.

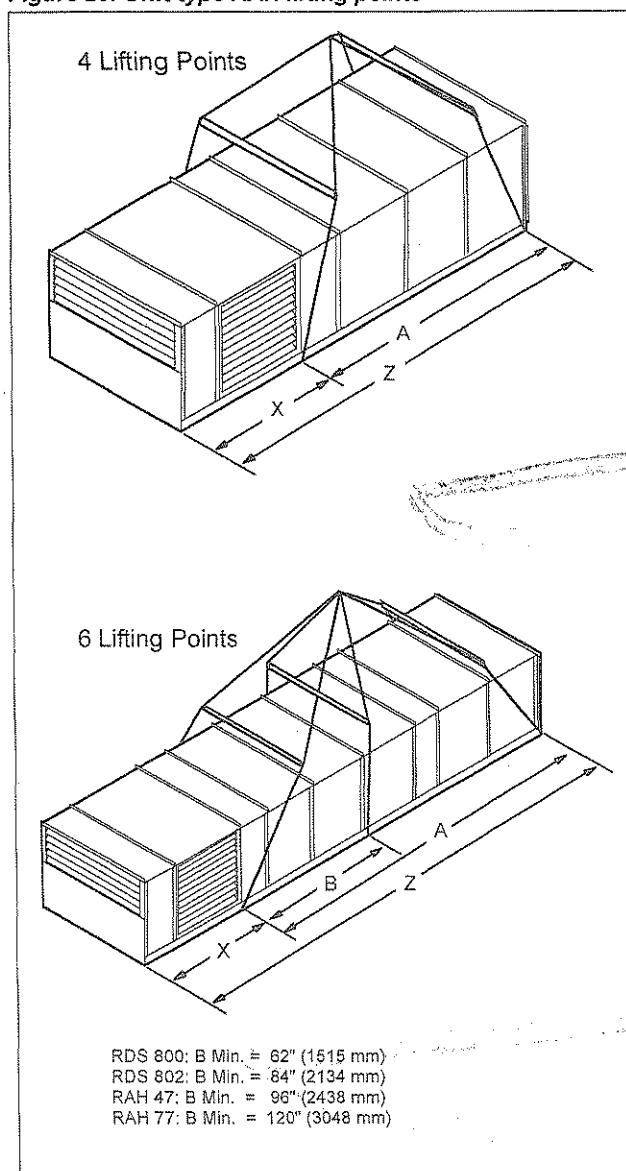
**Table 4: RAH X dimension (see Figure 29) Economizer section**

Type of economizer section	047C	077C
100% OA	0	0
Plenum	48" (1219 mm)	72" (1829 mm)
0–30% OA	48" (1219 mm)	72" (1829 mm)
0–100% economizer	72" (1829 mm)	96" (2438 mm)
0–100% economizer with return fan	72" (1829 mm)	96" (2438 mm)

**Table 5: RDS X dimension (see Figure 29) Outdoor/return air section**

Outdoor/return air section	800C	802C
100% OA	0	0
Plenum	40" (1016 mm)	52" (1321 mm)
0–30% OA	40" (1016 mm)	52" (1321 mm)
0–100% economizer	40" (1016 mm)	52" (1321 mm)
0–100% economizer with 15" return fan	62" (1575 mm)	—
0–100% economizer with 30" return fan	52" (1321 mm)	52" (1321 mm)
0–100% economizer with 40" return fan	—	80" (2032 mm)

**Figure 29: Unit type RAH lifting points**





## Lifting Points

To determine the required lifting cable lengths and whether four-point or six-point lifting is required, use Tables 4 and 5 and Figure 29.

Referring to Figure 29, note that dimension A is the distance between the outer lifting points. The four outer rigging cables must be equal to or longer than dimension A. Dimension B shows the minimum distance between the outer and the inner lifting points for six-point lifting. Use this to roughly determine the required length of the middle cables for six-point lifting. Determine dimension A by subtracting dimensions X and Y from dimension Z (e.g.,  $A = Z - X - Y$ ).

- Where:
- Z = Total unit length in inches (refer to certified drawings for this dimension).
- X = Outdoor/return air section length (refer to Figure 29 and Table 5 for this dimension).
- If  $A \leq 288"$  (7315 mm), 4-point lifting is sufficient.
- If  $A > 288"$  (7315 mm), 6-point lifting is required.

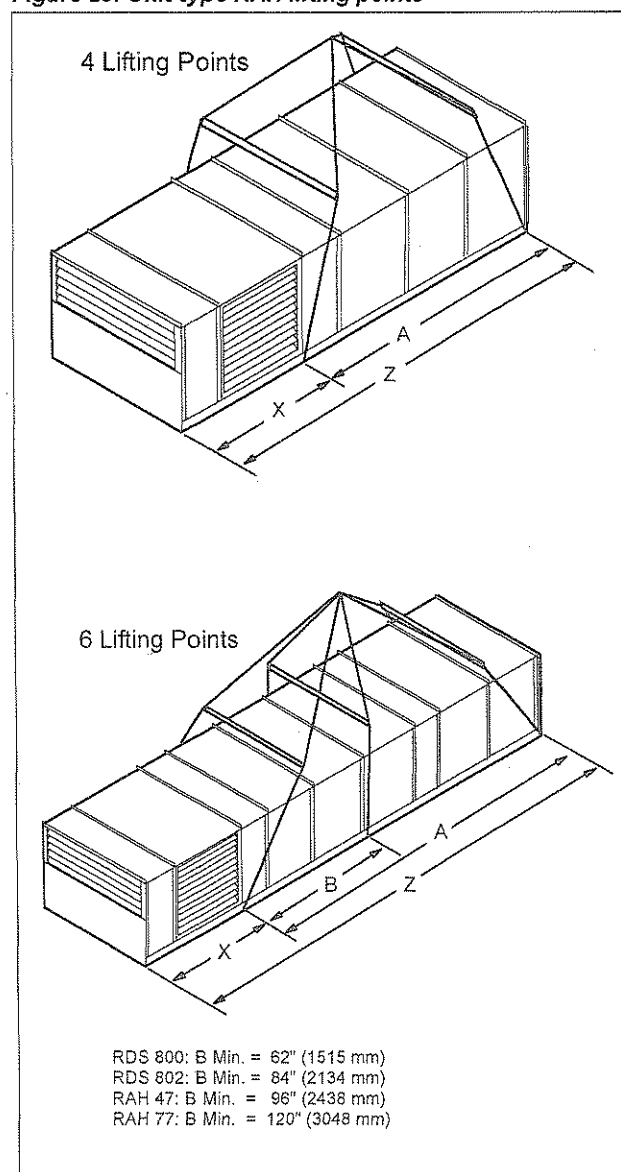
**Table 4: RAH X dimension (see Figure 29) Economizer section**

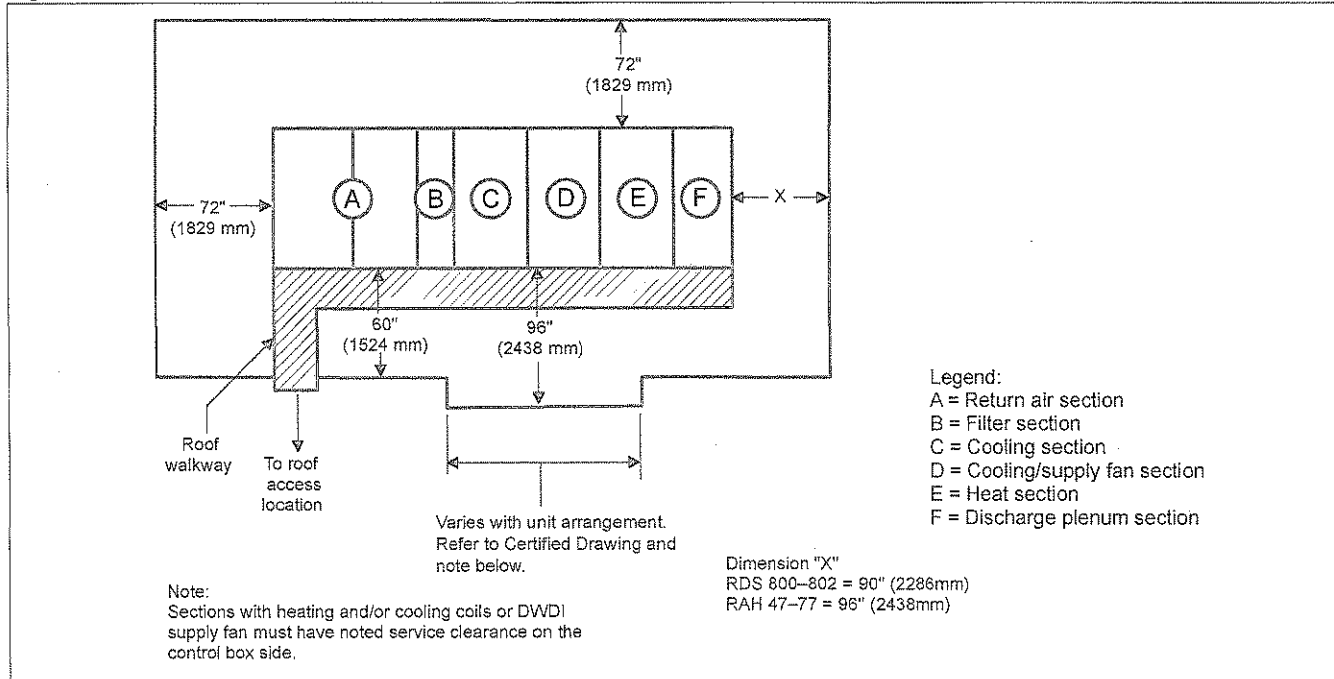
Type of economizer section	047C	077C
100% OA	0	0
Plenum	48" (1219 mm)	72" (1829 mm)
0-30% OA	48" (1219 mm)	72" (1829 mm)
0-100% economizer	72" (1829 mm)	96" (2438 mm)
0-100% economizer with return fan	72" (1829 mm)	96" (2438 mm)

**Table 5: RDS X dimension (see Figure 29) Outdoor/return air section**

Outdoor/return air section	800C	802C
100% OA	0	0
Plenum	40" (1016 mm)	52" (1321 mm)
0-30% OA	40" (1016 mm)	52" (1321 mm)
0-100% economizer	40" (1016 mm)	52" (1321 mm)
0-100% economizer with 15" return fan	62" (1575 mm)	—
0-100% economizer with 30" return fan	52" (1321 mm)	52" (1321 mm)
0-100% economizer with 40" return fan	—	80" (2032 mm)

**Figure 29: Unit type RAH lifting points**



**Figure 15: Service clearances, unit with SWSI plenum supply fan**

## Ventilation Clearance

Below are minimum ventilation clearance recommendations. The system designer must consider each application and provide adequate ventilation. If this is not done, the unit will not perform properly.

### Unit(s) surrounded by a screen or a fence:

- 1 The bottom of the screen or fence should be at least 1 ft. (305 mm) above the roof surface.
- 2 The distance between the unit and a screen or fence should be as described in Figure 15.
- 3 The distance between any two units within a screen or fence should be at least 120" (3048 mm).

### Unit(s) surrounded by solid walls:

- 1 If there are walls on one or two adjacent sides of the unit, the walls may be any height. If there are walls on more than two adjacent sides of the unit, the walls should not be higher than the unit.
- 2 The distance between the unit and the wall should be at least 96" (2438 mm) on all sides of the unit.
- 3 The distance between any two units within the walls should be at least 120" (3048 mm).

Do not locate outside air intakes near exhaust vents or other sources of contaminated air.

If the unit is installed where windy conditions are common, install wind screens around the unit, maintaining the clearances specified (see Figure 16). This is particularly important to prevent blowing snow from entering the outside air intake and to maintain adequate head pressure control when mechanical cooling is required at low outdoor air temperatures.

## Overhead Clearance

- 1 Unit(s) surrounded by screens or solid walls must have no overhead obstructions over any part of the unit.
- 2 The following restrictions must be observed for overhead obstructions above the air handler section (see Figure 16):
  - a There must be no overhead obstructions above the furnace flue, or within 9" (229 mm) of the flue box.
  - b Overhead obstructions must be no less than 96" (2438 mm) above the top of the unit.
  - c There must be no overhead obstructions in the areas above the outside air and exhaust dampers that are farther than 24" (610 mm) from the side of the unit.

## Mechanical Installation

## Mechanical Installation

**Note** – The installation of this equipment shall be in accordance with the regulations of authorities having jurisdiction and all applicable codes. It is the responsibility of the installer to determine and follow the applicable codes.

**CAUTION**

Sharp edges on sheet metal and fasteners can cause personal injury.

This equipment must be installed, operated, and serviced only by an experienced installation company and fully trained personnel.

## Receiving Inspection

When the equipment is received, all items should be carefully checked against the bill of lading to be sure all crates and cartons have been received. **If the unit has become dirty during shipment (winter road chemicals are of particular concern), clean it when received.**

All units should be inspected carefully for damage when received. Report all shipping damage to the carrier and file a claim. In most cases, equipment ships F.O.B. factory and claims for freight damage should be filed by the consignee.

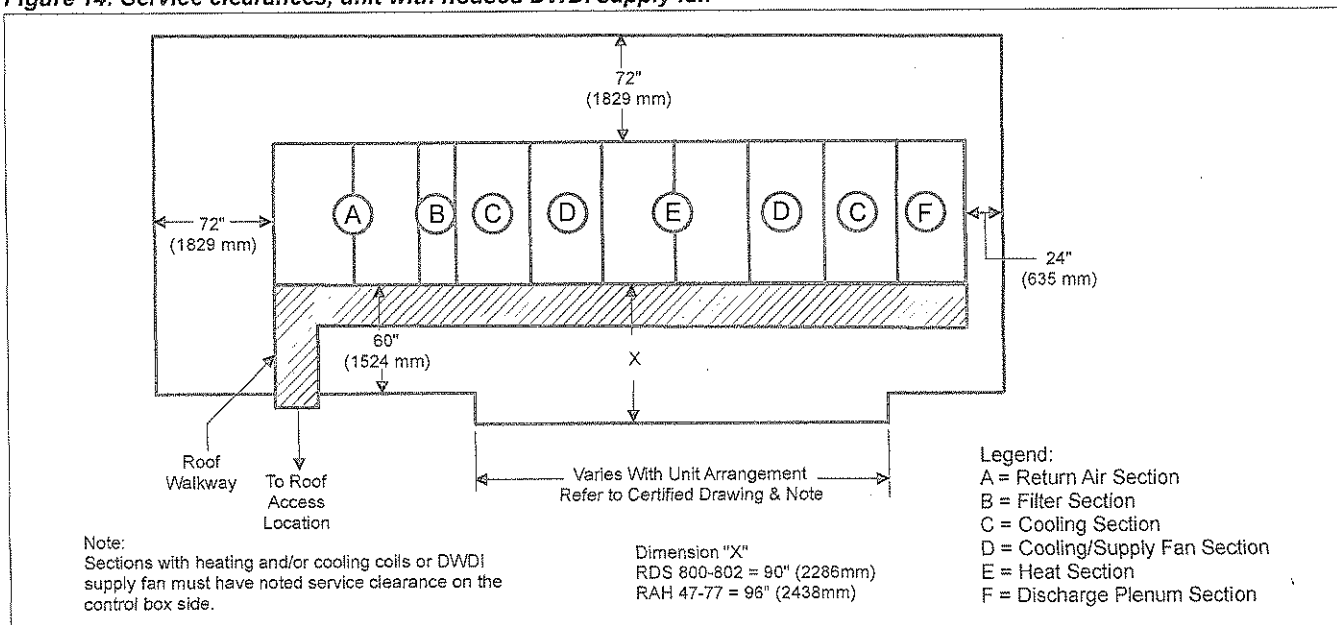
Before unloading the unit, check the unit nameplate to make sure the voltage complies with the power supply available.

## Unit Clearances

## Service Clearance

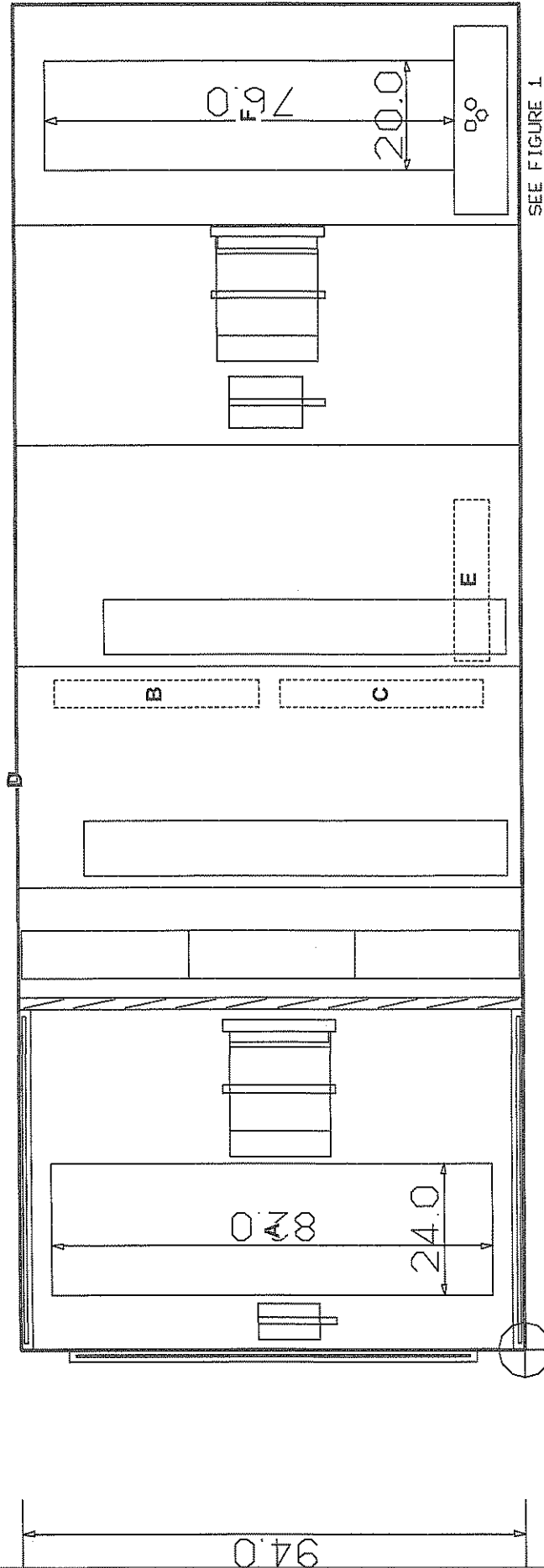
Allow an approximate service clearance as indicated in Figure 14. Also, McQuay recommends providing a roof walkway to the rooftop unit as well as along two sides of the unit that provide access to most controls and serviceable components.

**Figure 14: Service clearances, unit with housed DWDI supply fan**



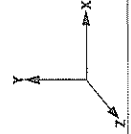
Opening	X	Y	Z	W(Width)	H(Height)
A Return air inlet	10.00	6.00	0.00	82.00	24.00
B Coil piping entrance	116.50	49.00	0.00	38.00	5.00
C Coil piping entrance	116.50	7.00	0.00	38.00	5.00
D Condensate drain connection (1.5 MPT)	104.00	95.50	2.70	-	-
E Coil piping entrance	125.00	6.00	0.00	6.50	29.00
F Discharge air outlet	214.00	12.00	0.00	76.00	20.00

Dimensions measured from ⊕



SEE FIGURE 1

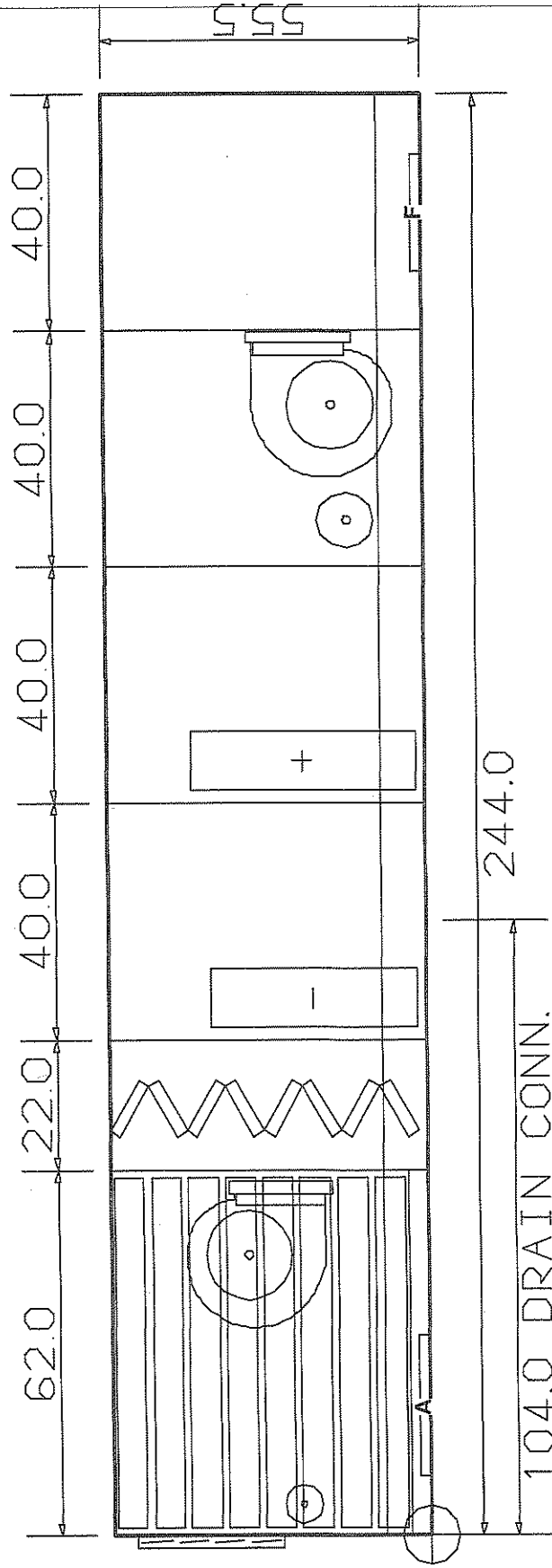
VIEW: Top  
 DRAWN: 31-July-2008 (09:54)  
 JOB NAME: VA Cinti AHU Replacement  
 UNIT TAGGING: RTU-13  
 MODEL: RDS800C



**McQuay**  
 Air Conditioning

Opening	X	Y	Z	W(Width)	H(Height)
A Return air inlet	10.00	6.00	0.00	82.00	24.00
B Coil piping entrance	116.50	49.00	0.00	38.00	5.00
C Coil piping entrance	116.50	7.00	0.00	38.00	5.00
D Condensate drain connection (1.5 MPT)	104.00	95.50	2.70	-	-
E Coil piping entrance	125.00	6.00	0.00	6.50	29.00
F Discharge air outlet	214.00	12.00	0.00	76.00	20.00

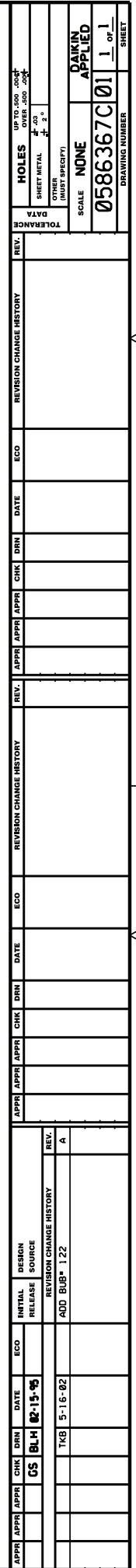
Dimensions measured from ⊕



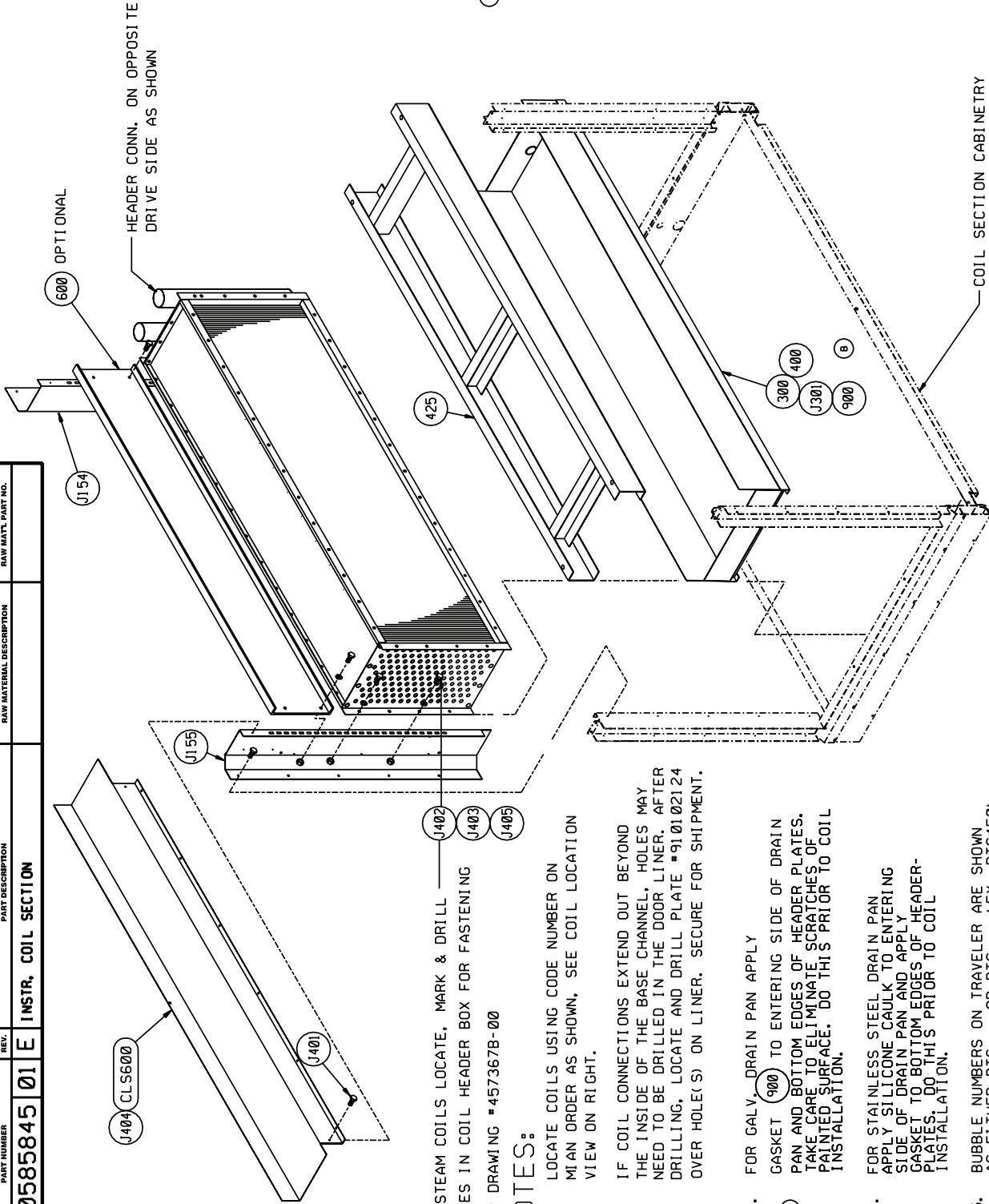
VIEW: Right Side  
 DRAWN: 31-July-2008 (09:54)  
 JOB NAME: VA Cinti AHU Replacement  
 UNIT TAGGING: RTU-13  
 MODEL: RDS800C



1. IF OPTIONAL FREEZESTAT IS PROVIDED, IT MUST BE INSTALLED BEFORE PLACING COIL IN UNIT. REFER TO FINAL ELECTRICAL INSTRUCTION DRAWING.



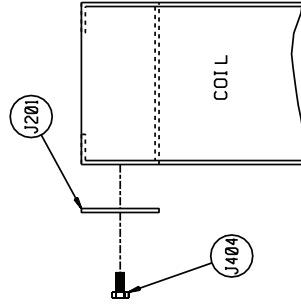
## COIL LOCATION



ON STEAM COILS LOCATE, MARK & DRILL  
HOLES IN COIL HEADER BOX FOR FASTENING  
PER DRAWING #457367B-00

## NOTES:

1. LOCATE COILS USING CODE NUMBER ON  
MAIN ORDER AS SHOWN, SEE COIL LOCATION  
VIEW ON RIGHT.
2. IF COIL CONNECTIONS EXTEND OUT BEYOND  
THE INSIDE OF THE BASE CHANNEL, HOLES MAY  
NEED TO BE DRILLED IN THE DOOR LINER, AFTER  
DRILLING, LOCATE AND DRILL PLATE #910102124  
OVER HOLE(S) ON LINER, SECURE FOR SHIPMENT.
3. FOR GALV. DRAIN PAN APPLY  
GASKET TO ENTERING SIDE OF DRAIN  
PAN AND BOTTOM EDGES OF HEADER PLATES.  
TAKE CARE TO ELIMINATE SCRATCHES OF  
PAINTED SURFACE. DO THIS PRIOR TO COIL  
INSTALLATION.
4. FOR STAINLESS STEEL DRAIN PAN  
APPLY SILICONE CAULK TO ENTERING  
SIDE OF DRAIN PAN AND APPLY  
GASKET TO BOTTOM EDGES OF HEADER-  
PLATES, DO THIS PRIOR TO COIL  
INSTALLATION.
5. BUBBLE NUMBERS ON TRAVELER ARE SHOWN  
AS EITHER DTC... OR BTC... (EX: DTC4500)
6. BUBBLE NUMBERS ON THIS DWG SHOWS ONLY  
THE LAST 3 DIGITS. (EX: 4500)

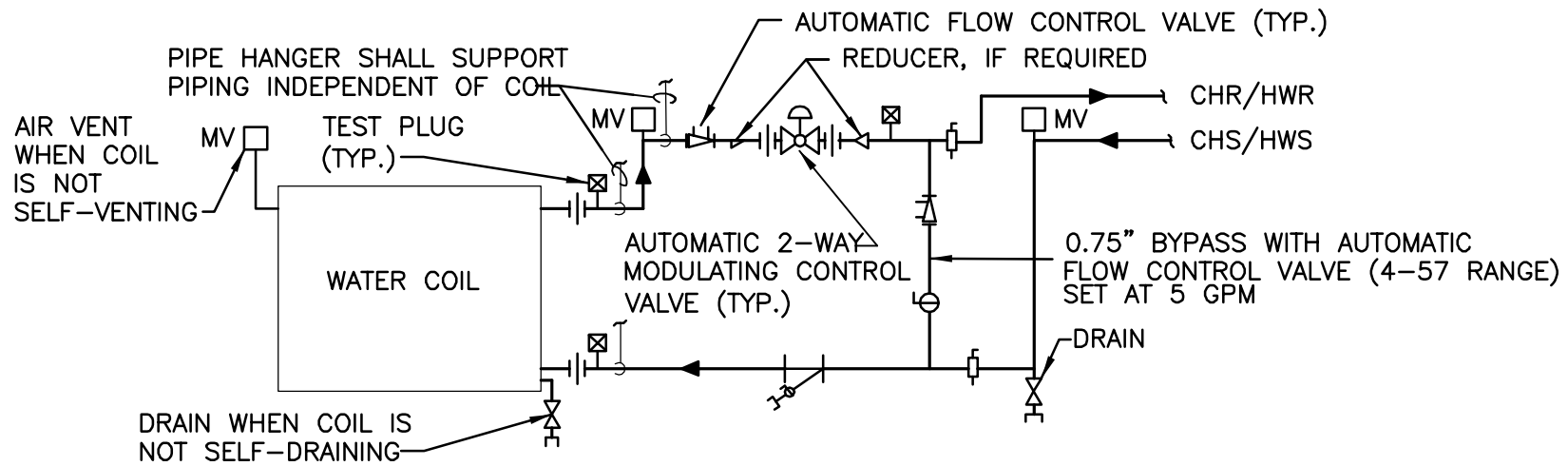


LOCATE (J201) OVER TOP  
SIDE PLATE AS SHOWN

## Cooling Coil Instruction Dwg

[illegible]





1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATORS THE FIRST 2 HANGERS FOR EACH PIPE SHALL BE SPRING & NEOPRENE TYPE. TYPE "H" FOR 4" DIA. PIPE & SMALLER. TYPE "H-P" FOR 5" DIA. PIPE & LARGER.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVES, OR EQUIPMENT.
3. THE FLOW ELEMENT MAY BE INSTALLED IN THE SUPPLY PIPING IF THE REQUIRED MINIMUM UPSTREAM AND DOWNSTREAM DIMENSIONS CANNOT BE OBTAINED IN THE RETURN PIPING.

## WATER COILS – PIPING CONNECTIONS

**Heapy Engineering**  
Mechanical Electrical Commissioning Technology

*Nationally Recognized Leader in Sustainability / LEED*

1400 W Dorothy Lane, Dayton OH 45409-1310  
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com

PROJECT NO. 2015-04025 FIRM LICENSE: 01528

Project Title

**LOGISTICS  
HVAC MODIFICATIONS**

Date

**11/04/2015**

Checked

**DLE**

Drawn

**WJS**

Project Number

- -

Drawing Number

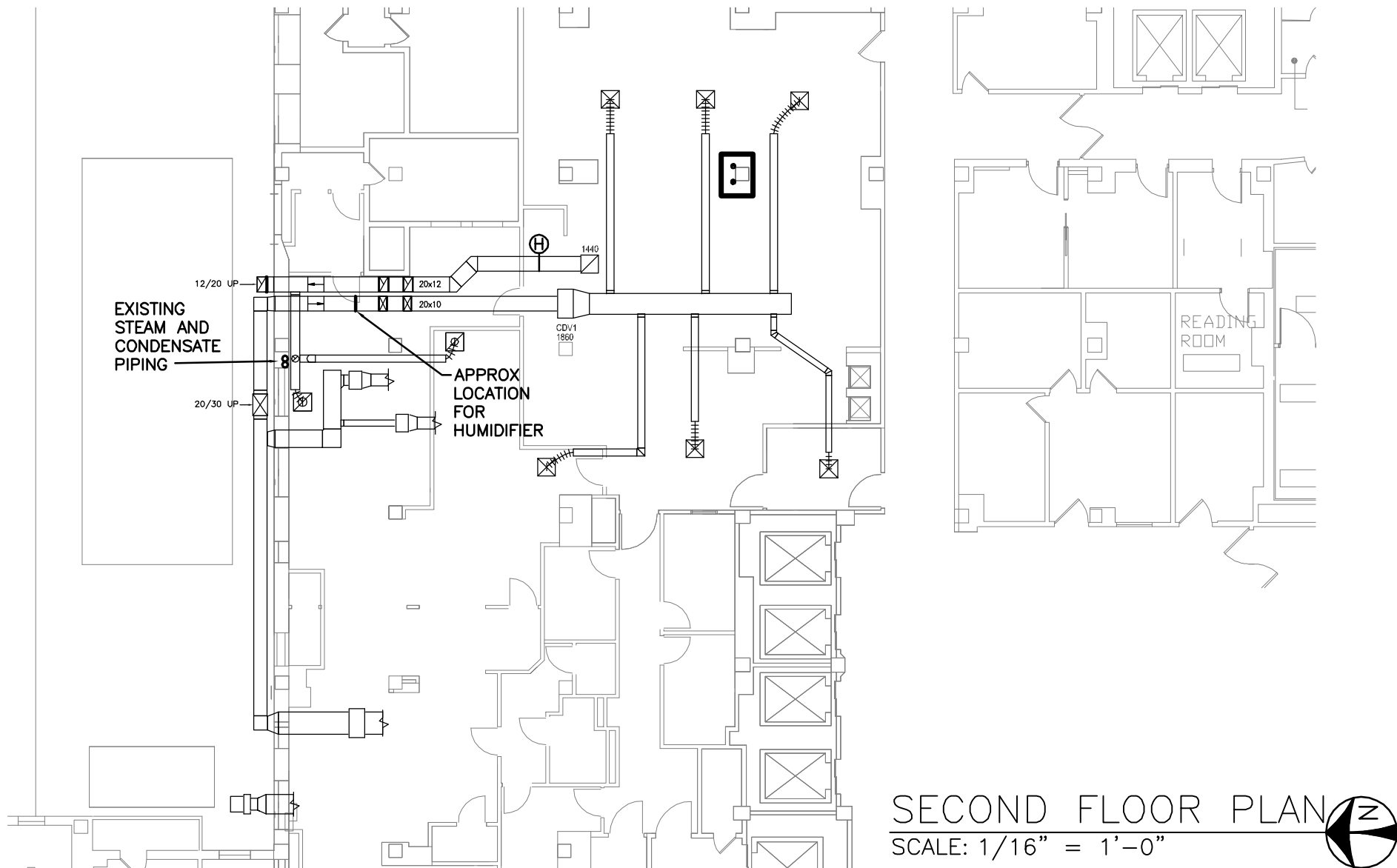
**H1.1**

**Office of  
Construction  
and Facilities  
Management**



Department of  
Veterans Affairs





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Mechanical Electrical Commissioning Technology

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- -

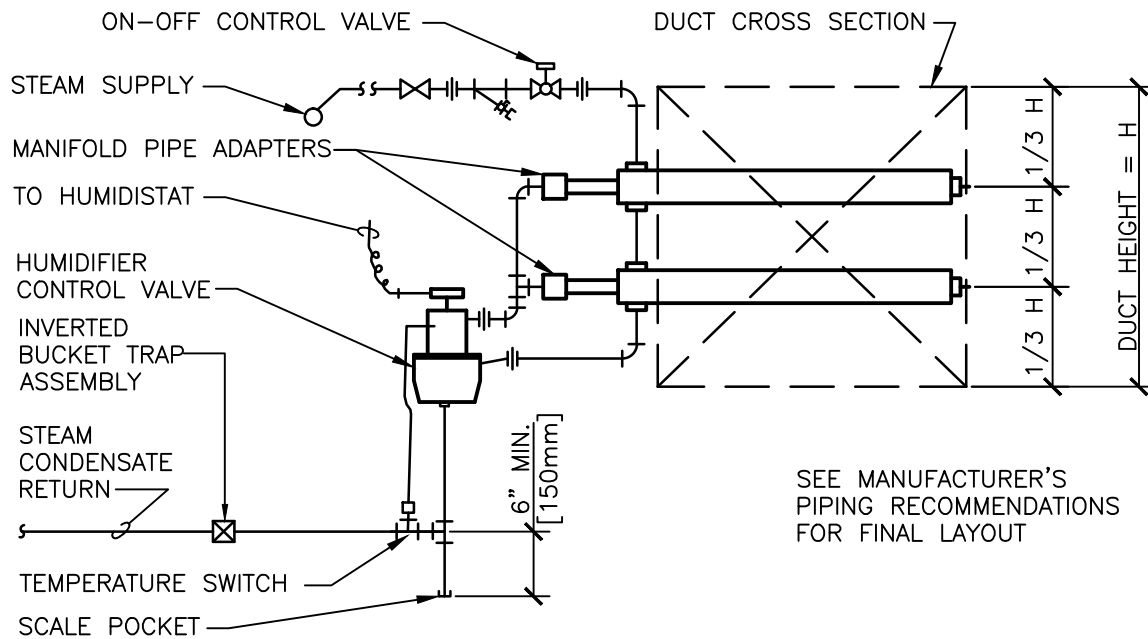
Drawing Number

**H2**

**Office of  
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and Facilities  
Management**



Department of  
Veterans Affairs



## STEAM HUMIDIFIER - PIPING CONNECTIONS (MULTIPLE DISPERSION TUBES)

#

NTS



Department of  
Veterans Affairs

DETAIL TITLE / STEAM HUMIDIFIER -  
PIPING CONNECTIONS (MULTIPLE DISPERSION TUBES)

SCALE :NONE

DATE ISSUED: MARCH 2010

CAD DETAIL NO.: SD232213-07.DWG