THIS FORM MUST BE PRINTED TO A STATIC PDF FOR DISTRIBUTION

Yellow highlighted text will not appear in the printed document.

SUBMITTAL REVIEW

CLIENT NAME: Vails Gate Fire Department

PROJECT TITLE: Vails Gate FD - New Firehouse

SUBMITTAL No.: 238239.12-1 **H2M PROJECT No.:** VGFD2001

SUBMITTAL NAME: Hydronic Heaters PD

SUBMITTAL REVIEW

REVIEW IS FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS.
NO RESPONSIBILITY IS ASSUMED FOR CORRECTNESS
OF DIMENSIONS OR DETAILS

- [x] NO EXCEPTIONS TAKEN
- [ ] SUBMIT SPECIFIED ITEM
- [ ] MAKE CORRECTIONS NOTED (RESUBMISSION NOT REQUIRED)
- [ ] NO ACTION TAKEN (REVIEW IS THE RESPONSIBILITY OF ANOTHER PARTY)
- [ ] REVISE & RESUBMIT
- [ ] NO ACTION TAKEN (THIS SUBMITTAL IS NOT REQUIRED BY THE CONTRACT)
- [ ] REJECTED - SEE REMARKS
- [ ] RECEIVED FOR RECORD

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating their work with that of all other trades; and performing the work in a safe and satisfactory manner.

H2M architects + engineers

Date: 04/14/2023 By: MJV

Rev.: 2020-05-20

Comments:

Contractor to confirm quantities.

CONTRACTOR'S COMPANY NAME
ADDRESS

SUBMISSION TRANSMITTAL FORM
CLIENT NAME: Vails Gate Fire District
PROJECT TITLE: VGFD2001-New Firehouse

H2M PROJECT NO.: VGFD2001

Product, Item, or System Submitted:	Hydronic Unit Heaters Product Data (Phase 1 & 2)		
Submission Date:	4/10/23	Submission Log No.:	238239.12-1
Specification Section:	238239.12	Paragraph Reference:	1.03/A
Contract Drawing Reference(s):			
Manufacturer's Name:			
Manufacturer's Mailing Address:			
Manufacturer's Contact Information:	*Name*	( ) *Tel. no.*	*Email*
Supplier's Name:	Joseph Lombardo		
Supplier's Mailing Address:			
Supplier's Contact Information:	*Name*	( ) *Tel. no.*	*Email*
This item is a substitution for the specified item:		☑ No	☐ Yes

KEY CONSTRUCTION SERVICES, LLC

Project No: VGFD2001

Reviewed for General Acceptance Only. This review does not relieve the Subcontractors or Suppliers of responsibility for making the work conform to the requirements of the contract. The Subcontractor and Suppliers are responsible for all dimensions, correct fabrication and accurate fit with the work of other trades.

SUBJECT TO ARCHITECT AND OR ENGINEER APPROVAL

Signed *Joseph Manfredi*(PM) **Date: 4/10/23**

Contractor's Approval Stamp with Signature & Date

Contractor's Brief Comments or Remarks (attach separate letter as needed):

By making this submission, we represent that we have determined and verified all field measurements and dimensions, field construction criteria, site and building constraints in terms of limitations in moving the item into the enclosed space, materials, catalog and model numbers and similar data and that we have checked and coordinated this submission with other work at or adjacent to the installed location in accordance with the requirements contained in the Contract Documents.

END OF SECTION 013300

Joe Lombardo

Plumbing & Heating of Rockland, Inc.

LETTER OF TRANSMITTAL

321 Spook Rock Road
Suffern, NY 10901
Ph. 845-357-6537 Fx 845-357-8529
E: info@josephlombardo.com
Website: www.josephlombardo.com

Rockland Cty. Plumbing #1000 *Rockland Cty. Cooling # 1468*
Westchester Cty. Plumbing #460 *New Jersey State Plumbing #12702*

DATE:	JOB NO.
4-6-23	
ATTENTION: Joe Manfredi	
RE: Vails Gate Firehouse	

TO: **Key Construction**
4246 Albany Post Rd. Suite 1
Hyde Park, NY 12538

WE ARE SENDING YOU ☐ **Attached** ☐ **Under separate cover via** _____ **the following items:**

☐ **Shop Drawings** ☐ **Prints** ☐ **Plans** ☐ **Samples** ☐ **Specifications**
☐ **Copy of letter** ☐ **Change order** ☐ _____

EMAIL	DATE	NO.	DESCRIPTION
1	4-6-23	238239.12	hydronic unit heaters phase 1 & 2

THESE ARE TRANSMITTED as checked below:

☐ **For approval** ☐ **No Exceptions Taken** ☐ **Resubmit** _____ **copies for review**
☐ **For your use** ☐ **Make Corrections Noted** ☐ **Submit** _____ **copies for distribution**
☐ **As requested** ☐ **Rejected** ☐ **Return** _____ **corrected prints**
☐ **For review and comment** ☐ _____
☐ **FOR BIDS DUE** _____ **20** ___ ☐ **PRINTS RETURNED AFTER LOAN TO US**

COPY TO: Joe Manfredi

SIGNED: Ronald J. Lombardo

PHASE 1

Submittal

Date:	3/23/2023	Engineer:	H2M Engineering
Submitted To:	General Plumbing Supply	Job Name:	Vails Gate FD Phase 1
WD Quote #:	80932	Job Address:	872 Blooming Grove Turnpike
WD Job #:	2208239		New Windsor, NY 12553

Tag	Qty	Manufacturer	Model Number	Description
GFRH-SB-1,2,3	3	Modine	IPT100S0111	Low Intensity Infrared Unit
	3	Modine	40820	50' Straight Tube
	3	Modine	32496	50-90 Degree T-Stat
	3	Modine	32468	40' Chain Set
	3	Modine	32271	Flexible Gas Connector

Submitted for (Select one): X Approval ____ Re-Submission _____ Record Purposes

WD Submitted/Reviewed By: Greg Zimmerman

New York
2910 Express Dr S, Islandia, NY 11749
Tel: 631.585.6800
Email: infony@walesdarby.com

Pennsylvania
1650 Market St #3600, Philadelphia, PA 19103
Tel: 267.370.5204
Email: infopa@walesdarby.com

New Jersey
5B Powder Horn Dr, Warren, NJ 07059
Tel: 732.560.1001
Email: infonj@walesdarby.com

AccuSpec V4.43b
Transaction #: 18962760

JOB TITLE: VAILS GATE FD, PHASE 1

Date: 03/22/2023

Approved By:
Submittal review and approval required prior to listed unit(s) being released for production and shipment. Unit(s) configured based on information provided. The Approver is responsible for ensuring the units, options, and accessories meet the job specifications and comply with any applicable code requirements.

AccuSpec V4.43b

SUBMITTAL SCHEDULE & DATA

Gas- and Oil-Fired Unit Heaters, Infrared Heaters, and Indoor Duct Furnaces

Job Name: VAILS GATE FD, PHASE 1
Location: New Windsor, NY 12553
Submitted by: Greg Zimmerman

Date: 03/22/2023
Engineer: H2M Engineering
Architect:
Contractor: Jospeh Lombardo Plumbing & Heating

		Unit Tag	
	GFRH-SB-1,2,3		
Model Number	IPT100S0111		
Quantity of Units	3		
Btu/Hr Input	100,000		
Btu/Hr Output			
CFM	N/A		
Altitude	0-2000		
Temperature Rise (degrees F)	N/A		
External Static Pressure (E.S.P)			
Total Static Pressure (T.S.P.)			
Gas Type	Natural Gas, 1-Stage		
Gas Control Type	4 Trial Ignition, 100% Shut-off With Lockout		
Supply Voltage	115/60/1		
Control Voltage			
Motor HP	0.03		
Motor RPM	3000		
Blower RPM	N/A		
Heat Exchanger Type	Aluminized Steel		
Thermal Efficiency %			
Options & Accessories (See Attached Pages)			

Remarks_____

AccuSpec V4.43b

SUBMITTAL SCHEDULE & DATA

Gas- and Oil-Fired Unit Heaters and Infrared Heaters

Model	Description	Qty	Tag
IPT100S0111	Gas-Fired, Indoor/Outdoor, Low Intensity infrared Heater	3	**GFRH-SB-1,2,3**
77797	IPT100S0111	3	**GFRH-SB-1,2,3**
40820	50 Foot Straight System	3	**GFRH-SB-1,2,3**
32496	White Rodgers 1-Stage 1C20-101	3	**GFRH-SB-1,2,3**
32468	40' Chain Mounting Set	3	**GFRH-SB-1,2,3**
32271	Flexible Gas Connector	3	**GFRH-SB-1,2,3**

PHASE 2

AccuSpec V4.43b

SUBMITTAL SCHEDULE & DATA

Steam/Hot Water Unit Heaters

Job Name: VAILS GATE FD, PHASE 1
Location:
Submitted by: Greg Zimmerman

Date: 03/22/2023
Engineer:
Architect:
Contractor:

		Unit Tag	
	UH-1-4		
Model Number	HC 165SB01SA		
Quantity of Units	4		
Btu/Hr Output	130,944		
CFM	3240		
Outlet Velocity (fpm)	870		
Entering Air Temp. (°F)	60		
Final Air Temp. (°F)	97		
Fluid Type (Steam or Hot Water)	Hot Water		
Steam Pressure (PSI)	N/A		
Condensate (lb/hr)	N/A		
Entering Water Temp. (°F)	200		
Glycol % and Type	0%		
Water Flow Rate (GPM)	13.6		
Water Pressure Drop (Ft of Water)	8.6		
Water Temp Drop (°F)	20.0		
Supply Voltage	115/60/1		
Motor Type	Totally Enclosed with Thermal Overload		
Motor HP	1/3		
Motor RPM	1075		
Unit Amps [1]	4.2-4.6		
Options & Accessories (See Attached Pages)			

Remarks_____

[1] The unit FLA may vary based on the actual motor shipped with the unit.

AccuSpec V4.43b

SUBMITTAL SCHEDULE & DATA

Steam/Hot Water Unit Heaters

Model	Description	Qty	Tag
HC 165SB01SA	Steam/Hot Water Unit Heater	4	UH-1-4
03493	HC 165SB01SA	4	UH-1-4
04779	Aquastat	4	UH-1-4
23128	Pipe Hanger Adapter Kit	4	UH-1-4

AccuSpec V4.43b

IPT MODEL NOMENCLATURE

1,2,3	4,5,6	7,8	9,10,11,12
IPT	100	S	11

1,2,3 - Product Type
IPT – Gas-Fired Pressurized Low Intensity Infrared Unit

4,5,6 - Furnace Input Rating
100 - 100,000 Btu/hr

7,8 – Ignition Type
S - Spark Ignition

9,10,11,12 - Control Code Type
11 - 115/24V 4 Trial Ignition, 100% Shut-off With Lockout, Natural Gas, 1-Stage

Tube Type and Length
50 Foot Straight System

AccuSpec V4.43b

GENERAL PERFORMANCE DATA

General Performance Data

Model	IPT100
At 0’ Elevation	
Btu/Hr. Input	100,000
Unit Total Power (Amps)	2.66

As Configured at 0-2000 Ft. Elevation

Btu/Hr. Input	100,000

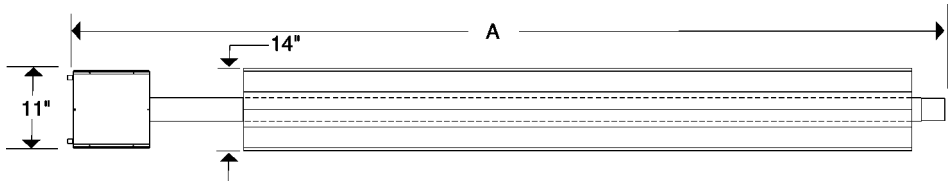
Recommended mounting heights 12 - 14 Ft.

DIMENSIONS – UNIT

Model IPT Dimensions
Straight Tube

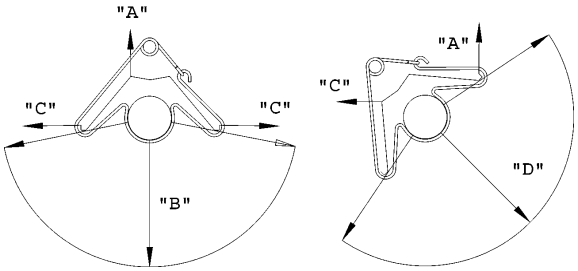
Model Size IPT100

Dimensions



A (ft.)	53
Tube Length (ft.)	50
Burner Weight (lbs.)	43
Tube Weight (lbs.)	180
Shipping Weight (lbs.)	43

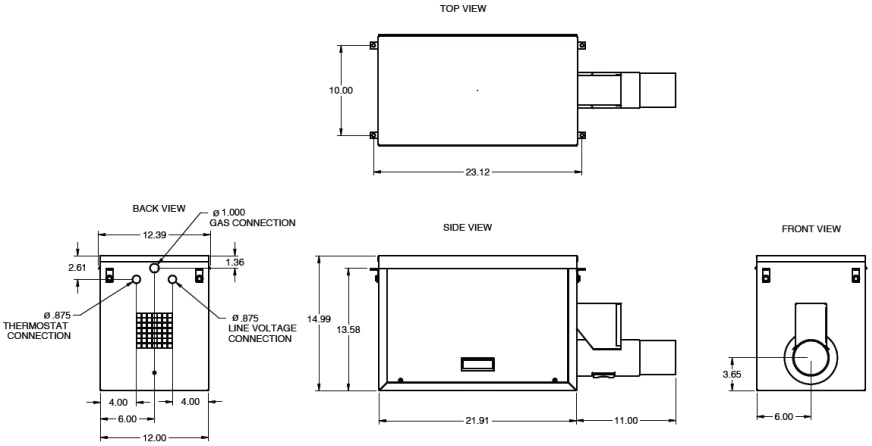
Clearances to Combustibles (inches)



Top (A)	9
Bottom (B)	76
Side (C)	24
Front (D)	76
End	12

*Clearance to each end and above the U-Tube is 12 inches.

Casing Dimensions (inches)



SECTION 23 55 23.13
LOW-INTENSITY GAS-FIRED RADIANT HEATERS

SPECIFICATIONS
Tag: GFRH-SB-1,2,3

GENERAL

SUMMARY

This Section includes low-intensity gas-fired infrared heaters. Each unit shall incorporate additional product requirements as listed in the "PRODUCTS" section of this specification.

SUBMITTALS

All information in this document, as provided by Modine Manufacturing Company, is provided without representation or warranty of any kind as to the user or any other party, including, without limitation, ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, OR NON-INFRINGEMENT. To the greatest extent permitted by applicable law, Modine Manufacturing Company assumes no liability, and the user assumes all liability and risk, for the use or results from the use of this document or the information contained herein, whether as modified by the user or not. This document must be carefully reviewed by the Engineer to ensure it meets the requirements of the project and local building code(s).

As Modine Manufacturing Company has a Continuous Product Improvement program, it reserves the right to change design and specifications without notice.

QUALITY ASSURANCE

Units shall be certified in accordance with ANSI Z83.20/CSA 2.34, "Standard for Gas-Fired Low-Intensity Infrared Heaters".

Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years documented experience.

WARRANTY

Standard Unit Warranty:

Gas-Fired Heat Exchangers: Five years from date of first beneficial use by buyer or any other user, within five years from date of resale by buyer in any unchanged condition, or within 66 months from date of shipment from seller, whichever occurs first.

All Other Parts: Two years from date of first beneficial use by buyer or any other user, within two years from date of resale by buyer in any unchanged condition, or within 30 months from date of shipment from seller, whichever occurs first.

PRODUCTS

GENERAL

Furnish and install a low-intensity gas-fired infrared heater. ETL design certification in accordance with ANSI Z83.20/CSA 2.34, "Standard for Gas-Fired Low-Intensity Infrared Heaters". Unit nameplate shall include the ETL listed mark for both the US and Canada. Burner section shall be fully assembled, wired, and tested prior to shipment.

MANUFACTURERS

The basis-of-design product for the Low-Intensity Gas-Fired Radiant Heaters on the Modine Model IPT.

CABINET

The casing shall be designed for indoor or outdoor applications with a fully weatherproof cabinet.

Hanging Provisions: Unit shall include hanging brackets at the top of the unit. The brackets will allow for threaded rod, cable, or chain mounting from the overhead structure.

Exterior Cabinet Construction: Exterior casing parts shall be 20 gauge aluminized steel with an electrostatically applied polyester powder coat paint finish. Paint shall be applied post fabrication, but before assembly to ensure complete paint coverage on all surfaces of each part, including the inside of punched holes.

Exterior Cabinet Finish: Paint color shall be standard Modine Gray Green.

Service and Maintenance Access: Access to items needing periodic inspection or maintenance shall be through removable access doors.

Access Door Hardware: Access doors shall be secured closed with Phillips head screws.

Unit shall be designed with a sealed combustion chamber within the control cabinet to permit service and maintenance while the unit operates.

HEATING SYSTEM

The burner section shall be configured for use with Natural Gas. The inlet gas pressure shall be between 6" and 14" W.C.

Gas Valve: The burner gas valve shall be Natural Gas, 1-Stage.

Combustion Air Blower: The combustion air blower motor shall be totally enclosed in the control box and the motor shall be protected by a thermal overload switch. The blower shall be tested to insure proper ignition when the unit is subjected to 40 mile per hour wind velocities. The unit shall also include a factory mounted differential pressure switch designed to prevent main burner ignition until positive venting has been proven.

Burner: The burner shall be in-shot type, directly firing the primary heat exchanger tube and designed for good lighting characteristics without noise of extinction.

Primary Heat Exchanger: Tubes shall be aluminized steel for corrosion resistance.

Primary Heat Exchanger Heat Transfer: Tubes shall be heat treat darkened for maximum emissivity and radiant heat transfer. Painted tubes are not acceptable due to the potential

for the finish to scratch and flake off. The last heat exchanger tube shall incorporate a turbulator baffle for maximum efficiency of heat transfer.

Reflectors: The heat exchanger tubes must be used in conjunction with reflectors. The reflector can be adjusted from 0° to 45° from the horizontal plane. Reflectors shall be of bright polished aluminum.

The heating section controls shall be as outlined in the “CONTROLS” section.

ELECTRICAL

Control Panel: The unit shall have an electrical control center where all high and low voltage connections are made.

Power Connections: Control center shall be constructed to permit single-point 115V/60Hz/ph power supply connections.

Wiring Diagram: The unit shall have a wiring diagram affixed to the interior of the control compartment access door.

Access Door Interlock Switch: The unit shall include an access door switch that disables the unit operation if the door is opened.

CONTROLS

Ignition: Heater shall be equipped with a direct four-trial, 100% shut-off Direct Spark ignition control system with a separate flame sensor.

Control Voltage: Heater shall be equipped with a 115V/25V control transformer for 25V thermostat operation.

Venting: Heater shall be equipped with a pre-purge mode and a differential pressure switch to ensure proper combustion air flow and venting.

The controls shall include an indicator light to provide confirmation of the burner is properly running.

EXECUTION

EXAMINATION

Prior to start of installation, examine area and conditions to verify correct location for compliance with installation tolerances and other conditions affecting unit performance. See unit Installation & Service Manual.

Examine roughing-in of plumbing, electrical and HVAC services to verify actual location and compliance with unit requirements. See unit Installation & Service Manual.

Proceed with installation only after all unsatisfactory conditions have been corrected.

INSTALLATION

Installation shall be accomplished in accordance with these written specifications, project drawings, manufacturer’s installation instructions as documented in manufacturer’s Installation & Service Manual, Best Practices and all applicable building codes.

CONNECTIONS

In all cases, industry Best Practices shall be incorporated. Connections are to be made subject to the installation requirements shown above.

Piping installation requirements are specified in Division 22 (Plumbing). Drawings indicate general arrangement of piping, fittings and specialties.

Duct installation and connection requirements are specified in Division 23 (Heating Ventilating and Air Conditioning).

Electrical installation requirements are specified in Division 26 (Electrical).

FIELD QUALITY CONTROL

Refer to section 01 40 00 "Quality Requirements" for additional requirements.

SYSTEM STARTUP

Start-up units in accordance with manufacturer instructions. Test controls and demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment.

AccuSpec V4.43b

STEAM/HOT WATER MODEL NOMENCLATURE

1,2,3	4,5,6	7	8	9,10	11	12
HC	165	S	B	01	S	A

1,2,3 - Model Type
HC - Horizontal Airflow Steam/Hot Water Unit Heater

4,5,6 - Input Rating
165 - 165,000 BTUH

7 - Coil Type
S - Standard

8 – Development Sequence
B - Current

9,10 - Motor and Drive Code (Power Code)
01 - 115/60/1 - Totally Enclosed with Thermal Overload

11 – Fan Guard Style
S - Standard Fan Guard

12 – Factory Installed Option
A - None

AccuSpec V4.43b

GENERAL PERFORMANCE DATA

C US

General Performance Data
200°F Entering Water, 60°F Entering Air Temperature, 20°F Water Temp. Drop

Model	HC 165
Btu/Hr. Output	130,944
Airflow (CFM)	3240
Outlet Velocity	870
Entering Air Temp. (°F)	60
Final Air Temp. (°F)	97
Water Flow Rate (GPM)	13.6
Mounting Height (Max Ft.) [1]	20
Heat Throw (Max. Mtg. Ft.) [1]	40
Total Unit Amps	4.2-4.6

As Configured Conditions

Entering Water Temp. (°F)	200
Entering Air Temp. (°F)	60
Water Temp Drop (°F)	20.0
Btu/Hr. Output	130,944
Final Air Temp. (°F)	97
Mounting Height (Max Ft.) [1]	20
Heat Throw (Max Ft.) [1]	43
Water Flow Rate (GPM)	13.6
Water Pressure Drop (Ft of Water)	8.6

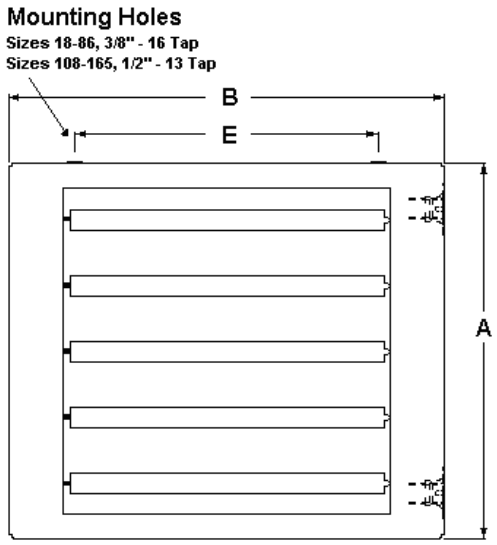
Motor Data

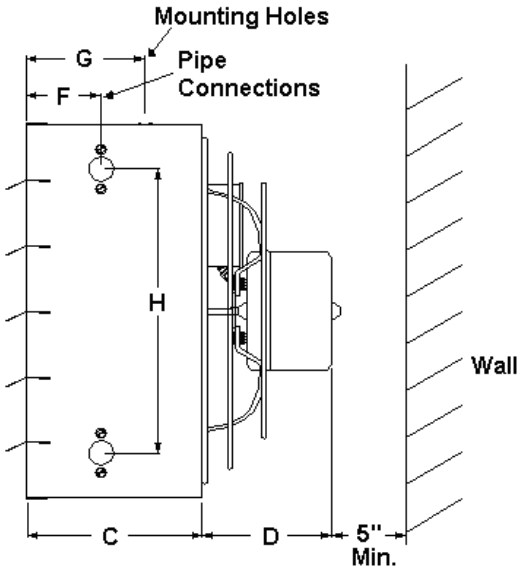
Horse Power	1/3
RPM	1075
Type	Totally Enclosed with Thermal Overload
Motor Amps	4.2-4.6

[1] Mounting height measured from floor to bottom of unit. Horizontal units with horizontal louvers open 30° from vertical plane. The maximum mounting height (Max Ft.) is the height above which the unit will not deliver heated air to the floor.

DIMENSIONS – UNIT

Model HC Dimensions





Model Size HC 165

Dimensions (in inches)

A	26-1/2
B	29-1/2
C	9-1/4
D [1]	9-1/2
E	21-1/4
F	3-5/8
G	6-3/8
H	22
Connections NPT	3/4
Fan Diameter	22
Approx. Ship Wt	92 lbs.

[1] Dimension is for 115V motor.

Specifications

Core Type (Serpentine)	Single
Copper Tube Size (inches)	1
Copper Tube Wall Thickness (inches)	0.03
Maximum Coil Rating	150 PSI / 375°F

Junction Box: All units include an electrical junction box either integral to the motor or attached to the unit casing.

Units
Self-contained, factory assembled, pre-wired unit consisting of cabinet with air deflection louvers, supply fan, motor, and condenser.

Coating
Electrostatically applied baked on grey-green corrosion resistant, polyester powder coat paint that meets the following tests:
1. 500 hours of salt spray as defined in ASTM B117.
2. Adhesion/crosshatch tape tests as defined in ASTM D3359, Method B, Rating 5B.
3. Will not crack or peel when test panel is bent around a 1/8 inch arbor.

Condenser
Condenser coils are of the extended surface type of serpentine design, utilizing aluminum fins and DLP-type copper tubes. Tubes are mechanically bonded to the collars of the fins. The condensers are warranted for operation at steam or hot water pressures up to 150 pounds per square inch gauge and/or temperatures up to 375°F. All coils are leak tested at 165 to 200 psig, air under water. Fins are continuous across the width and depth of the condenser and are vertically oriented to minimize the collection of dirt and dust.

Coils are of serpentine design with horizontal tubes, vertical fins and side supply and return. All tube bends are brazed. All tubes have individual expansion bends. Copper tubes are 1" O.D. with 0.03" wall thickness.

Motor
Single motor with a supply voltage of 115/60/1 and horsepower of 1/3 as indicated on the equipment schedule and manufactured in accordance with NEMA standards for continuous fan duty type applications. Must be totally enclosed and single phase motors will have built in thermal overload protection. Will be mounted to the unit with rubber vibration absorbing material. The entire length of the line voltage motor leads will be shielded and terminate in a factory supplied junction box mounted on the unit or integral to the motor.

Fan/Fan Guards
Fans AMCA rated direct drive, aluminum blade, steel hub propeller will be statically and dynamically balanced. Unit shall be equipped with a safety fan guard.

Air Deflectors
The unit shall be furnished with horizontal air deflectors. The deflectors are adjustable to almost any desired position for downward, straight or upward airflow.

Accessories
The following items are to be field installed in accordance with the manufacturer's instructions:

Aquastat: 10 amps @ 115V; 6 amps @ 230V; 100-240 F. degree range, 10°F fixed differential; Johnson Controls model A19DAC-1.

Pipe Hanger Adapter Kit: Provides means to suspend unit by 3/4 inch pipe.

PHASE 2

Submittal

Wales Darby
Complete HVAC, Hydronic & Plumbing Systems

Date:	3/23/2023	Engineer:	H2M Engineering
Submitted To:	General Plumbing Supply	Job Name:	Vails Gate FD Phase 2
WD Quote #:	80932/2208239		
Job PO#:		Job Address:	

Tag	Qty	Manufacturer	Model Number	Description
UH-1-4	4	Modine	HC165SB01SA	Water Unit Heaters
	4	Modine	04779	Aqustat
	4	Modine	23128	Pipe Hanger Kit
	4	Taco	T1P00033A1A1	Smart Starts
CUH-A	1	Modine	C00308ALLL120P00	Floor Mounted Cabinet Unit Heater
	1	Modine	42459	Unit Mounted Return Air T-Stat
CUH-B/126	2	Modine	CW00358ALLL110P00	Recessed Ceiling Cabinet Unit Heaters
	2	Modine	23124	T-Stats
	2	Modine	04120	Permalap Frames
	3	Modine	42458	Disconnect Switch
	3	Modine	53874	Sky White Hammertone Finish

Submitted for (Select one): X Approval ____ Re-Submission ____ Record Purposes

WD Submitted/Reviewed By: Greg Zimmerman

New York
2910 Express Dr S, Islandia, NY 11749
Tel: 631.585.6800
Email: infony@walesdarby.com

Pennsylvania
1650 Market St #3600, Philadelphia, PA 19103
Tel: 267.370.5204
Email: infopa@walesdarby.com

New Jersey
5B Powder Horn Dr, Warren, NJ 07059
Tel: 732.560.1001
Email: infonj@walesdarby.com

AccuSpec V4.43b
Transaction #: 20209529

JOB TITLE: VAILS GATE FD, PHASE 2

Date: 03/22/2023

Approved By:
Submittal review and approval required prior to listed unit(s) being released for production and shipment. Unit(s) configured based on information provided. The Approver is responsible for ensuring the units, options, and accessories meet the job specifications and comply with any applicable code requirements.

AccuSpec V4.43b

SUBMITTAL SCHEDULE & GENERAL PERFORMANCE DATA

Steam/Hot Water Cabinet Unit Heaters

Job Name: VAILS GATE FD, PHASE 2
Location:
Submitted by: Greg Zimmerman

Date:
Engineer:
Architect:
Contractor:

		Unit Tag	
	CUH-A	**CUH-B/126**	
Model Configuration			
Model Number	C 00308ALLL120P00	CW 00358ALLL110P00	
Quantity of Units	1	2	
Mounting Type	Floor	Recessed Ceiling	
Air Flow Direction	08: Front In & Out	58: Front In & Out	
Coil Rows	1	1	
Entering Conditions			
Entering Air Temp (°F)	60.0	60.0	
Fluid Type (Steam or Hot Water)	Hot Water	Hot Water	
Steam Pressure (PSI)	N/A	N/A	
Entering Water Temp (°F)	200	200	
Water Flow Rate (GPM)	2.3	2.3	
Glycol % and Type	0%	0%	
High Fan Speed Performance			
Btu/Hr Output	22,391	22,391	
CFM	330	330	
Final Air Temp (°F)	123	123	
Condensate (lb/hr)	N/A	N/A	
Water Temp Drop (°F)	20.0	20.0	
Water Pressure Drop (Ft of Water)	0.3	0.3	
Low Fan Speed Performance			
Btu/Hr Output	15,112	15,112	
CFM	195	195	
Final Air Temp (°F)	131	131	
Condensate (lb/hr)			
Water Temp Drop (°F)	13.5	13.5	
Water Pressure Drop (Ft of Water)	0.3	0.3	
Other Electrical/Mechanical Data			
Supply Voltage	115/60/1	115/60/1	
Motor Type	PSC	PSC	
Motor Quantity	1	1	
Motor HP	1/30	1/30	
Motor/Blower RPM – High/Low Speed	1625 / 625	1625 / 625	/
Ext. Static Pressure "W.C.	0	0	
Blower Quantity	1	1	
Blower Diameter x Width (inches)	5.75 x 7	5.75 x 7	
Unit Amps	0.7	0.7	
Options/Accessories (Attached Pages)			

AccuSpec V4.43b

SUBMITTAL SCHEDULE & DATA

Steam/Hot Water Cabinet Unit Heaters

Model	Description	Qty	Tag
C 00308ALLL120P00	Steam/Hot Water Cabinet Unit Heaters	1	**CUH-A**
	C 00308ALLL120P00	1	**CUH-A**
#42458	Disconnect Switch	1	**CUH-A**
#42459	Unit Mounted Return Air Thermostat	1	**CUH-A**
#53874	Sky White (Hammertone Finish)	1	**CUH-A**
CW 00358ALLL110P00	Steam/Hot Water Cabinet Unit Heaters	2	**CUH-B/126**
	CW 00358ALLL110P00	2	**CUH-B/126**
#42458	Disconnect Switch	2	**CUH-B/126**
#53874	Sky White (Hammertone Finish)	2	**CUH-B/126**
23124	Thermostat, 40°-90°F range, 16A @ 115V	2	**CUH-B/126**

AccuSpec V4.43b

SUBMITTAL SCHEDULE & DATA

Steam/Hot Water Unit Heaters

Job Name: VAILS GATE FD, PHASE 2
Location:
Submitted by: Greg Zimmerman

Date: 03/22/2023
Engineer:
Architect:
Contractor:

		Unit Tag	
	UH-1-4		
Model Number	HC 165SB01SA		
Quantity of Units	4		
Btu/Hr Output	130,944		
CFM	3240		
Outlet Velocity (fpm)	870		
Entering Air Temp. (°F)	60		
Final Air Temp. (°F)	97		
Fluid Type (Steam or Hot Water)	Hot Water		
Steam Pressure (PSI)	N/A		
Condensate (lb/hr)	N/A		
Entering Water Temp. (°F)	200		
Glycol % and Type	0%		
Water Flow Rate (GPM)	13.6		
Water Pressure Drop (Ft of Water)	8.6		
Water Temp Drop (°F)	20.0		
Supply Voltage	115/60/1		
Motor Type	Totally Enclosed with Thermal Overload		
Motor HP	1/3		
Motor RPM	1075		
Unit Amps [1]	4.2-4.6		
Options & Accessories (See Attached Pages)			

Remarks_____

[1] The unit FLA may vary based on the actual motor shipped with the unit.

AccuSpec V4.43b

SUBMITTAL SCHEDULE & DATA

Steam/Hot Water Unit Heaters

Model	Description	Qty	Tag
HC 165SB01SA	Steam/Hot Water Unit Heater	4	UH-1-4
03493	HC 165SB01SA	4	UH-1-4
04779	Aquastat	4	UH-1-4
23128	Pipe Hanger Adapter Kit	4	UH-1-4

AccuSpec V4.43b

STEAM/HOT WATER CABINET UNIT HEATER NOMENCLATURE

1,2,3	4,5,6	7	8	9	10	11	12	13	14	15	16	17	18
C	003	0	8	A	L	L	L	1	2	0	P	0	0

1, 2, 3 – Model Type
C – Cabinet Unit Heater

4, 5, 6 – Model Size
003 - 330 CFM at Standard Conditions

7 – Arrangement
0 - Front In

8 – Airflow Direction
8 - Front Out

9 – Development Sequence
A - Current

10 – Inlet Style
L - Louvers

11 – Outlet Style
L - Louvers

12 – Access Side
L - Left Hand Piping, Right Hand Electrical Connections

13 – Coil Type
1 - 1-Row Coil

14 – Access Doors
2 - Top

15 – Tamperproof Front Panel Fasteners
0 - None

16 – Motor Type
P - Permanent Split Capacitor (PSC) Motor

17 – Leveling Bolts
0 - Leveling Bolts Not Included

18 – Outside Air Options
0 - None

AccuSpec V4.43b

GENERAL PERFORMANCE DATA

C US

General Performance Data
200°F Entering Water Temperature, 60.0°F Entering Air Temperature, 0% Glycol

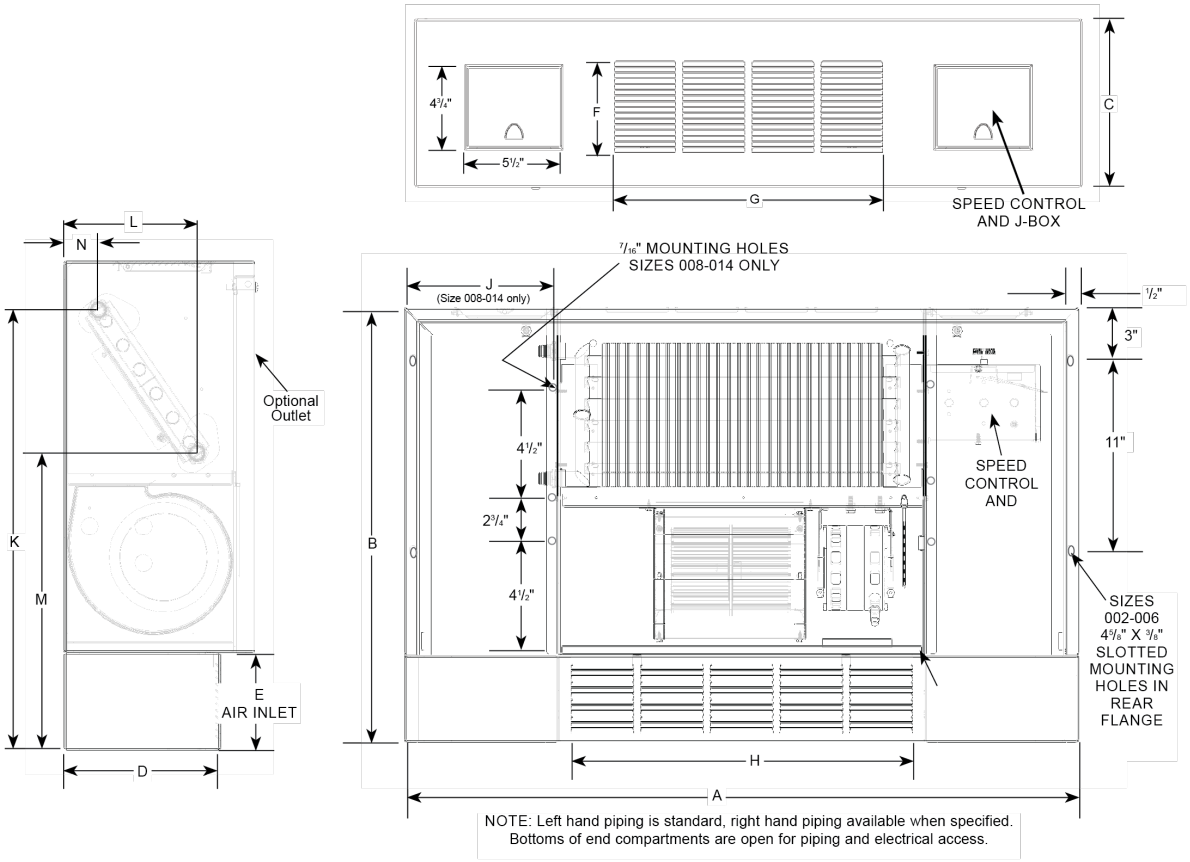
Model	C 003
High Fan Speed Operation:	
Btu/Hr. Output	22,391
Airflow (CFM)	330
Final Air Temp (°F)	123
Water Flow Rate (GPM)	2.3
Water Temp Drop (°F)	20.0
Water Pressure Drop (Ft of Water)	0.3
Mounting Height (Max Ft.)[1]	N/A
Heat Throw (Max. Mtg. Ft.) [1]	N/A
Low Fan Speed Operation:	
Btu/Hr. Output	15,112
Airflow (CFM)	195
Final Air Temp (°F)	131
Water Flow Rate (GPM)	2.3
Water Temp Drop (°F)	13.5
Water Pressure Drop (Ft of Water)	0.3
Motor Data	
Horsepower	1/30
RPM	1625
Type	PSC
Motor Quantity	1
Total Motor Amps (Total Amps)	0.7

[1] Mounting height measured from floor to discharge opening of unit. The maximum mounting height (Max Ft.) is the height above which the unit will not deliver heated air to the floor.

AccuSpec V4.43b

DIMENSIONS – UNIT

Model C Dimensions



*Note - Pictures shown are for illustration purpose only. Actual product may vary due to selected arrangements.

Model Size C 00308ALLL120P00 **Tag:** CUH-A

Cabinet Dimensions (inches)

UNIT SIZE	A	B	C	D	E	F	G	H	J (1)	Approximate Weight
003	43.75	25	9.75	8	5	5.125	19.625	23.625	8.75 (1)	90 lbs.

(1) – "J" is dimension to rear frame mounting holes, not applicable for Unit Sizes 2 through 6

Coil Connection Dimensions (inches) Filter Dimensions (inches)

UNIT SIZE	K	L	M	N	Depth x Width x Height (2)
003	22.5	7.375	15.25	2.375	8.5 x 25.75 x 0.5

(2) – Permanent/cleanable filters

Coil Face Area (ft²):	1.3
Coil Connections:	7/8" ID Sweat

General

Contractor shall install Modine brand steam/hot water cabinet unit heater, model C 00308ALLL120P00 according to manufacturers published installation instructions and applicable local codes.

Standards

Units shall be listed by C.S.A. (Canadian Standards Association) as certified.

Cabinet

Cabinet top and sides shall be formed from a single sheet of 18 gauge steel. Front panels shall be 16 gauge steel.

Inner partition panels and back sheet shall be die-formed from a single sheet of 18 gauge steel for precision fit and alignment of all internal components and to provide maximum cabinet rigidity.

Two 9” minimum wide cabinet end compartments shall be provided for field installation of piping and electrical wiring.

Two tilt type access doors shall be provided on the top of the unit for easy access to unit controls. Additional access shall be available through safety hinged front access panels than can be easily removed.

Access to unit controls shall be through safety hinged front access panels than can be easily removed.

Front panel fasteners shall be standard Phillips head.

Models shall have a 1” dust barrier at the bottom.

All casing parts shall be cleaned and a phosphate coating applied prior to painting for prevention of rust and corrosion. All casing parts shall then be painted with electrostatically applied, baked-on polyester powder paint.

Paint color shall be Sky White (Hammertone Finish) per latest revision of Modine literature #75-403.

Sound dampening insulation shall be installed on all front panels.

Air Inlet Opening Options

Air inlet opening, located in the floor mounting base of the cabinet, shall have stamped louvers.

Air Discharge Opening Options

Air discharge opening shall have stamped louvers.

Coils

The heating coil shall consist of copper tubes mechanically expanded into integral fin aluminum collars. Return bends and joints shall be silver alloy brazed. Coils shall be suitable for 200psi working pressure with 240°F water. Steam pressure shall not exceed 10psi.

The field supply/return piping connections shall be made in the left side control compartment with electrical power and controls connections made in the right control compartment. The coil shall be designed to be field reversible to allow piping connections to be made in the right control

compartment (requires the electrical power and control access to be field reversed to the left side control compartment).

Coil shall be standard capacity, single row with 7/8” ID Sweat connections for field supply and return piping.

Motor Speed Control

The unit shall have a unit-mounted solid state motor speed control, with high through low speeds and off positions on all models.

Motors and Blowers

The direct drive blower wheel shall be of the centrifugal, forward curved type, to provide even air distribution and low sound level. The blower platform, blower, and blower motor shall be removable as a single unit.

The blower motor shall be a direct drive permanent split capacitor (PSC) motor with built in thermal overload protection. The motor shall be rated 1/30 HP for 115V/60Hz/1ph supply voltage.

Filters

The unit shall include a cleanable expanded aluminum filter for fresh (if equipped) and return airstreams.

Factory Installed Electrical Options

Disconnect Switch - The unit shall include an optional unit mounted On-Off DPST toggle disconnect switch to disconnect incoming 115V electric service hot and neutral lines to the unit. The switch shall be located in electrical end compartment.

Return Air Thermostat - The unit shall include an optional unit mounted Return Air Thermostat with the temperature sensing bulb located in the return air stream. Temperature set point range is 55 to 90°F and is rated 115V. Typically used with a control valve on continuous blower applications.

AccuSpec V4.43b

STEAM/HOT WATER CABINET UNIT HEATER NOMENCLATURE

1,2,3	4,5,6	7	8	9	10	11	12	13	14	15	16	17	18
CW	003	5	8	A	L	L	L	1	1	0	P	0	0

1, 2, 3 – Model Type
CW – Cabinet Unit Heater

4, 5, 6 – Model Size
003 - 330 CFM at Standard Conditions

7 – Arrangement
5 - Front In

8 – Airflow Direction
8 - Front Out

9 – Development Sequence
A - Current

10 – Inlet Style
L - Louvers

11 – Outlet Style
L - Louvers

12 – Access Side
L - Left Hand Piping, Right Hand Electrical Connections

13 – Coil Type
1 - 1-Row Coil

14 – Access Doors
1 - None

15 – Tamperproof Front Panel Fasteners
0 - None

16 – Motor Type
P - Permanent Split Capacitor (PSC) Motor

17 – Leveling Bolts
0 - Leveling Bolts Not Included

18 – Outside Air Options
0 - None

AccuSpec V4.43b

GENERAL PERFORMANCE DATA

C US

General Performance Data
200°F Entering Water Temperature, 60.0°F Entering Air Temperature, 0% Glycol

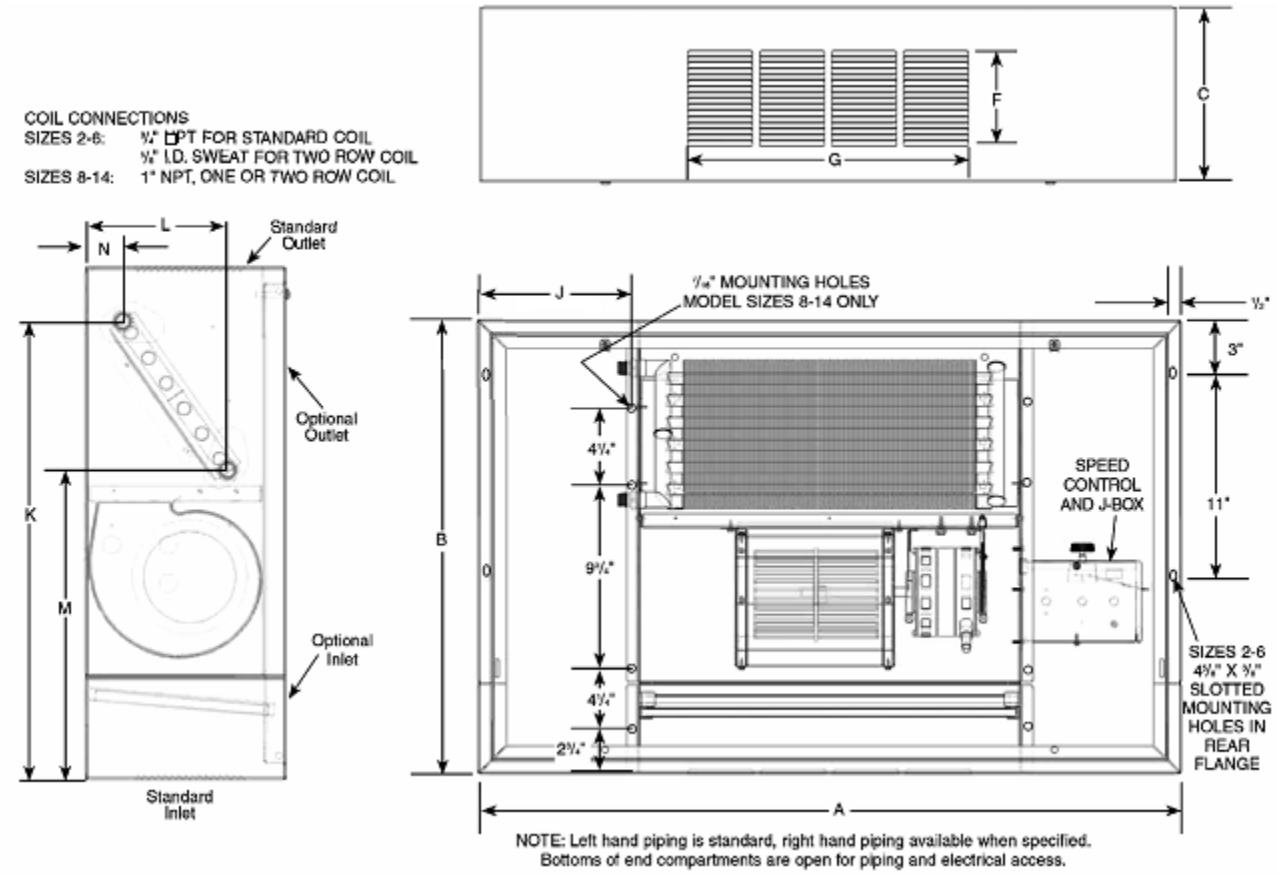
Model	CW 003
High Fan Speed Operation:	
Btu/Hr. Output	22,391
Airflow (CFM)	330
Final Air Temp (°F)	123
Water Flow Rate (GPM)	2.3
Water Temp Drop (°F)	20.0
Water Pressure Drop (Ft of Water)	0.3
Mounting Height (Max Ft.)[1]	9
Heat Throw (Max. Mtg. Ft.)[1]	11
Low Fan Speed Operation:	
Btu/Hr. Output	15,112
Airflow (CFM)	195
Final Air Temp (°F)	131
Water Flow Rate (GPM)	2.3
Water Temp Drop (°F)	13.5
Water Pressure Drop (Ft of Water)	0.3
Motor Data	
Horsepower	1/30
RPM	1625
Type	PSC
Motor Quantity	1
Total Motor Amps (Total Amps)	0.7

[1] Mounting height measured from floor to discharge opening of unit. The maximum mounting height (Max Ft.) is the height above which the unit will not deliver heated air to the floor.

AccuSpec V4.43b

DIMENSIONS – UNIT

Model CW Dimensions



*Note - Pictures shown are for illustration purpose only. Actual product may vary due to selected arrangements.

Model Size **CW 00358ALLL110P00** **Tag:** CUH-B/126

Cabinet Dimensions (inches)

UNIT SIZE	A	B	C	F	G	J (1)	Approximate Weight
003	43.75	25	9.75	5.125	19.625	8.75 (1)	100 lbs.

(1) – "J" is dimension to rear frame mounting holes, not applicable for Unit Sizes 2 through 6

Coil Connection Dimensions (inches) Filter Dimensions (inches)

UNIT SIZE	K	L	M	N	Depth x Width x Height (2)
003	22.5	7.375	15.25	2.375	8.5 x 25.75 x 0.5

(2) – Permanent/cleanable filters

Coil Face Area (ft²):	1.3

Coil Connections:	7/8" ID Sweat

General

Contractor shall install Modine brand steam/hot water cabinet unit heater, model CW 00358ALLL110P00 according to manufacturers published installation instructions and applicable local codes.

Standards

Units shall be listed by C.S.A. (Canadian Standards Association) as certified.

Cabinet

Cabinet top and sides shall be formed from a single sheet of 18 gauge steel. Front panels shall be 16 gauge steel.

Inner partition panels and back sheet shall be die-formed from a single sheet of 18 gauge steel for precision fit and alignment of all internal components and to provide maximum cabinet rigidity.

Two 9” minimum wide cabinet end compartments shall be provided for field installation of piping and electrical wiring.

Front panel fasteners shall be standard Phillips head.

All casing parts shall be cleaned and a phosphate coating applied prior to painting for prevention of rust and corrosion. All casing parts shall then be painted with electrostatically applied, baked-on polyester powder paint.

Paint color shall be Sky White (Hammertone Finish) per latest revision of Modine literature #75-403.

Sound dampening insulation shall be installed on all front panels.

Air Inlet Opening Options

Air inlet opening shall have stamped louvers.

Air Discharge Opening Options

Air discharge opening shall have stamped louvers.

Coils

The heating coil shall consist of copper tubes mechanically expanded into integral fin aluminum collars. Return bends and joints shall be silver alloy brazed. Coils shall be suitable for 200psi working pressure with 240°F water. Steam pressure shall not exceed 10psi.

The field supply/return piping connections shall be made in the left side control compartment with electrical power and controls connections made in the right control compartment. The coil shall be designed to be field reversible to allow piping connections to be made in the right control compartment (requires the electrical power and control access to be field reversed to the left side control compartment).

Coil shall be standard capacity, single row with 7/8” ID Sweat connections for field supply and return piping.

Motor Speed Control

The unit shall have a unit-mounted solid state motor speed control, with high through low speeds

and off positions on all models.

Motors and Blowers

The direct drive blower wheel shall be of the centrifugal, forward curved type, to provide even air distribution and low sound level. The blower platform, blower, and blower motor shall be removable as a single unit.

The blower motor shall be a direct drive permanent split capacitor (PSC) motor with built in thermal overload protection. The motor shall be rated 1/30 HP for 115V/60Hz/1ph supply voltage.

Filters

The unit shall include a cleanable expanded aluminum filter for fresh (if equipped) and return airstreams.

Factory Installed Electrical Options

Disconnect Switch - The unit shall include an optional unit mounted On-Off DPST toggle disconnect switch to disconnect incoming 115V electric service hot and neutral lines to the unit. The switch shall be located in electrical end compartment.

Wall Thermostat – Included shall be a field installed wall thermostat, rated 16 amps @ 115V with a 40 to 90°F temperature range.

AccuSpec V4.43b

STEAM/HOT WATER MODEL NOMENCLATURE

1,2,3	4,5,6	7	8	9,10	11	12
HC	165	S	B	01	S	A

1,2,3 - Model Type
HC - Horizontal Airflow Steam/Hot Water Unit Heater

4,5,6 - Input Rating
165 - 165,000 BTUH

7 - Coil Type
S - Standard

8 – Development Sequence
B - Current

9,10 - Motor and Drive Code (Power Code)
01 - 115/60/1 - Totally Enclosed with Thermal Overload

11 – Fan Guard Style
S - Standard Fan Guard

12 – Factory Installed Option
A - None

AccuSpec V4.43b

GENERAL PERFORMANCE DATA

C US

General Performance Data
200°F Entering Water, 60°F Entering Air Temperature, 20°F Water Temp. Drop

Model	HC 165
Btu/Hr. Output	130,944
Airflow (CFM)	3240
Outlet Velocity	870
Entering Air Temp. (°F)	60
Final Air Temp. (°F)	97
Water Flow Rate (GPM)	13.6
Mounting Height (Max Ft.) [1]	20
Heat Throw (Max. Mtg. Ft.) [1]	40
Total Unit Amps	4.2-4.6

As Configured Conditions

Entering Water Temp. (°F)	200
Entering Air Temp. (°F)	60
Water Temp Drop (°F)	20.0
Btu/Hr. Output	130,944
Final Air Temp. (°F)	97
Mounting Height (Max Ft.) [1]	20
Heat Throw (Max Ft.) [1]	43
Water Flow Rate (GPM)	13.6
Water Pressure Drop (Ft of Water)	8.6

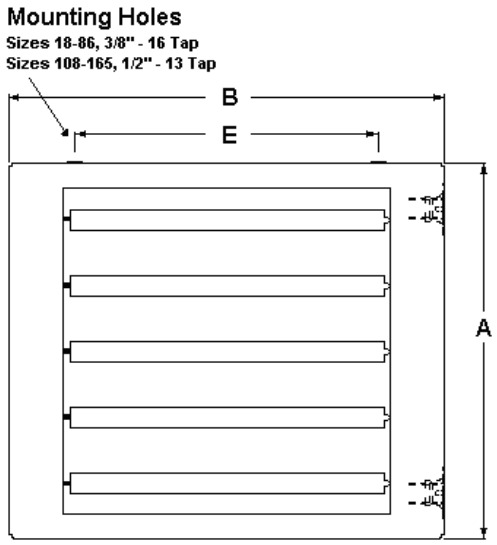
Motor Data

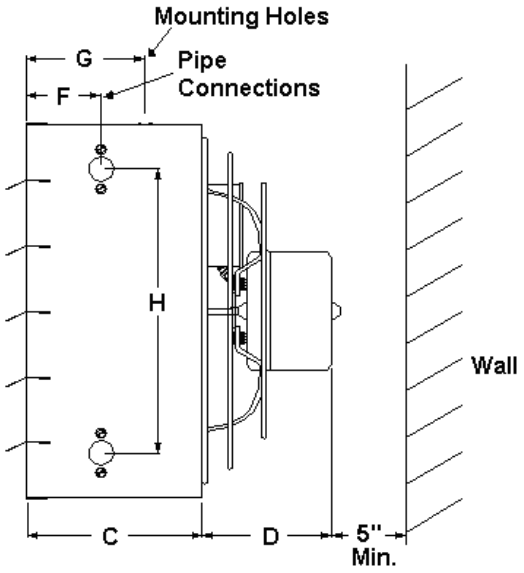
Horse Power	1/3
RPM	1075
Type	Totally Enclosed with Thermal Overload
Motor Amps	4.2-4.6

[1] Mounting height measured from floor to bottom of unit. Horizontal units with horizontal louvers open 30° from vertical plane. The maximum mounting height (Max Ft.) is the height above which the unit will not deliver heated air to the floor.

DIMENSIONS – UNIT

Model HC Dimensions





Model Size HC 165

Dimensions (in inches)

A	26-1/2
B	29-1/2
C	9-1/4
D [1]	9-1/2
E	21-1/4
F	3-5/8
G	6-3/8
H	22
Connections NPT	3/4
Fan Diameter	22
Approx. Ship Wt	92 lbs.

[1] Dimension is for 115V motor.

Specifications

Core Type (Serpentine)	Single
Copper Tube Size (inches)	1
Copper Tube Wall Thickness (inches)	0.03
Maximum Coil Rating	150 PSI / 375°F

Junction Box: All units include an electrical junction box either integral to the motor or attached to the unit casing.

Units
Self-contained, factory assembled, pre-wired unit consisting of cabinet with air deflection louvers, supply fan, motor, and condenser.

Coating
Electrostatically applied baked on grey-green corrosion resistant, polyester powder coat paint that meets the following tests:
1. 500 hours of salt spray as defined in ASTM B117.
2. Adhesion/crosshatch tape tests as defined in ASTM D3359, Method B, Rating 5B.
3. Will not crack or peel when test panel is bent around a 1/8 inch arbor.

Condenser
Condenser coils are of the extended surface type of serpentine design, utilizing aluminum fins and DLP-type copper tubes. Tubes are mechanically bonded to the collars of the fins. The condensers are warranted for operation at steam or hot water pressures up to 150 pounds per square inch gauge and/or temperatures up to 375°F. All coils are leak tested at 165 to 200 psig, air under water. Fins are continuous across the width and depth of the condenser and are vertically oriented to minimize the collection of dirt and dust.

Coils are of serpentine design with horizontal tubes, vertical fins and side supply and return. All tube bends are brazed. All tubes have individual expansion bends. Copper tubes are 1" O.D. with 0.03" wall thickness.

Motor
Single motor with a supply voltage of 115/60/1 and horsepower of 1/3 as indicated on the equipment schedule and manufactured in accordance with NEMA standards for continuous fan duty type applications. Must be totally enclosed and single phase motors will have built in thermal overload protection. Will be mounted to the unit with rubber vibration absorbing material. The entire length of the line voltage motor leads will be shielded and terminate in a factory supplied junction box mounted on the unit or integral to the motor.

Fan/Fan Guards
Fans AMCA rated direct drive, aluminum blade, steel hub propeller will be statically and dynamically balanced. Unit shall be equipped with a safety fan guard.

Air Deflectors
The unit shall be furnished with horizontal air deflectors. The deflectors are adjustable to almost any desired position for downward, straight or upward airflow.

Accessories
The following items are to be field installed in accordance with the manufacturer's instructions:

Aquastat: 10 amps @ 115V; 6 amps @ 230V; 100-240 F. degree range, 10°F fixed differential; Johnson Controls model A19DAC-1.

Pipe Hanger Adapter Kit: Provides means to suspend unit by 3/4 inch pipe.

Submittal Data Information

301-2695

T1P - Taco Single Phase Starter

EFFECTIVE: MARCH 11, 2015 SUPERSEDES: NEW

JOB _____ ENGINEER _____

CONTRACTOR _____ REP. **Wales Darby, Inc.**

ITEM NO. **QTY: 4**

T1P - TACO SINGLE PHASE STARTER

1Ø, 110V, 1/10 - 1HP
1Ø, 240V, 1/10 - 1HP

The T1P protects single phase motors with an adjustable 1-16A class 10 electronic overload. It includes features like run status verification, a concealed Hand/Auto switch, lockable on/off switch, and system override mode (smoke purge). All of this in a compact design that installs on a single junction box.

FEATURES

On/Off Disconnect Switch with Recessed Hand/Auto Modes
- Concealed Hand/Auto switch discourages tampering
- Lockable motor-rated On/Off switch meets safety regulations
- Meets NEC motor service disconnect requirements when properly installed
- LED indicator lights for power, run and fault

Run Status Verification
- Integrated current sensing confirms motor operational status
- Quickly and accurately pinpoint malfunctioning equipment

Voltage & Dry Inputs for Auto Run Command
- Wire directly from the automation system to the starter, no interposing relays necessary
- Save on installation costs and increase reliability.

System Override Mode (Fireman's, Occupancy or Manual)
- Initiates smoke purge sequence during emergency situations for safety and code compliance or use for occupancy sensor run input (dry contact)

Wide Range Class 10 Electronic Overload
- Prevents ordering confusion and eliminates call backs due to mis-sized heaters
- Advanced protective features including anti-cycling, manual/auto reset, etc.

Standard Single Gang Box Installation
- Easy to install in any location
- Surface or flush mount capability

High Reliability
- Heavy duty motor-rated switch and control relay
- No thermal elements to fail
- UL 508 Listed

UL Type 4

Special Instructions:

T1P Specifications

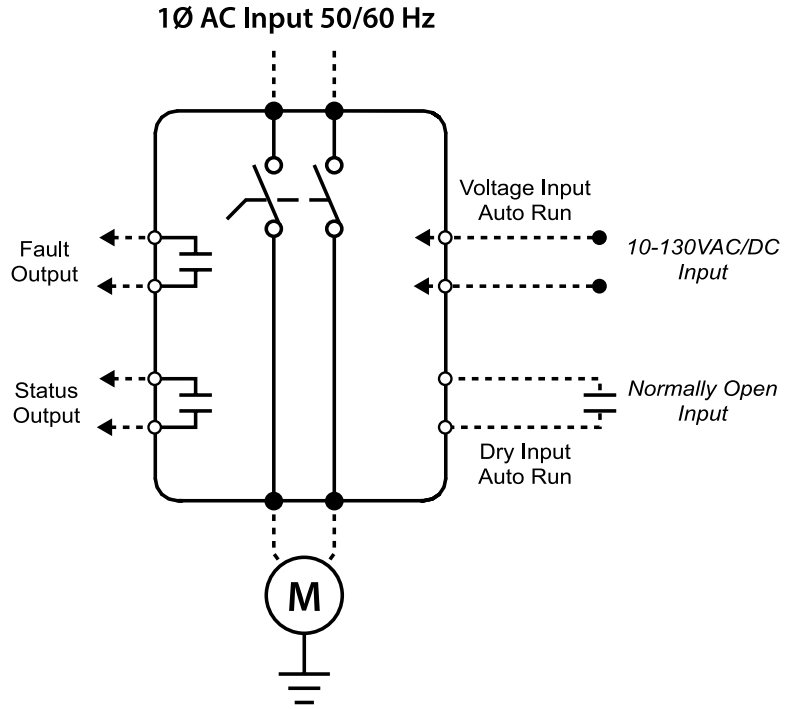
T1P Specification

Starter Type			
T1P - Taco Starter, 1-Phase			
120~230VAC, 1-Phase, 50/60Hz input, Across the line, full-voltage non-reversing (1HP)			
UL Type 1, 4, 4XS			
User Interface			
On/Off Switch, Concealed Hand-Off-Auto Switch			
Standard Control Operations			
Inputs	Voltage Auto-Run	Accepts 12-250VAC/DC. Applying voltage will send a run command to the starter when in Auto mode.	
	Dry Contact Auto-Run	Normally Open dry contact. When closed, the starter will be commanded to run when in Auto mode.	
Outputs	Status Relay	Normally Open relay contacts. Status Relay will close when the motor draws 60% of the FLA dial setting. Fault Relay will close in the event of a fault trip. Contact Ratings: 0.3A @ 125VAC, 1A @ 24VAC	
	Fault Relay		
Operational	Overload Type	Electronic I^2t trip curve	
	Fault Reset	Manual or Automatic	
	Power Fail Mode	Return to last mode the starter was placed in (Hand/Off/Auto) with no delay (default)	
Environmental			
Ambient Operating Temp		-5° to 104° F (-20° to 40° C)	
Ambient Storage Temp		-5° to 185° F (-20° to 85° C)	
Relative Humidity		5% to 95% non-condensing	
Motor Protection		**Adjustment / Description**	**Default Setting**
Overload Current Setting Range		1-16A	Per FLA
Overload Trip Class		Class 10, Trip current = 115% of FLA setting	Class 10
Locked Rotor / Stall		Trips within 2 seconds @ 300% FLA setting	Always On

Ordering Information

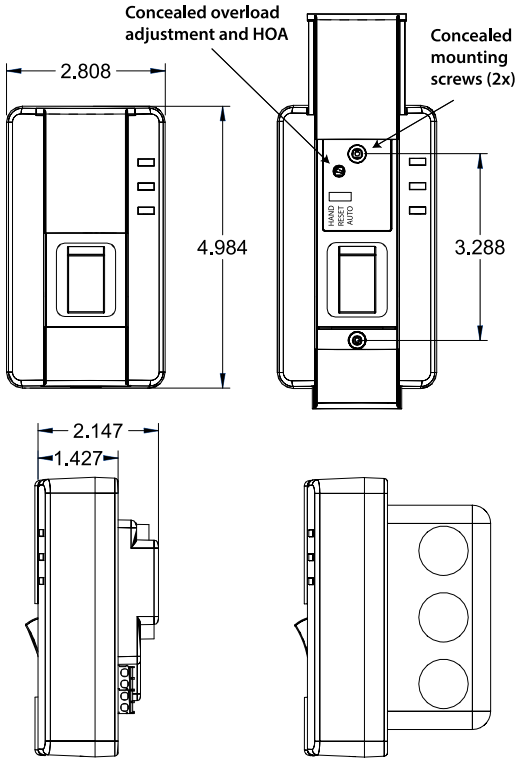
Starter with Manual Overload Trip Reset - UL Type 1	TS1P
Starter with Manual Overload Trip Reset - UL Type 4	TS41P
Starter with Manual Overload Trip Reset - UL Type 4XS	TS4XS1P

T1P Wiring Schematics



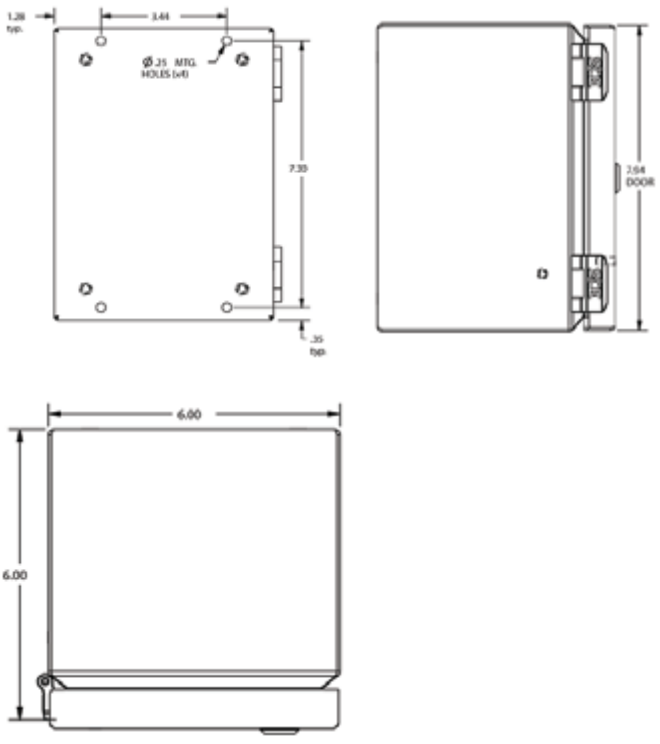
Dimensions - UL Type 1

All dimensions displayed in inches



Dimensions - UL Type 4 & 4XS

All dimensions displayed in inches



Do your **best work.®**

TACO INC., 1160 Cranston Street, Cranston, RI 02920 Telephone: (401) 942-8000 Fax: 942-2360
TACO (Canada), Ltd., 8450 Lawson Road, Unit #3, Milton, Ontario L9T 0J8 Telephone: 905/564-9422 Fax: 905/564-9436
Visit our website at: www.taco-hvac.com

Printed in USA