



RAFAT

8850 GEORGE BOLTON PARKWAY, CALEDON, ONTARIO L7E 2Y4

Shop Drawings
Transmittal No:

23-82-39-02R0

Project Name:	Construction of Victoria Park Arena and Brampton Sports Hall of Fame	Project No.	NRFP2024-232
		DATE:	10 Jul 2025
		Submittal Required Return Date:	24 Jul 2025
Submittal No:	94		


Title:	Hydronic Unit Heaters #1-7
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To:	Mark Falkenburger	
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Checked by:	Veronica Soulaka	To Be Reviewed By the Following Consutlants	Architecture49 & WSP
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Submitted for:	Review and Approval
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Consultants Response	
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<input checked="" type="checkbox"/> REVIEWED <input type="checkbox"/> REVIEWED AS NOTED <input type="checkbox"/> REVISE & RESUBMIT	BY Jerry Nweisser DIVISION Buildings - Sustainability DATE 7/28/2025 SUBMITTAL# 21-20 PROJECT CA-WSP-221-05263-00
THE REVIEW OF THIS DRAWING DOES NOT IN ANY WAY RELIEVE THE VENDOR OR CONTRACTOR OF RESPONSIBILITY FOR ITS ACCURACY OR FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.	



SUBMITTAL REVIEW For general compliance with the design concept and contract documents. Subcontractor is solely responsible for jobsite correlation and correctness of all ratings, sizings, type, style, dimensions, finish, quantities and satisfactory fitting to other work and equipment. This review does not change the intent of the contract document.
<input checked="" type="checkbox"/> REVIEWED
<input type="checkbox"/> RESUBMIT
<input type="checkbox"/> REJECTED



SHOP DRAWING REVIEW

Project Name: Victoria Park Arena

Project No. CA-WSP-221-05263-00

Date 2025-07-25

Received:

Shop Drawing: Title: Hydronic Unit

Revision: 00

Submission No.: 21-20

This review by consultant is for sole purpose of ascertaining conformance with general design concept. This review does not mean that consultant approves detail design inherent in shop drawings, responsibility for which remains with contractor, and such review does not relieve contractor of responsibility for errors or omissions in shop drawings or of contractor's responsibility for meeting all requirements of contract documents. Be responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication process or to techniques of construction and installation, and for coordination of the work of subtrades.

<input checked="" type="checkbox"/> Reviewed	Mechanical Review Required <input checked="" type="checkbox"/>	Electrical Review Required <input checked="" type="checkbox"/>	
<input type="checkbox"/> Reviewed as Noted	Reviewed by: Jerry Nweisser	Reviewed by:	Peter Zhang
<input type="checkbox"/> Revise & Resubmit	Review Date: 2025-07-25	Review Date:	2025-07-28
Item	Comments		
1.			
2.			
3.			

End of Review



54 Audia Court, Unit 2
Concord, ON L4K 3N5
(905)-738-1400

Submittal 24-280-021

PROJECT NAME	PROJECT ADDRESS	DATE SUBMITTED
VICTORIA PARK ARENA	24-280 20 Victoria Crescent, Brampton, ON L6T 1E4	Jul 9, 2025

TO	FROM
Abdullah Hissamuddin	PAUL LEDDY
COMPANY	COMPANY
RAFAT GENERAL CONTRACTOR INC.	Consult Mechanical Inc.
EMAIL	EMAIL
abdullah.hissam@rafat.ca	paul.l@consultmechanical.com
ADDRESS	ADDRESS
8850 GEORGE BOLTON PKWY BOLTON, ON L7E 2Y4	54 Audia Court, Unit 2 Concord, ON L4K 3N5

Title

Unit Heaters

Description

Unit Heaters #1-7
Manufacturer : Sigma
Model #'s 040H, 084H, and 105H

Package Items

SPEC	SUBSECTION	ITEM	TYPE
------	------------	------	------

**Submittal # 90372****APPROVAL REQUIRED**

Project 22104386-MECH-1- Brampton Victoria Park Arena
Leader Nevin Wong
Job Site Brampton Victoria Park Arena
Submission Date 2025-07-09
Sold To CONSULT MECH
Submitted By Emil Sebastampillai

Contacts

Role	Customer	Our Rep
General Contractor	Rafat General Contracing Inc	
Mechanical Contractor	Con-Sult Mechanical Inc.*	Nevin Wong
Designer	WSP MMM Group	Alex Forsea

Notes:

- Piping connection on unit heater is 1/2" Cu tubing sweat connection (Models 040-H); 1-1/4" NPT male thread (models 084-H and 105-H)
- Finish is a grey baked enamel
- Louvre fin diffuser kit shipped loose and field installed

Deliverables

Track #	288999		
Tag	UH-1-7		
Description	Hydronic Unit Heaters		
Quantity	7		
Manufacturer	Sigma		
Model #	040H, 084H, 105H		
Specification	23 82 39 2.01		
Production Lead Time	5-7 weeks		
Revision #	0		

Attention:

- 1) HTS will provide equipment in accordance with the attached shop drawings.
- 2) Upon approved submittal and customer release, HTS will release equipment to fabrication per the published lead times. Any storage fees associated with project schedule changes will be the responsibility of the purchaser.
- 3) HTS can provide freight and logistics to the purchaser as an added benefit of doing business with HTS. When freight is received by the purchaser, any noticeable damage must be recorded. Otherwise, HTS is not responsible for subsequent damage claims.

Approval Stamps



HTS Toronto

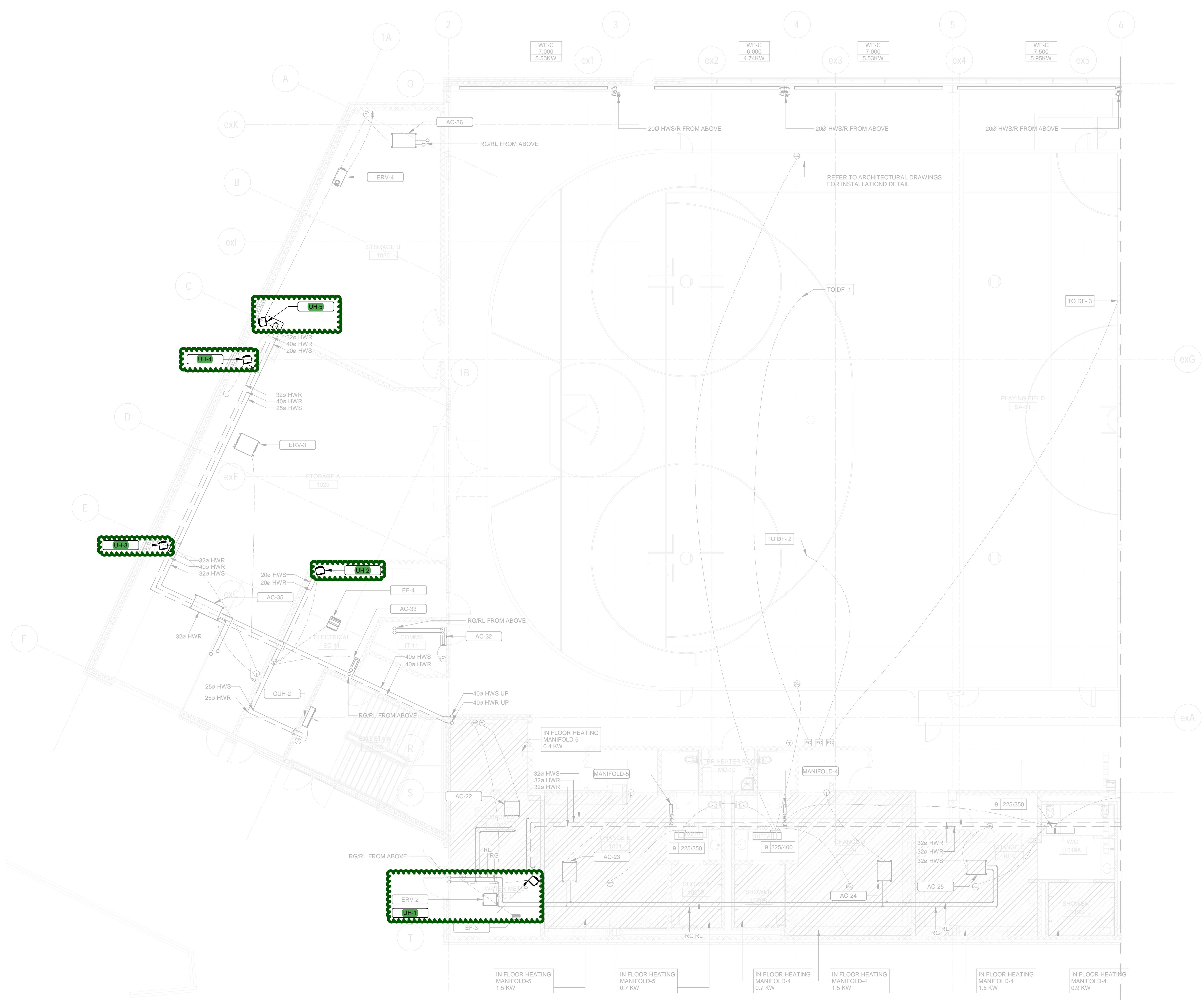
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COMPLIANCE - MECHANICAL DRAWINGS & SPECIFICATIONS



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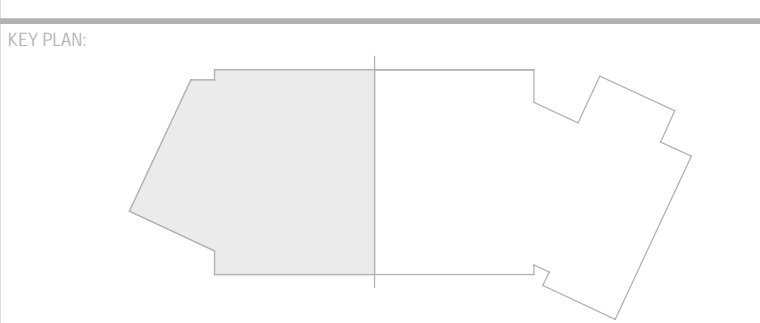


SEAL:



CLIENT REF. #:
PROJECT:

Victoria Park Arena
20 Victoria Crescent, Brampton, ON L6T 1E4



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ISSUED FOR - REVISION:		
REV	DATE	DESCRIPTION
13	2024/11/08	ISSUED FOR CONSTRUCTION
12	2024/05/29	ISSUED FOR TENDER
11	2023/10/27	ISSUED FOR TENDER
10	2023/09/22	ISSUED FOR TENDER
9	2022/08/15	ISSUED FOR BUILDING PERMIT
8	2022/08/05	ISSUED FOR TENDER - FINAL
7	2022/04/13	ISSUED FOR TENDER
6	2022/03/25	ISSUED FOR BUILDING PERMIT
5	2022/03/02	ISSUED FOR TENDER REVIEW
4	2021/11/26	REISSUED FOR 90% REVIEW
3	2021/11/19	ISSUED FOR TENDER REVIEW
2	2021/09/27	ISSUED FOR PROGRESS REVIEW
1	2021/08/30	ISSUED FOR 60%DD

PROJECT NO: 209-00238-00	DATE: 2024/11/08
ORIGINAL SCALE: 1:100	IF THIS BAR IS NOT 1" LONG, ADJUST YOUR PLOTTING SCALE.
DESIGNED BY: MK	1"
DRAWN BY: SGVO	
CHECKED BY: MK	
DISCIPLINE:	

TITLE: LEVEL 1 - WEST - HVAC PIPING		
SHEET NUMBER: M-401W		
SHEET #: ISSUED FOR CONSTRUCTION	OF	REV # 13
DATE OF: 2024/11/08		

CONSULTANT - SUB CONSULTANT:



SEAL:

CLIENT:



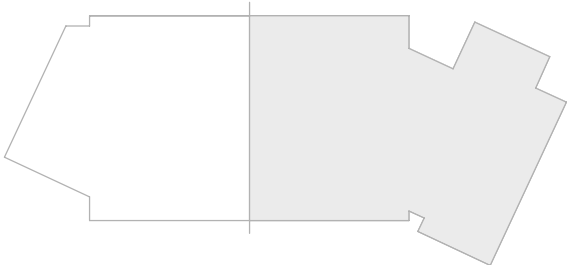
CLIENT REF. #:

PROJECT:

Victoria Park Arena

20 Victoria Crescent, Brampton, ON L6T 1E4

KEY PLAN:



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ISSUED FOR - REVISION:

REV	DATE	DESCRIPTION
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PROJECT NO:	DATE:
209-00238-00	2024/11/08
ORIGINAL SCALE:	DATE:
1:100	2024/11/08
DESIGNED BY:	DATE:
MK	2024/11/08
DRAWN BY:	DATE:
SGVO	2024/11/08
CHECKED BY:	DATE:
MK	2024/11/08
DISCIPLINE:	DATE:
	2024/11/08

TITLE: LEVEL 2 - EAST - HVAC PIPING

SHEET NUMBER: M-402E

ISSUED FOR CONSTRUCTION

DATE OF: 2024/11/08

REV #

13

2 PRODUCTS

2.01 UNIT HEATERS

- .1 CSA certified hot water unit heaters in accordance with drawing schedule, each complete with:

COMPLY.1 for vertical unit casing, top and bottom heavy-gauge circular steel plates, top plate equipped with a depression for motor and an opening for motor cooling air as well as threaded hanger rod connections, bottom plate equipped with a die-formed fan venturi and a bolt-on adjustable air deflector, both plates bolted together with a circular heating coil in between;

COMPLY.2 for horizontal unit casing, minimum #20 gauge die-formed steel front and back casing halves with formed ribs and rounded corners, both halves secured together top and bottom with screws and equipped with threaded hanger rod connections in the top, a formed fan venturi with bolt-on wire grid guard in the back, and a rectangular formed discharge opening with adjustable horizontal and vertical air deflectors in the front;

COMPLY.3 factory applied casing finish, consisting of electrostatically applied baked powder epoxy on cleaned and primed casing surfaces;

COMPLY.4 factory leak tested heating coil, consisting of minimum 16 mm (5/8") OD seamless copper tubing mechanically expanded into and permanently bonded to continuous plate type aluminum fins, and equipped with screwed steel supply and return piping connections and silver braced tube joints;

COMPLY.5 continuous duty ~~TEFC~~ ^{TEAO} motor conforming to requirements specified in Section entitled Basic Mechanical Materials and Methods, direct connected to a balanced propeller type fan wheel with aluminum blades secured to a steel hub;

AS NOTED

- .2 Acceptable manufacturers are: PROVIDING SIGMA UH

- .1 Modine Manufacturing Co.;
- .2 Rosemex Inc.;
- .3 Armstrong-Hunt Inc.;
- .4 Daikin;
- .5 Engineered Air.



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MANUFACTURER'S PRODUCT PERFORMANCE



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Propellorized Unit Heaters

CONFIGURATION

TAG	UH-1	UH-2	UH-3	UH-4
Model	040H	040H	105H	105H
Quantity	1	1	1	1
Low Temp Output	Standard	Standard	Standard	Standard
Voltage	120V/1Ph/60Hz	120V/1Ph/60Hz	120V/1Ph/60Hz	120V/1Ph/60Hz
Motor Style	Totally Enclosed	Totally Enclosed	Totally Enclosed	Totally Enclosed
Speed Controller	NO	NO	NO	NO
Thermostat	Factory Mounted	Factory Mounted	Factory Mounted	Factory Mounted
Aquastat	NO	NO	NO	NO
Manual Starter	NO	NO	NO	NO
Motor Guard	OSHA Fan Guard	OSHA Fan Guard	OSHA Fan Guard	OSHA Fan Guard
Discharge Louvers	Field Mounted	Field Mounted	Field Mounted	Field Mounted

PERFORMANCE

Solution	Water	Water	Water	Water
Solution Percentile	100%	100%	100%	100%
Airflow (l/s)	396.48	396.48	1038.40	1038.40
Motor (HP)	1/8 HP	1/8 HP	1/6 HP	1/6 HP
RPM	1550	1550	1625	1625
Voltage	120V/1Ph/60Hz	120V/1Ph/60Hz	120V/1Ph/60Hz	120V/1Ph/60Hz
Amps	1.35A	1.35A	1.8A	1.8A
Capacity (KW)	4.9	4.9	12.9	12.9
EAT (°C)	15.0	15.0	15.0	15.0
LAT (°C)	25.20	25.20	25.25	25.25
EWI (°C)	54.4	54.4	54.4	54.4
LWT (°C)	43.34	43.34	43.34	43.34
Flow (l/s)	0.109	0.109	0.287	0.287
Water Pressure Drop (kPa)	1.900	1.900	0.600	0.600
Width (mm)	558.8	558.8	800.1	800.1
Height (mm)	342.9	342.9	495.3	495.3
Depth (mm)	393.7	393.7	495.3	495.3
Weight (kg)	18.2	18.2	32.2	32.2
Notes				

Propellorized Unit Heaters

CONFIGURATION

TAG	UH-5	UH-6	UH-7
Model	084H	040H	084H
Quantity	1	1	1
Low Temp Output	Standard	Standard	Standard
Voltage	120V/1Ph/60Hz	120V/1Ph/60Hz	120V/1Ph/60Hz
Motor Style	Totally Enclosed	Totally Enclosed	Totally Enclosed
Speed Controller	NO	NO	NO
Thermostat	Factory Mounted	Factory Mounted	Factory Mounted
Aquastat	NO	NO	NO
Manual Starter	NO	NO	NO
Motor Guard	OSHA Fan Guard	OSHA Fan Guard	OSHA Fan Guard
Discharge Louvers	Field Mounted	Field Mounted	Field Mounted
PERFORMANCE			
Solution	Water	Water	Water
Solution Percentile	100%	100%	100%
Airflow (l/s)	759.92	396.48	759.92
Motor (HP)	1/6 HP	1/8 HP	1/6 HP
RPM	1625	1550	1625
Voltage	120V/1Ph/60Hz	120V/1Ph/60Hz	120V/1Ph/60Hz
Amps	1.8A	1.35A	1.8A
Capacity (KW)	10.3	4.9	10.3
EAT (°C)	15.0	15.0	15.0
LAT (°C)	26.21	25.20	26.21
EWI (°C)	54.4	54.4	54.4
LWT (°C)	43.34	43.34	43.34
Flow (l/s)	0.229	0.109	0.229
Water Pressure Drop (kPa)	2.500	1.900	2.500
Width (mm)	800.1	558.8	800.1
Height (mm)	495.3	342.9	495.3
Depth (mm)	444.5	393.7	444.5
Weight (kg)	34.5	18.2	34.5
Notes			



CABINETS

Cabinets are constructed from heavy duty cold-rolled corrosion-resistant steel finished in grey baked enamel. Fronts have integral double-folded discharge frame for additional cabinet rigidity. Back panels have integral inlet collars for superior stiffness. Suspension tappings securely fastened to top panel.

FANS

Fans are designed and selected for high efficiency. Fans are statically and dynamically balanced for quiet, low vibration operation.



COILS

Standard coils are constructed from heavy wall 5/8" outside diameter copper tube with mechanically bonded aluminum fins. Coils are pressure tested at 350 psig. Coils with 0.035" copper tubes are suitable for steam applications up to 100 psig.

MOTORS

Standard motors are 115/60/1, totally enclosed, with automatic thermal overload protection. Standard motors shall be resilient mounted onto fan guards for quiet, low-vibration operation.

DIFFUSERS

Model H units are equipped with horizontal louvers with individually adjustable blades. The optional louver fin diffuser consists of vertically arranged, individually adjustable blades for maximum air distribution adaptability.

Unit Heaters

Horizontal Unit Dimensions

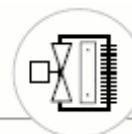


FIGURE 1

**DIMENSION DIAGRAM
FOR HORIZONTAL UNIT
HEATER WITH
SERPENTINE COIL
(030H & 040H)**

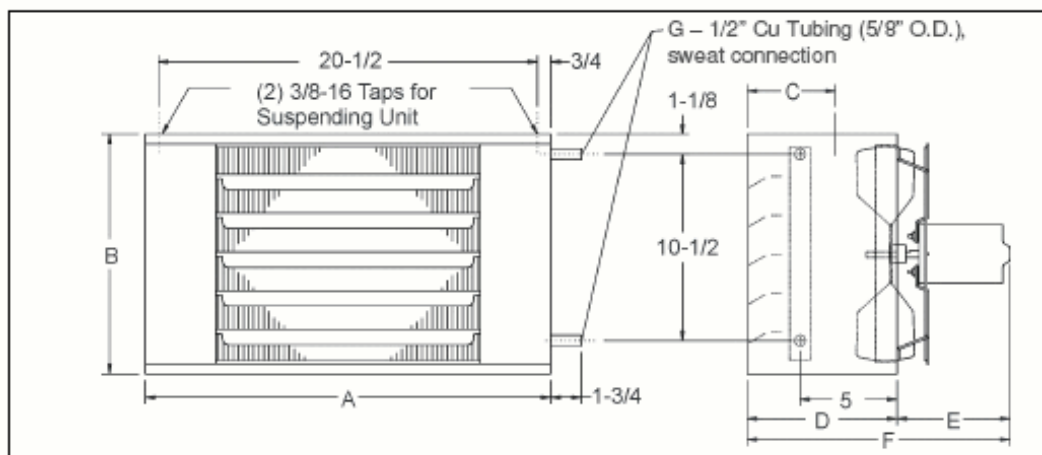


FIGURE 2

**DIMENSION DIAGRAM
FOR HORIZONTAL UNIT
HEATER WITH MULTI-
CIRCUITED COIL
(047H TO 325H)**

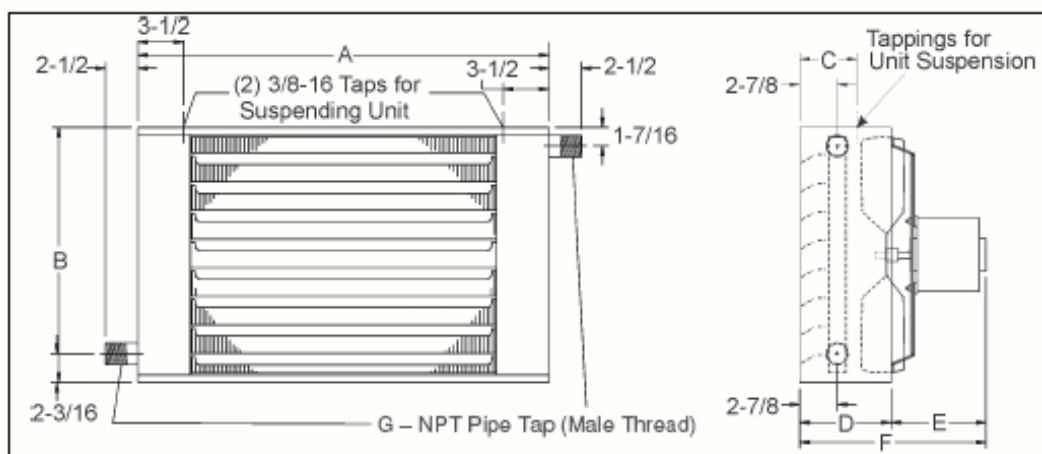


TABLE 1 HORIZONTAL UNIT HEATER SPECIFICATIONS

MODEL	FIGURE REF.	DIMENSIONS (IN)							WT (LB)	MAX. MTG. HT (FT)	MAX THROW (FT)	
		A	B	C	D	E	F	G			w/ HORIZ. LOUVERS	w/ VERT. LOUVERS
015-H	1	20	13.5	5	8	7.5	15.5	FIG. 1	27	9	16	19
025-H	1	22	13.5	4.75	8	7.50	15.5	FIG. 1	36	9	19	24
030-H	1	22	13.5	4.75	8	7.50	15.5	FIG. 1	40	9	18	23
040-H	1	22	13.5	4.75	8	7.50	15.5	FIG. 1	40	10	23	29
047-H	2	27	16.5	5.00	8.5	7.75	16.25	1.25	48	10	23	29
058-H	2	27	16.5	5.00	8.5	9.50	18.0	1.25	48	10	28	35
062-H	2	31.5	19.5	5.625	10	9.50	19.5	1.25	71	10	25	30
084-H	2	31.5	19.5	5.625	10	7.50	17.5	1.25	76	12	32	40
105-H	2	31.5	24	5.625	10	7.50	17.5	1.25	96	12	38	48
133-H	2	37.0	24.0	5.875	10	7.75	17.75	1.50	108	13	40	50
200-H	2	42.5	28.5	5.50	10	9.50	19.5	1.50	148	15	50	64
245-H	2	46.5	31.5	5.50	10	9.50	19.5	1.50	172	16	54	68
260-H	2	46.5	31.5	5.50	10	9.50	19.5	1.50	190	16	56	70
325-H	2	46.5	31.5	5.50	10	9.50	19.5	1.50	230	16	60	75

Note: Model 325H motor mount differs from detail shown above in Fig 2.

Propellorized Unit Heaters

Accessories for Propellorized Unit Heaters

Sigma Model : SUH-LFDxx
Model : SUH-LFD
Description : Louver Fin Diffusers

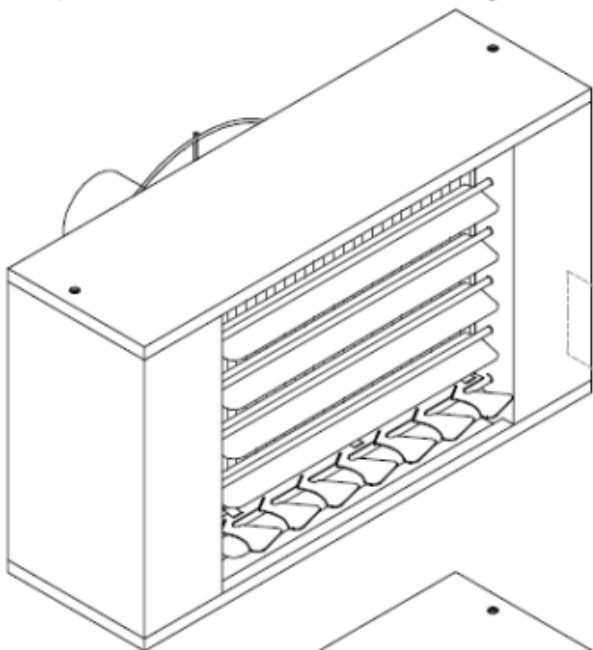


Figure 1

Slide Clip onto back of Louvre

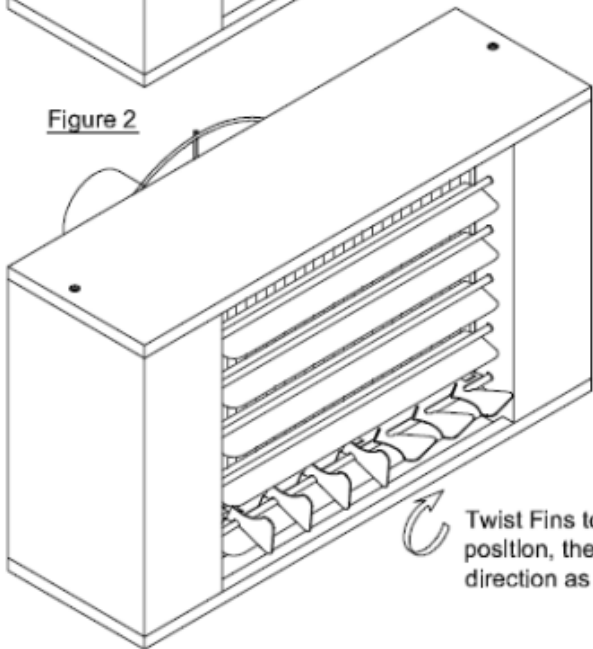
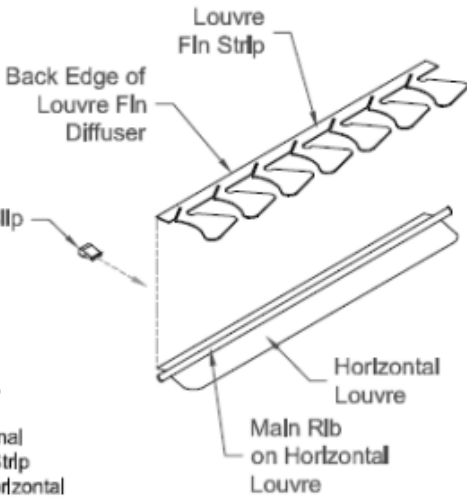


Figure 2

Twist Fins to vertical position, then adjust direction as needed.

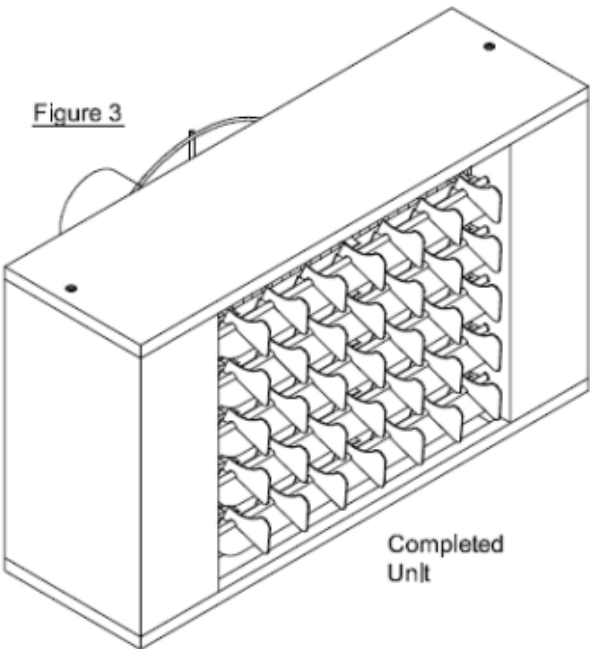


Figure 3

Completed Unit

Unit Heater Model	Kit Part #	Items in Kit		Comments
		Clips (qty.)	Fin Strip Length (qty.)	
015 / 025, 30H / 30HL & 40H / 40HL	SUH-LFD12	15	14 (5)	3 Clips / Louvre
47H / 47HL & 58H / 58HL	SUH-LFD14	21	16.5 (7)	3 Clips / Louvre
62H / 62HL & 84H / 84HL & 105H	SUH-LFD16	24	21 (8)	3 Clips / Louvre
133H / 133HL	SUH-LFD20	30	26.5 (10)	3 Clips / Louvre
200H / 200HL	SUH-LFD24-200H	48	32 (12)	4 Clips / Louvre
245H / 245HL, 260H & 325H	SUH-LFD24-245H	56	36 (14)	4 Clips / Louvre

Applies To : UH-3, UH-4, UH-5, UH-7, UH-1, UH-2, UH-6

Propellorized Unit Heaters

Accessories for Propellorized Unit Heaters

Sigma Model : EL-300 (Unit Mounted)
Model : TPI ET5SS Thermostat
Description :

- Single Pole 22amp
- 120-277v, Heat Only
- Anticipated models
- Optional wire leads
- 50°F to 90°F Temperature Range
- Dimension 2.8"x4.75"x1.5"
- UL, CSA



Applies To : UH-3, UH-4, UH-5, UH-7, UH-1, UH-2, UH-6



Unit Heaters

Sound Class Ratings

Type	Model	Sound Class
Horizontal	015H	I
	025H	II
	030H	II
	040H	III
	047H	III
	058H	III
	062H	III
	084H	III
	105H	III
	133H	IV
	200H	V
	245H	V
	260H	V
	325H	V
Vertical	039V (040V)	II
	050V	II
	054V	II
	067V	II
	078V	II
	100V	II
	145V	III
	210V	IV
	300V	V
	370V	V
	480V	VI

Sound Class Rating	Location Description
I	Hospitals, Museums, Schools, Offices, Foyers, Restrooms
II	Department Stores, Showrooms, Commercial Dining Facilities
III	Gymnasiums, Bars, Warehouse Storage, Grocery Stores
II-VI	Garages, Factories, Stadium Common Areas



TECHNICAL BULLETIN TB-SUH-SFF-Coils-08-02C

To whom it may concern:

Subject: Working Pressures for Standard Copper Tube / Aluminum
Fin Coils for Unit Heaters and Force Flow Cabinet Heaters

Products Covered: SUH Horizontal and Vertical Prop Fan Unit
SFF Force Flow Cabinet Heaters

Testing: All coils are factory tested for leaks at 450 psi,
air under water.

Working Pressures (Hot Water Applications) :

All unit heater and force flow coils are rated for 360 psi.

All unit construction and test procedures comply with UL1995.



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