



Purchasing Division
Finance Department
Room 120
411 West First Street
Duluth, Minnesota 55802

218-730-5340
purchasing@duluthmn.gov

Addendum #1
Bid 21-0293
Steam to Hot Water Building Conversion
Phase 3, Group D (Wells Fargo Bldg)

This addendum serves to notify all bidders of the attached changes to the solicitation documents.

Please acknowledge receipt of this Addendum by checking the acknowledgment box within the www.bidexpress.com solicitation.

Posted: **4/9/21**

Date of issuance: April 09, 2021

Duluth Energy Services
Hot Water Conversion Wells Fargo Building

Addendum. One

TO: ALL PLAN HOLDERS

FROM: VAA, LLC
Project. No. 210057

SUBJECT: Revision to Mechanical Bid Set

This Revision is to a Issued for Bid Package Document (IFB) and may apply to any or all Contracts and Subcontracts. Unless otherwise specified herein or shown on the attached drawings (if any), all work required by this Revision shall be in complete accordance with the IFB and subsequent Revisions thereto.

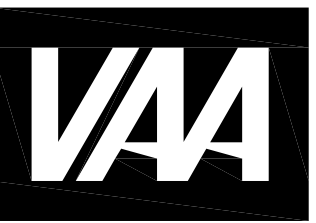
Please attach this Revision to your copy of the IFB package dated 3-30-2021.

1. LIST DOCUMENTS

- 1.1. Updates to Rev levels to originally issued Drawing MEC-000 Rev C dated 3-30-2021 is attached to this addendum.
- 1.2. Changes to originally issued Drawing MEC-100 Rev C dated 3-30-2021 is attached to this addendum to provide clarification for the replacement of the steam coils serving existing air handling unit A.C. Unit No. 1.
- 1.3. Corrections to originally issued Drawing MEC-200 Rev C dated 3-30-2021 is attached to this addendum and indicates corrected size of steam lines serving stair tower heaters.
- 1.4. Corrections to originally issued Drawing MEC-210 Rev C dated 3-30-2021 is attached to this addendum and indicates addition of tie point TP-32.

End of Addendum

DULUTH ENERGY SYSTEMS HOT WATER CONVERSION WELLS FARGO BUILDING DULUTH, MINNESOTA



VAA, LLC 783.559.9100
300 Berkshire Lane N, Suite 200 www.vaaeng.com
Lynchville, MN 55441 Project # 205013

VAA Firm Registration No. 3035

NOTICE: THE DESIGN SHOWN AND DESCRIBED HEREIN INCLUDING ALL TECHNICAL DRAWINGS, DETAILS, DEVELOPMENTS, CALCULATIONS AND MODELS THEREOF ARE THE EXCLUSIVE PROPERTY OF VAA, LLC, AND CAN'T BE COPIED, REPRODUCED, REPRODUCED OR OTHERWISE EXPLOITED, IN WHOLE OR IN PART, NOR CAN ANY DERIVATIVE WORK BE MADE UNLESS EXPRESSLY AUTHORIZED IN WRITING BY VAA, LLC. COPYRIGHT VAA, LLC 2019 - ALL RIGHTS RESERVED

CLIENT:



DULUTH ENERGY
SYSTEMS

CLIENT PROJECT NO:

PROJECT:

DULUTH HOT WATER CONVERSION

NO	DATE	ISSUE/REVISION	BY
A	03/08/2021	ISSUED FOR 60% REVIEW	WFD
B	03/11/2021	ISSUED FOR BID	WFD
C	03/30/2021	ISSUED FOR BID CLIENT CHANGES	WFD
D	04/09/2021	ISSUED FOR CLARIFICATIONS	WFD

CERTIFICATION:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Signature

Date

Printed name
Page No.

My license renewal date is _____

Pages or sheets covered by this seal

NOTES: THE DESIGN SHOWN AND DESCRIBED HEREIN MAY INVOLVE ALL TECHNICAL DRAWINGS

VAA, LLC, AND CANNOT BE COPIED, DUPLICATED, REPRODUCED OR COMMERCIALY EXPLOITED, IN WHOLE OR IN PART, NOR CAN ANY DERIVATIVE WORK BE MADE UNLESS EXPRESSLY

[illegible]

DATE: 03/30/21 DRAWN: DGJ

DESIGNED:	CHECKED:	APPROVED:
-----------	----------	-----------

Page	Page	Page

DULUTH HOT WATER CONVERSION SITE PLAN

PROJECT NO:

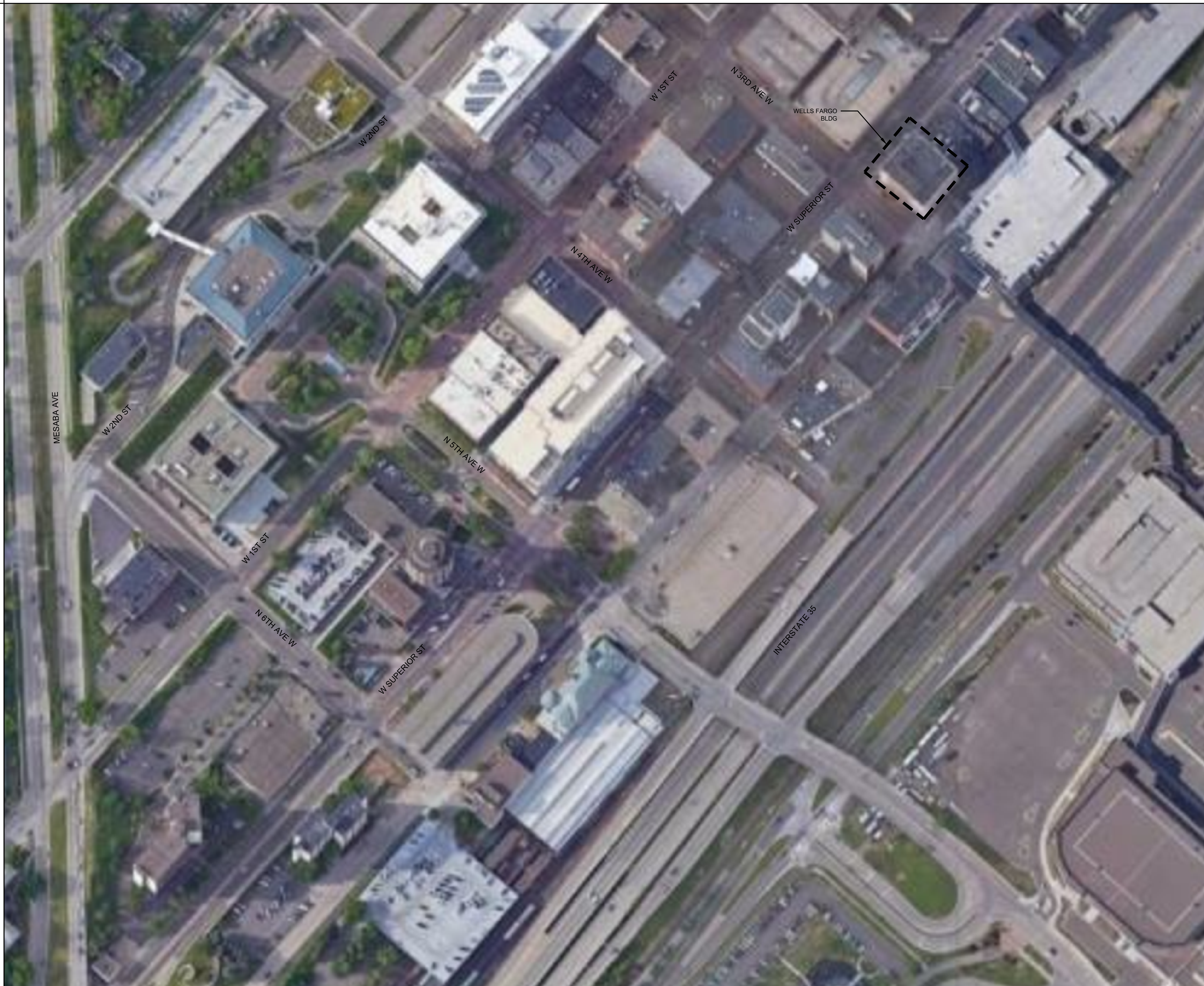
210057

SCALE:

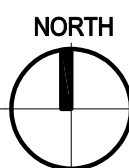
DRAWING NO:


MEC-000

ABBREVIATIONS	
ATM	ATMOSPHERE
CL	CENTERLINE
CONN	CONNECTION
DIA	DIAMETER
DP	DESIGN PRESSURE
D/P	DIFFERENTIAL PRESSURE
(E)	EXISTING
EL	ELEVATION
FC	FAIL CLOSED
FLG	FLANGE
FP	FULL PORT
FV	FULL VACUUM
GO	GEAR OPERATED
GR	GRADE
HC	HOSE CONNECTION
HDR	HEADER
HP	HIGH PRESSURE
LC	LOCKED CLOSED
LO	LOCKED OPEN
LP	LOW PRESSURE
LPT	LOW POINT
MAX	MAXIMUM
MIN	MINIMUM
MOV	MOTOR OPERATED VALVE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NOZ	NOZZLE
O/C	OPEN/CLOSE
O/O	ON/OFF
O/P	OUTPUT
PRESS	PRESSURE
(R)	RELOCATED
REQD	REQUIRED
SCH	SCHEDULE
SD	SHUTDOWN
SP	STEAM POINT
SS	STAINLESS STEEL
STD	STANDARD
TBD	TO BE DETERMINED
T/C	THERMOCOUPLE
TEMP	TEMPERATURE
THRD	THREADED
TYP	TYPICAL
UG	UNDERGROUND
VF	VARIABLE FREQUENCY
VNT	VENT
VAC	VACUUM
W/	WITH
W/O	WITHOUT
TP-0X	TIE POINT

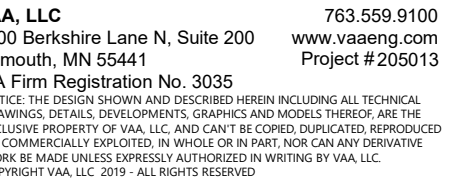


1 WELLS FARGO HOT WATER CONVERSION SITE PLAN
MEC-000 SCALE: NONE



DRAWING INDEX	
REV.	DRAWING NAME:
D	<u>MECHANICAL</u>
D	MEC-000 TITLE SHEET
D	MEC-100 DULUTH HOT WATER CONVERSION SD - SUB-BASEMENT PLAN
D	MEC-101 DULUTH HOT WATER CONVERSION AB - BASEMENT PLAN
C	MEC-102 DULUTH HOT WATER CONVERSION 1ST FL PLAN
C	MEC-103 DULUTH HOT WATER CONVERSION 4TH MECHANICAL ROOM PLANS
C	MEC-104 DULUTH HOT WATER CONVERSION 5TH FL PLAN
C	MEC-110 DETAILS
C	MEC-200 P&ID
C	MEC-210 SCHEDULES
PIPING LINE SYMBOLS	
——HHS/CHWS——	DUAL USE HOT WATER/CHILLED WATER SUPPLY
——HHR/CHWR——	DUAL USE HOT WATER/CHILLED WATER RETURN
——CHWS——	CHILLED WATER SUPPLY
——CHWR——	CHILLED WATER RETURN
——DCW——	DOMESTIC COLD WATER
——HCW——	HEATING HOT WATER SUPPLY
——HHR——	HEATING HOT WATER RETURN
——HW——	DOMESTIC HOT WATER
——HWR——	DOMESTIC HOT WATER RETURN
——PW——	POTABLE WATER
——CIP——	CLEAN IN PLACE
——SAN——	SANITARY
——USAN——	SANITARY UNDERGROUND
——V——	SANITARY VENT
————	PNEUMATIC SIGNAL
——FUTURE——	FUTURE
——CA——	COMPRESSED AIR
 ——	INSULATION
——	FUTURE & EXISTING ON NEW P&IDs

PIPING SPECIALTY ITEMS	
	CHEMICAL SEAL/DIAPHRAGM
	PRESSURE/THERMOCOUPLE
	REDUCER
	FLOW METER
	BALL VALVE
	CHECK VALVE
	BUTTERFLY VALVE
	GATE VALVE
	FLANGED VALVE
	THERMOSTATIC AIR VENT/VACUUM BREAKER
	ACTUATED VALVE
	Y-TYPE STRAINER (SR)
	BASKET STRAINER (SR)
	PRESSURE SAFETY VALVE
	FILTER (F)
	STEAM TRAP (ST)
	PULSATION DAMPENERS
	IN-LINE SILENCER (SL)
	VENT SILENCER
	REMOVABLE SPOOL
	DESUPERHEATER
	EXPANSION JOINT (EJ)
	FLEXIBLE HOSE (FL)
	DAMPER (DM)
	BREATHER
	VENT COVER
	IN-LINE MIXER
	DIVERTER VALVE
	PIGTAIL
	SCREEN
	THERMOSTATIC MIXING VALVE (MX)
	PUMP
	AIR SEPARATOR
	EXPANSION TANK
	PLATE & FRAME HEAT EXCHANGER
	SHELL & TUBE HEAT EXCHANGER
	INSTRUMENT
	CHILLER
	OFF PAGE CONNECTOR
	AREA OF DEMOTION



DULUTH ENERGY
SYSTEMS

DULUTH HOT WATER CONVERSION

MEC-200

FAN COIL UNIT SCHEDULE																					REMARKS			
PLAN MARK	SERVICE	SUPPLY (CFM)	MIN O.A. (CFM)	EXT. ST. PRESSURE (IN W.C.)	FAN QUANTITY	MAX BHP	VOLTS	PHASE	MAX FACE VEL. (FPM)	COOLING E.A.T. (°F) (DB)	COOLING E.A.T. (°F) (WB)	COOLING L.A.T. (°F) (DB)	COOLING L.A.T. (°F) (WB)	COOLING SENSIBLE LOAD (MBH)	COOLING TOTAL LOAD (MBH)	HEAT OUTPUT (MBH)	HEATING E.A.T. (°F)	HEATING L.A.T. (°F)	LENGTH (FT)	WIDTH (FT)		HEIGHT (FT)	WEIGHT (LBS)	MANUFACTURER & MODEL NO.
FCU-1	AB OFFICE AREA	6000	600	1.25	1	3.75	460	3	500	86.4	64.4	55.0	53.1	203.5	213.3	72.0	60.0	71.1	7.00	2.33	7.33	1084	TRANE UCCAM12C0FOEAL73	1,2,3,4,6,7,8,9
FCU-2	AB OFFICE AREA	6000	600	1.25	1	3.73	460	3	500	86.4	64.4	55.0	53.1	203.5	213.3	72.0	60.0	71.1	7.00	2.33	7.33	1084	TRANE UCCAM12C0FOEAL73	1,2,3,4,6,7,8,9
FCU-3	FRONT LOBBY	660	0	0.5	1	0.5	460	3	500	N/A	N/A	N/A	N/A	N/A	N/A	15.7	68.0	90.0	2.00	3.92	1.00	81	AE-AIR PHBC-HBC	1,3,4,6,8,9,10
REMARKS:																								
1. UNIT SHALL BE FURNISHED WITH PREMIUM EFFICIENCY BLOWER MOTORS WITH FACTORY-MOUNTED AND WIRED VARIABLE FREQUENCY DRIVE.										NOTES:														
2. UNIT COIL IS TO BE UTILIZED FOR HEATING AND COOLING.										1. ALL EQUIPMENT AND ACCESSORIES SHALL BE FURNISHED BY MECHANICAL CONTRACTOR UNLESS NOTED OTHERWISE														
3. UNIT SHALL BE FURNISHED WITH SINGLE POINT POWER CONNECTION, 24V CONTROL TRANSFORMER, UNIT-MOUNTED AND WIRED FUSED SERVICE DISCONNECT.										2. MAKE AND MODEL OF EQUIPMENT, ELECTRICAL REQUIREMENTS, AND PHYSICAL DIMENSIONS AT THIS SCHEDULE ARE THE BASIS OF DESIGN. EQUIPMENT SUPPLIER AND PROCURING CONTRACT RESPONSIBLE FOR SUBMITTAL OF EQUIPMENT CUT SHEETS AND DRAWINGS FOR ENGINEER'S APPROVAL PRIOR TO FABRICATION. SEE SUBMITTAL LOG ON SHEET M0.00.														
4. UNIT COIL TO BE SUPPLIED WITH 45 DEGREE CHILLED GLYCOL WHEN COOLING AND 180 DEGREE HEATED GLYCOL WHEN HEATING. MAX ALLOWABLE GLYCOL PRESSURE DROP 7 PSIG. (30% PROPYLENE GLYCOL).																								
5. UNIT COILS SHALL BE SIZED FOR A 12 DEGREE F TEMP DROP WHEN COOLING AND A 20 DEGREE TEMP DROP WHEN HEATING																								
6. UNITS INTERNAL STATIC PRESSURE IS TO INCLUDE DIRTY FILTER LOADING.																								
7. UNIT IS TO BE A VERTICAL CONFIGURATION WITH TOP DISCHARGE.																								
8. DIMENSIONS INDICATED ARE ALLOWABLE MAXIMUMS.																								
9. UNIT SHALL BE FURNISHED WITH MINIMUM MERV 8 FILTERS.																								
10. UNIT SHALL BE PROVIDED WITH HEATING COIL ONLY.																								

EXPANSION TANK SCHEDULE									
PLAN MARK	TYP.	ACCEPTANCE CAPACITY (GAL)	TOTAL CAPACITY (GAL)	DIAMETER (IN)	HEIGHT (IN)	WEIGHT	MODEL No.	MANUFACTURER	REMARKS
TK-1	BLADDER	132.0	132.0	24.0	78.0	328.0	B-500	BELL & GOSSETT	1
TK-2	BLADDER	132.0	132.0	24.0	78.0	328.0	B-500	BELL & GOSSETT	1
1. INSTALL PER MANUFACTURER INSTRUCTIONS.									

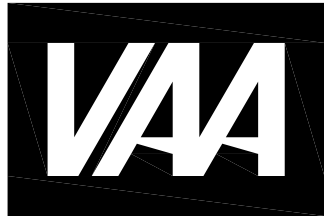
ENERGY SKID UNIT SCHEDULE (PROVIDED FOR REFERENCE ONLY)												
PLAN MARK		SERVES	DISTRICT HEAT LOOP					BUILDING HEATING LOOP				
			MBH	Temp in.	Temp Out	PRESS. DROP (ft.)	GPM	MBH	Temp in.	Temp Out	PRESS. DROP (ft.)	GPM
HX-01	BUILDING HEATED GLYCOL LOOP		2,699	205	155	7		2,699	170	190	7	279
HX-02	DOMESTIC HOT WATER HEATING		1,346	205	155	7	53.9	1,346	56	135	7	35
PLAN MARK	SERVES		GPM	HEAD	REMARKS							
P-01	HX-01		279.0	40	3							
P-02	HX-01		279.0	40	3							
P-03	HX-02		35.0	28	3							
P-04	HX-02		35.0	28	3							
1. HEATED GLYCOL LOOP IS TO BE SIZED FOR 30% PROPYLENE GLYCOL.												
2. UNIT IS TO BE PROVIDED AS A PART OF THE DISTRICT ENERGY SKID.												
3. PUMPS ARE TO ALTERNATE OPERATION ONE RUNNING ONE IN STAND BY.												
4. HEAT EXCHANGER PLATES ARE TO BE DESIGNED TO MEET MINNESOTA PLUMBING CODE REQUIREMENTS FOR HEATING OF DOMESTIC WATER.												

CONVECTOR UNIT SCHEDULE											
PLAN MARK	SERVES	BTUH	Temp In.	Temp Out	PRESS. DROP (ft.)	GPM	LENGTH (in.)	DEPTH (in.)	HEIGHT (in.)	MODEL NO.	Remarks
CV-1	NORTH EAST STAIR TOWER	8950	160	150	7	1.9	48.0	8.0	32.0	FL-8-48-32-D	1,2,3,4,5,6
CV-2	NORTH EAST STAIR TOWER	8950	160	150	7	1.9	48.0	8.0	32.0	FL-8-48-32-D	1,2,3,4,5,6
CV-3	NORTH EAST STAIR TOWER	8950	160	150	7	1.9	48.0	8.0	32.0	FL-8-48-32-D	1,2,3,4,5,6
CV-4	NORTH EAST STAIR TOWER	8950	160	150	7	1.9	48.0	8.0	32.0	FL-8-48-32-D	1,2,3,4,5,6
CV-5	SOUTH WEST STAIR TOWER	8950	160	150	7	1.9	48.0	8.0	32.0	FL-8-48-32-D	1,2,3,4,5,6
CV-6	SOUTH WEST STAIR TOWER	8950	160	150	7	1.9	48.0	8.0	32.0	FL-8-48-32-D	1,2,3,4,5,6
CV-7	SOUTH WEST STAIR TOWER	8950	160	150	7	1.9	48.0	8.0	32.0	FL-8-48-32-D	1,2,3,4,5,6
CV-8	SOUTH WEST STAIR TOWER	8950	160	150	7	1.9	48.0	8.0	32.0	FL-8-48-32-D	1,2,3,4,5,6
CV-9	SIX FLOOR MENS ROOM	920	160	150	7	0.2	24.0	4.0	24.0	FL-4-24-24-D	1,2,3,4,5,6
CV-10	SEVENTH FLOOR MENS ROOM	920	160	150	7	0.2	24.0	4.0	24.0	FL-4-24-24-D	1,2,3,4,5,6
CV-11	EIGHT FLOOR MENS ROOM	920	160	150	7	0.2	24.0	4.0	24.0	FL-4-24-24-D	1,2,3,4,5,6
1. UNIT TO PROVIDED WITH 30% PROPYLENE GLYCOL.											
2. UNIT IS TO BE SURFACE MOUNTED WITH FRONT SUPPLY AND RETURN GRILLES.											
3. UNIT IS TO BE SUPPLIED WITH INTEGRAL THERMOSTAT.											
4. UNIT TO HAVE FRONT INLET AND OUTLET GRILLES.											
5. UNIT TO HAVE ACCESS DOOR ON PIPING CONNECTION SIDE.											
6. UNIT COLOR TO BE IVORY.											

UNIT HEATER SCHEDULE											
PLAN MARK	SERVES	BTUH	Temp In.	Temp Out	PRESS. DROP (ft.)	GPM	CFM	FAN HP	VOLTS / PH	MODEL NO.	Remarks
UH-01	NINTH FLOOR MECH ROOM	12150	160	150	7	2.5	630.0	1/25	110 / 1	HS-33	1,2,3,4,5,6
UH-02	NINTH FLOOR STORAGE	24290	160	150	7	5.0	680.0	1/12	110 / 1	HS-63	1,2,3,4,5,6
UH-03	NINTH FLOOR STORAGE	24290	160	150	7	5.0	680.0	1/12	110 / 1	HS-63	1,2,3,4,5,6
1. UNIT TO PROVIDED WITH 30% PROPYLENE GLYCOL.											
2. UNIT IS TO BE HUNG FROM STRUCTURE											
3. UNIT IS TO BE SUPPLIED WITH INTEGRAL THERMOSTAT.											

REPLACEMENT COILS											
PLAN MARK		OVERALL			SUPPLY AIR				HEATED GLYCOL		
		CFM	LENGTH	HEIGHT	NO COILS	MBH	TEMP IN.	TEMP OUT	AIR PRES. DROP (in. w.c.)	TEMP IN.	TEMP OUT
AC-1		11,025	7.00	3.50	4	350	59.2	88.6	0.625	190	170
AC-2		4,860	4.80	2.25	2	183	59.2	94.1	0.625	190	170
AC-3		12,206	7.75	3.50	4	433	59.2	92.0	0.625	190	170
AC-4		12,206	7.75	3.50	4	475	59.2	95.2	0.625	190	170
AC-5		12,206	7.75	3.50	4	490	59.2	96.3	0.625	190	170
AC-6		7,250	9.67	1.67	2	208	59.2	85.7	0.625	190	170
AC-8		24,225	9.50	5.67	2	410	59.2	74.9	0.625	190	170
1. CONFIRM SPACE AVAILABLE TO PULL EXISTING STEAM COILS.											
2. CONFIRM ACTUAL SIZE AND SPACE AVAILABLE FOR INSTALLATION OF NEW HEATED GLYCOL COILS IN THE FIELD PRIOR TO MANUFACTURING NEW COILS.											
3. PROVIDE INTERNAL COIL PIPING AS INDICATED ON COIL DETAIL											
4. UNIT TO BE SUPPLIED WITH 30% PROPYLENE GLYCOL.											

TIE POINT LIST		
TIE POINT #	DESCRIPTION	LEVEL LOCATION
TP-01	EXISTING STEAM HEADER TIE IN FOR STAIRWELL	SD SUB BASEMENT
TP-02	CHILLED WATER INLET BYPASS	SD SUB BASEMENT
TP-03	CHILLED WATER OUTLET BYPASS	SD SUB BASEMENT
TP-04	CONNECTION FOR NEW AIR SEPARATOR BEFORE THE EXISTING PUMP	SD SUB BASEMENT
TP-05	CONNECTION FOR NEW AIR SEPARATOR AND SKID AT EXISTING PUMP	SD SUB BASEMENT
TP-06	CONNECT 4" HWR TO SKID	SD SUB BASEMENT
TP-07	CONNECT 4" HWS TO SKID	SD SUB BASEMENT
TP-08	CONNECT TO DES 3" HHS TO SKID	SD SUB BASEMENT
TP-09	CONNECT TO DES 3" HHR TO SKID	SD SUB BASEMENT
TP-10	CONNECT DHW RETURN TO SKID	SD SUB BASEMENT
TP-11	CONNECT DHW SUPPLYS TO SKID	SD SUB BASEMENT
TP-12	CONNECTION TO DHWR	SD SUB BASEMENT
TP-13	CONNECTION TO DHWS	SD SUB BASEMENT
TP-14	CONNECT STAIRWELL CONVECTORS TO RETURN	SD SUB BASEMENT
TP-15	CONNECT NEW 2" TO EXISTING CHWS FOR NEW FCU-01 AND 02	AB BASEMENT
TP-16	CONNECT NEW 2" TO EXISTING CHWR FOR NEW FCU-01 AND 02	AB BASEMENT
TP-17	CONNECT TO DES 3" HHS	AB BASEMENT
TP-18	CONNECT TO DES 3" HHR	AB BASEMENT
TP-19	CONNECT TO EXISTING CHWR FOR NEW FAN COIL	1ST FLOOR PLAN
TP-20	CONNECT TO EXISTING CHWS FOR NEW FAN COIL	1ST FLOOR PLAN
TP-21	CONNECT TO EXISTING CHWS/R FOR NEW AHU COIL	3RD FLOOR PLAN
TP-22	CONNECT TO EXISTING CHWS/R FOR NEW CONVECTOR	3RD FLOOR PLAN
TP-23	CONNECT TO EXISTING CHWS/R FOR NEW AHU COIL	5th FLOOR PLAN
TP-24	CONNECT TO EXISTING CHWS/R FOR NEW AHU CONVECTOR	5th FLOOR PLAN
TP-25	CONNECT TO EXISTING CHWS/R FOR NEW AHU COIL	7th FLOOR PLAN
TP-26	CONNECT TO EXISTING CHWS/R FOR NEW AHU CONVECTOR	7th FLOOR PLAN
TP-27	CONNECT 1" HHS TO NEW UNIT HEATERS	9TH FLOOR
TP-28	CONNECT 1" HHR TO NEW UNIT HEATERS	9TH FLOOR
TP-29	SECONDARY LOOP THREE WAY VALVE	9TH FLOOR
TP-30	CONNECT TO EXISTING CHWS/R FOR NEW AHU COIL	9TH FLOOR
TP-31	TP FOR THREE WAY VALVE	9TH FLOOR
TP-32	CONNECT TO EXISTING CHWS/R FOR NEW AHU COIL	SD SUB BASEMENT



VAA, LLC
2300 Bankshire Lane N, Suite 200
Phonexia, MN 55441
WA Firm Registration No. 3005
Project # 250513

CLIENT:



CLIENT PROJECT NO:

PROJECT:

DULUTH HOT WATER
CONVERSION

NO	DATE	ISSUE/REVISION	BY
A	03/08/2021	ISSUED FOR 60% REVIEW	WFD
B	03/11/2021	ISSUED FOR BID	WFD
C	03/30/2021	ISSUED FOR BID CLIENT CHANGES	WFD
D	04/09/2021	ISSUED FOR CLARIFICATIONS	WFD

Product Data: PHBC - HBC Models

Qty	Description	Model Number
1	PHBC - HBC Models	08APHBCP12003RHSMXXX

Tag(s):**Item Tag(s):****Selected Options**

08	Size : 08
P	Motor Option : PSC
120	Voltage : 120V-1-60
03	Coil : 2 Pipe 3-Row
RH	Handing : Right Hand
S	Drain Pan : Stainless Steel
M	Control Voltage : 120V/24V
X	Foil Option : None



08PHBC

Tag:

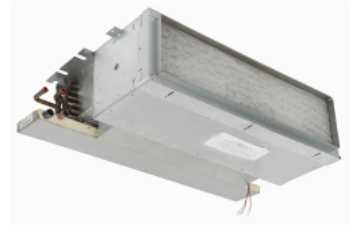
Qty	Model	Size	Unit Configuration	Unit Dimensions (in.)	Shipping Weight* (lbs.)
1	PHBC	08	Supply	L=22.75 W=46.13 H=10	81

Electrical Data

Unit Voltage	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MOP
115-1-60	3	4	15

General Information

Air Flow:	919	CFM	Fluid Type:	
ESP:	0.01	in. H2O	Glycol %:	%
Altitude:	0	Feet		



Horizontal Fan Coil with Plenum
- Chilled / Hot Water

Fan Performance

Fan Speed:	High
Fan Motor BHP:	0.00 BHP
Fan RPM	0 RPM
External Static Pressure:	0.01 in. H2O

Motor Data

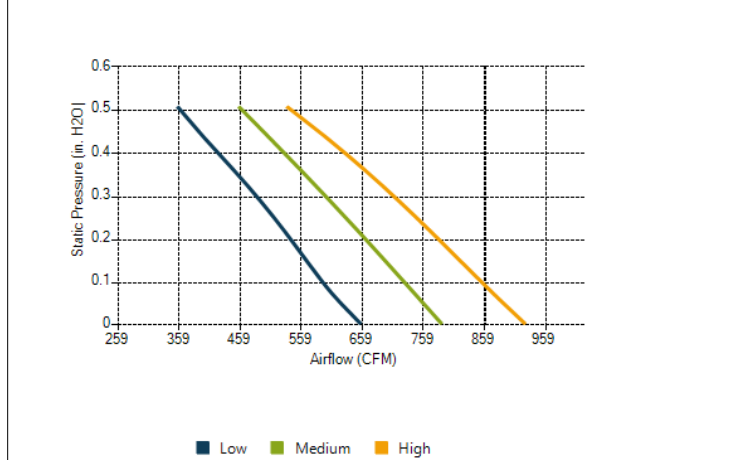
Description	Qty	HP (ea.)	FLA (ea.)
PSC	1	1/5	3

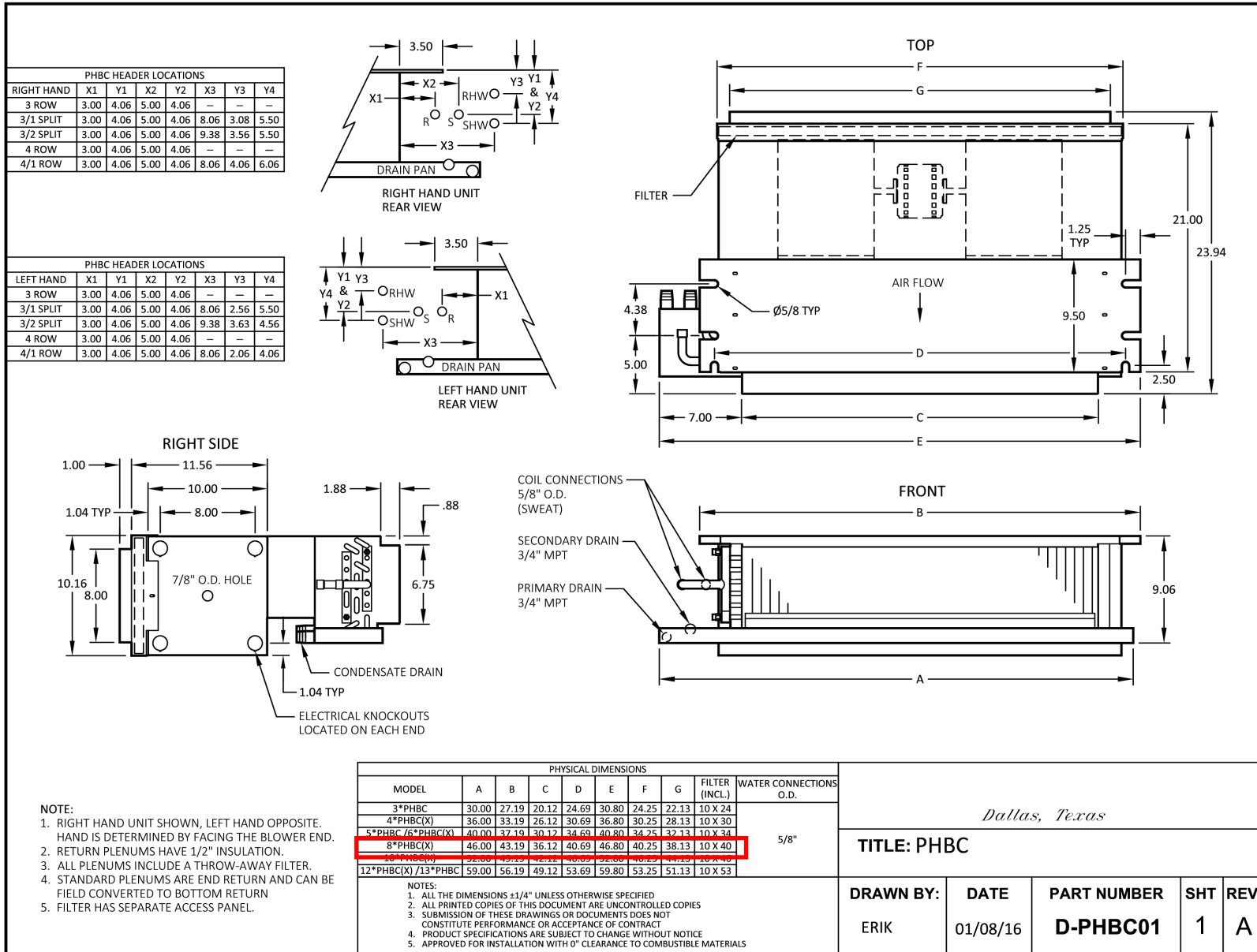
Hot Water

Total Capacity:	27.2	MBH
Entering Air Temp:	68.00	°F
Leaving Air Temp:	94.6	°F
Entering Fluid Temp:	180.00	°F
Fluid Flow:	1.0	GPM
Leaving Fluid Temp:	122.4	°F
Coil Rows:	3	
Fluid Pressure Drop:	0.42	ft. H2O
Air Pressure Drop:	0.31	ft. H2O

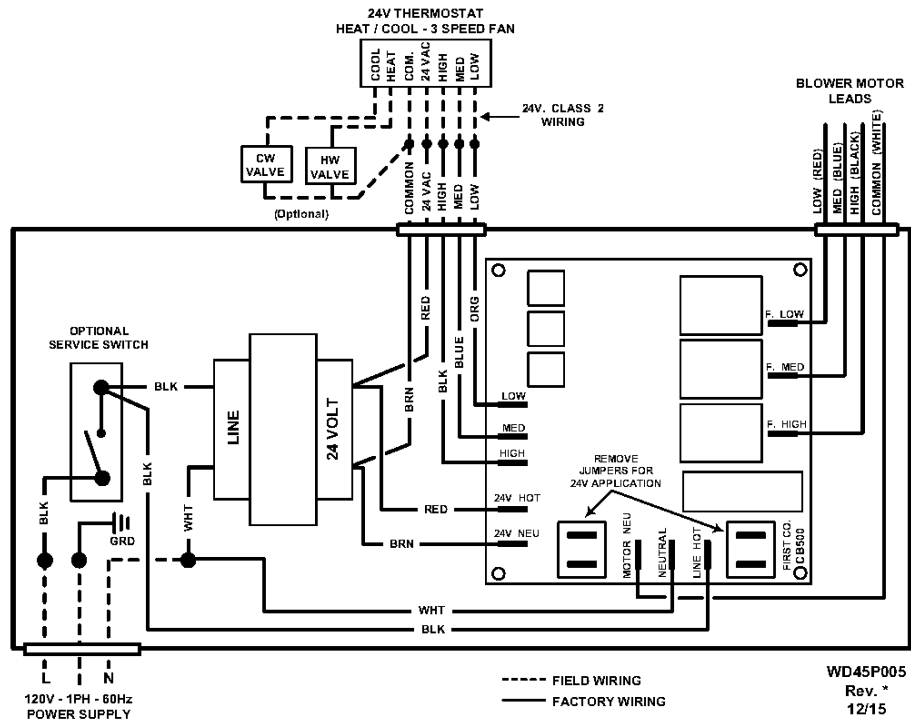
Fan Curve

PHBC Fan Performance Curves
Unit Size 08 - PSC Motor





Qty: 1 Tags:



WD45P005
Rev. *
12/15

Dallas, Texas

TITLE: HBC 120V/24V, 3Spd Brd

DRAWN BY: ERIK	DATE 12/08/2015	PART NUMBER WD45P005	SHT 1	REV *
--------------------------	---------------------------	---------------------------------------	-----------------	-----------------

Mechanical Specification: HBC - HBC Models**System Description**

Horizontal, 2-pipe or 4-pipe above ceiling furred-in room fan coil unit or above ceiling with plenum for ducting or recessed cabinet for ducting, or with cabinet for exposed ceiling installations.

Quality Assurance

Unit shall be tested and certified in accordance with AHRI Standard 440, latest edition and base unit ETL certified. (Units with special features may not have ETL certification.) Each coil shall be factory tested for leakage at 350 PSIG air pressure with coil submerged under water. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation. All equipment wiring shall comply with NEC requirements.

Delivery, Storage and Handling

Each unit shall be individually packaged from point of manufacture. Unit shall be handled and stored in accordance with the manufacturer's instructions.

General Product Information

Factory-assembled, horizontal, blow-thru type fan coil for furred-in, exposed ceiling or ducted installations. Unit shall be complete with water coil(s), fan (s), motor(s), drain pan, and all required wiring, piping, and special features. Standard insulation shall be dual density 1/2" Tuf-Skin RX™ fiberglass insulation that includes an acrylic coating that is formulated with and EPA registered anti-microbial agent. The insulation meets the erosion requirements of UL 181. It has a flame spread of less than 25 and a smoke developed classification of less than 50 per ASTM E-84 and UL 723. 1" fiberglass air filters are provided and factory installed.

Fans

Direct-driven, double width, double inlet (DWDI), forward curved, centrifugal type. They are statically and dynamically balanced for smooth, quiet operation. The housing is constructed of heavy gauge galvanized steel with die-formed inlet cones. Fan wheels shall be constructed of galvanized steel.

Coil

Coils are staggered tube type construction with seamless copper tubes and headers, and deep corrugated aluminum fins with straight edges. Fins are manufactured with full depth collars, drawn in the fin stock to provide accurate control of fin spacing and completely cover the copper tubes to lengthen coil life. The tubes are to be mechanically expanded into the fins for a permanent primary to secondary surface bond, assuring maximum heat transfer efficiency. The coils are to be tested at 350 PSIG air pressure for operation at 300 PSIG maximum working pressure. Coils include manual air vents.

Motor Option : PSC

Fan motors shall be 3-speed, 120V, single-phase, 60 Hz, permanent split capacitor (PSC), with sleeve type bearings, and oversized oil reservoirs to ensure lubrication.

Coil : 2 Pipe 3-Row

A single circuit-coil unit installed in a 2-pipe system shall be capable of providing heating or cooling as determined by the operating mode of the central water supply system.

Drain Pan : Stainless Steel

The drain pan shall be constructed of stainless steel, extending the entire length and width of the coil(s), and shall be pitched for positive drainage. The inside surface of the drain pan shall be coated with closed-cell fire-retardant foam insulation. Drain pan shall include a secondary drain connection located above the primary drain connection to act as an indicator that the main primary is plugged. Drain pans are removable without removing coils.

Control Voltage : 120V/24V

Fan controls shall include a factory mounted and wired 24V transformer and three speed control board.