



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
P.O. Box 16620
Little Rock, AR 72231
Phone 501-834-3320
Fax 501-834-5416

Date: 5/23/2023

Return Request: 6/2/2023

Project: Farm Credit Office

Supplier: Powers of Arkansas

Submittal: Electric Heater

Submittal Number: 23 00 00-03

Drawing # and Installation: Mechanical Drawings

ARCHITECT

Hight Jackson
5201 W. Village Parkway, Suite 300
Rogers, AR 72758
479-464-4965

ENGINEER

HAS Engineering
7405 Ellis Rd.
Fort Smith, AR 72916
479-452-8922

GENERAL CONTRACTOR

Nabholz
612 Garland St.
Conway, AR 72032
501-505-5800

MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc.
9924 Landers Rd.
N. Little Rock, AR 72117
501-834-3320

Notes:

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CSUSA PROJECT NO.

23-1013

jon@comfortar.com



IOM

PRODUCT	Electric Heater WH-1
MANUFACTURER	Raywall
JOB NAME	Farm Credit – Russellville, AR
LOCATION	Russellville, AR
ENGINEER	Nathan Wilson
CONTRACTOR	Comfort Systems
DATE	8/7/2024
SUBMITTED BY	Brady Smith

5440 Northshore Drive - North Little Rock, Arkansas 72118 - Tel: 501.374.5420 Fax: 501.370.9298

3450/AFH SERIES

Recessed Mounting 3450/AFH Series

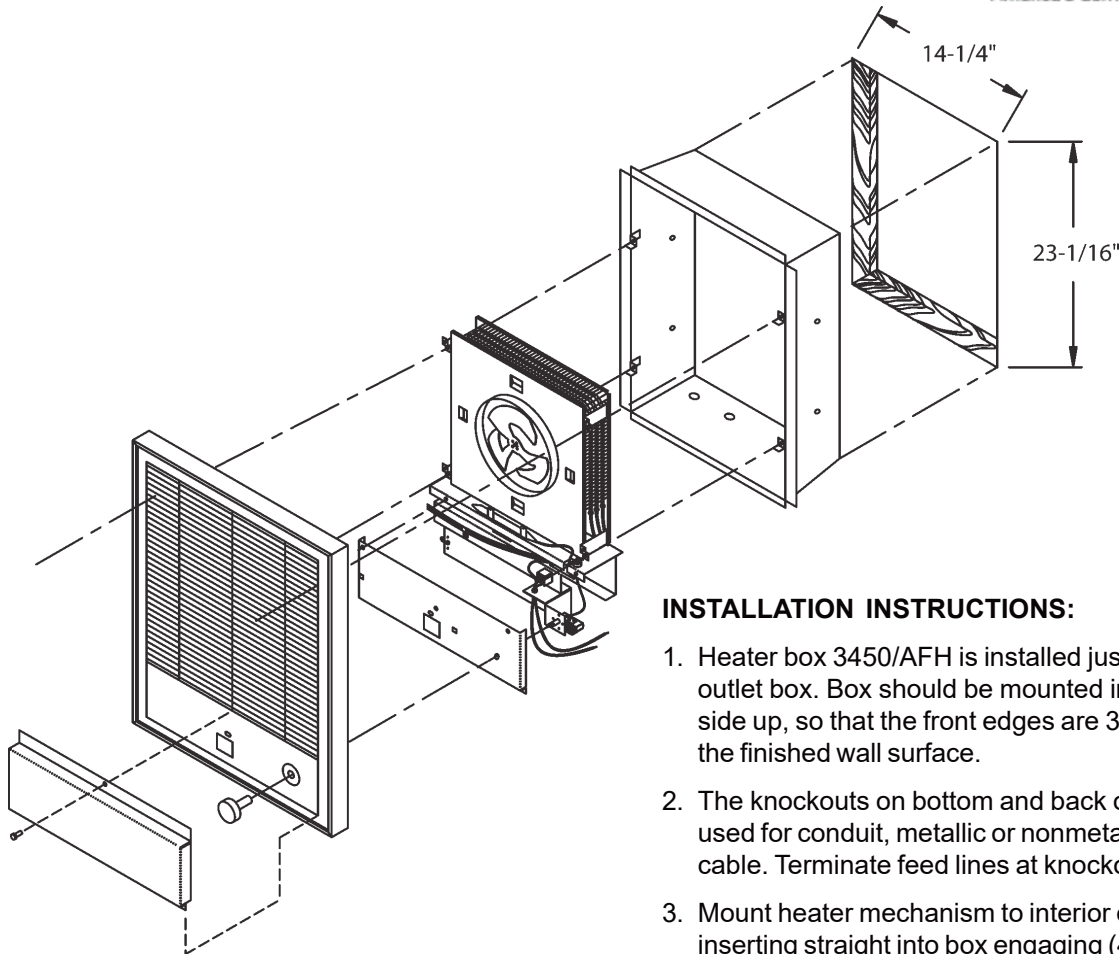
ATTENTION: Read carefully
before attempting to install,
operate or service the heater.

INSTALLATION INSTRUCTIONS



TPI Corporation
P.O. Box 4973
Johnson City, TN
37602-4973

America's Comfort Conditioning Company



INSTALLATION INSTRUCTIONS:

1. Heater box 3450/AFH is installed just like ordinary outlet box. Box should be mounted in the wall - top side up, so that the front edges are $\frac{3}{16}$ " away from the finished wall surface.
2. The knockouts on bottom and back of box can be used for conduit, metallic or nonmetallic armored cable. Terminate feed lines at knockout.
3. Mount heater mechanism to interior of box by inserting straight into box engaging (4) lower tabs on interior mounting brackets with (4) tabs on wall box. Secure with (5) screws supplied. (4) in mounting bracket tabs. (1) in lower voltage supply area.
4. Mount protective control cover to chassis with (4) screws provided.
5. Mount front to chassis at top with (2) trapped allen screws and at bottom to protective control panel with (2) loose allen head screws provided.
6. Mount tamper proof panel to front with (1) pan head allen screw provided.

Thermal Cutout operation shown on reverse page.

GENERAL SAFETY INFORMATION / CAUTION:

- Mount in vertical position only.
- Do not install any closer than 12" to any vertical surface or 12" to floor.
- Do not mount beneath towel racks or behind doors.
- Heater must have no obstructions in front of it.
- Make certain power supply is same as nameplate voltage on heater.
- All wiring must conform to the National Electric Code and existing local code requirements.

Form 9348

IMPORTANT: OWNER SHOULD RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

3450/AFH SERIES

Surface Mounting
Semi-Recessed Mounting
3450/AFH Series

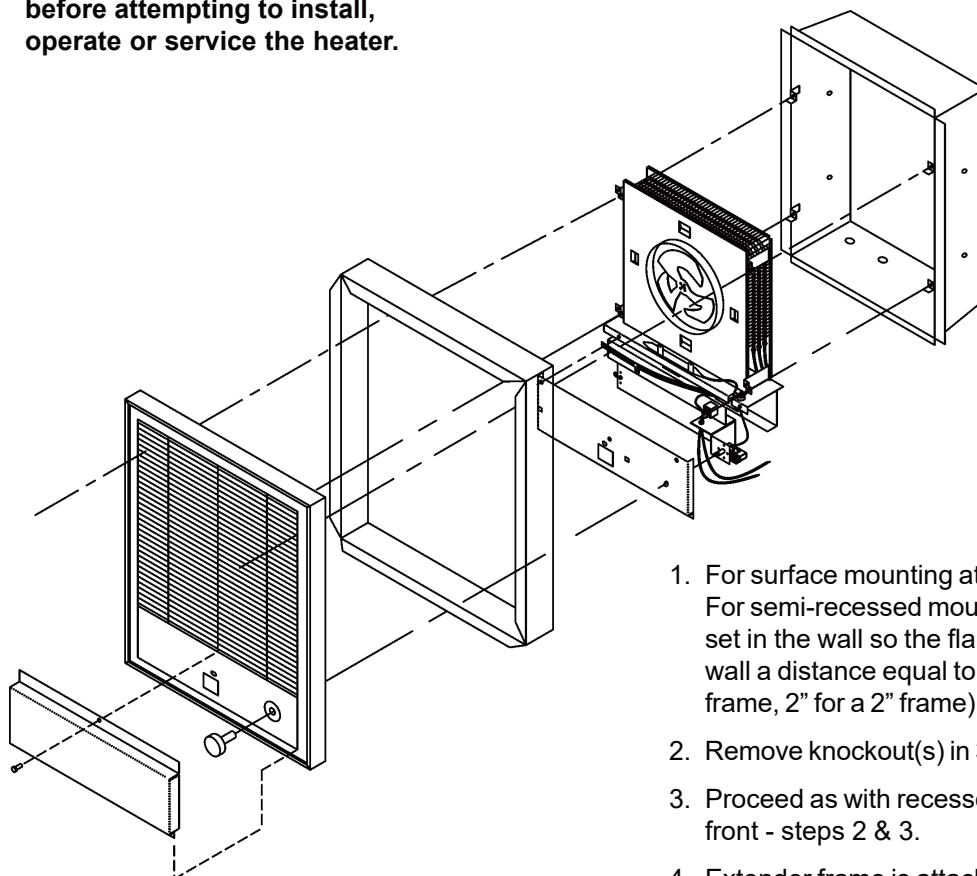
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INSTALLATION INSTRUCTIONS:

- For Surface Mounting use extender 3450/AFH EX34.
- For Semi-Recessed Mounting use extender 3450/AFH EX16 for 2", 3450/AFH EX8, for 1".
- Box 3450/AFH must be used in conjunction with accessory extender.

1. For surface mounting attach 3450/AFH box to wall. For semi-recessed mounting 3450/AFH box should be set in the wall so the flange is out from the finished wall a distance equal to the frame depth (1" for a 1" frame, 2" for a 2" frame).
2. Remove knockout(s) in 3450/AFH as required.
3. Proceed as with recessed installation described on front - steps 2 & 3.
4. Extender frame is attached to heater front (slip fit) and this assembly is then attached to the heater following step 4 on front. Frame is captured between heater front and finished wall.

THERMAL CUTOFF OPERATION (ZERO-VOLT) LIMIT CONTROL

To reset thermal cutoff disconnect all power for 5 minutes then energize unit. If fault continues disconnect power and check for cause.

(CAPILLARY) LIMIT CONTROL

To reset thermal cutoff disconnect all power, when heater has cooled locate the two 1/4" dia. holes in the control panel behind the louvers on the front grille. Using a small screwdriver or pencil press the reset button (with minimal amount of force) through the 1/4" dia. opening, then restore power to the unit. If fault continues disconnect power and check for cause.

Form 9348
REV. 2/06

IMPORTANT: OWNER SHOULD RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE



TO: Hight Jackson Associates
jandrade@hjarch.com

ATTN: Jorge Andrade

RE: Farm Credit - Russellville, AR
HVAC

DATE: 08/29/2023 JOB NO. 22-166

ELECTRONIC SUBMITTAL WAS REVIEWED AS FOLLOWS:

☒ CUT SHEETS	☒ NO EXCEPTIONS TAKEN	☒ APPROVED
☐ DRAWINGS	☐ NOTE MARKINGS	☐ REJECTED
☐ OTHER	☐ COMMENTS ATTACHED	☐ RESUBMIT
		☐ RESUBMIT only items marked

REMARKS:

Submittal - 23 09 23 - 23 82 39 - Electric Heater

ENGINEER'S REVIEW IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AND CONTRACT DOCUMENT. MARKINGS OR COMMENTS SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM COMPLIANCE WITH THE PROJECT PLANS AND SPECIFICATIONS, NOR DEPARTURE THEREFROM. THE CONTRACTOR REMAINS RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, FOR SELECTING FABRICATION PROCESSES, FOR TECHNIQUES OF ASSEMBLY AND PERFORMING HIS WORK IN A SAFE MANNER.

Copies To:

<u> X </u>	File
<u> </u>	Owner
<u> X </u>	Architect
<u> </u>	Other

BY: Nathan Wilson, PE

HSA Engineering Consulting Services, Inc.

7405 Ellis Street
Fort Smith, AR 72916

479.452.8922
www.hsaconsultants.com

SUBMITTAL



Project Name: Farm Credit
Project Number: 02-23-2720
Subcontractor: Comfort Systems
Specification: 23 82 39
Submittal Number: #220513-1

Construction Manager:

NABHOLZ CONSTRUCTION SERVICES	
☐	Revise & Resubmit
☐	Reviewed & Amend As Noted
☒	Reviewed
By: <u>William Ray</u> Date: <u>08/10/2023</u>	

☐ APPROVED
☐ APPROVED AS CORRECTED
☒ REVIEWED BY CONSULTANT

☐ REVISE AND RESUBMIT
☐ NOT APPROVED
☐ SUPPLEMENTAL HJ COMMENTS

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication process or to the techniques of construction; and for coordination of the work of all trades.

BY: Jorge Andrade
DATE: 8/29/2023

Design Review Comments:

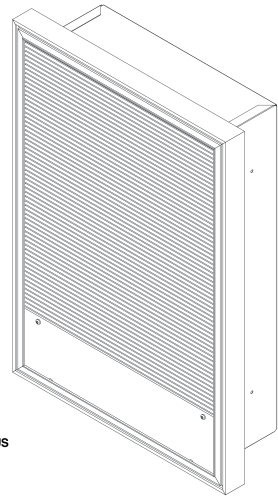
Hight Jackson
ASSOCIATES



SUBMITTAL

PRODUCT	Electric Heater
MANUFACTURER	Raywall
JOB NAME	Farm Credit – Russellville, AR
LOCATION	Russellville, AR
ENGINEER	Nathan Wilson
CONTRACTOR	Comfort Systems
DATE	5/8/2023
SUBMITTED BY	Brady Smith

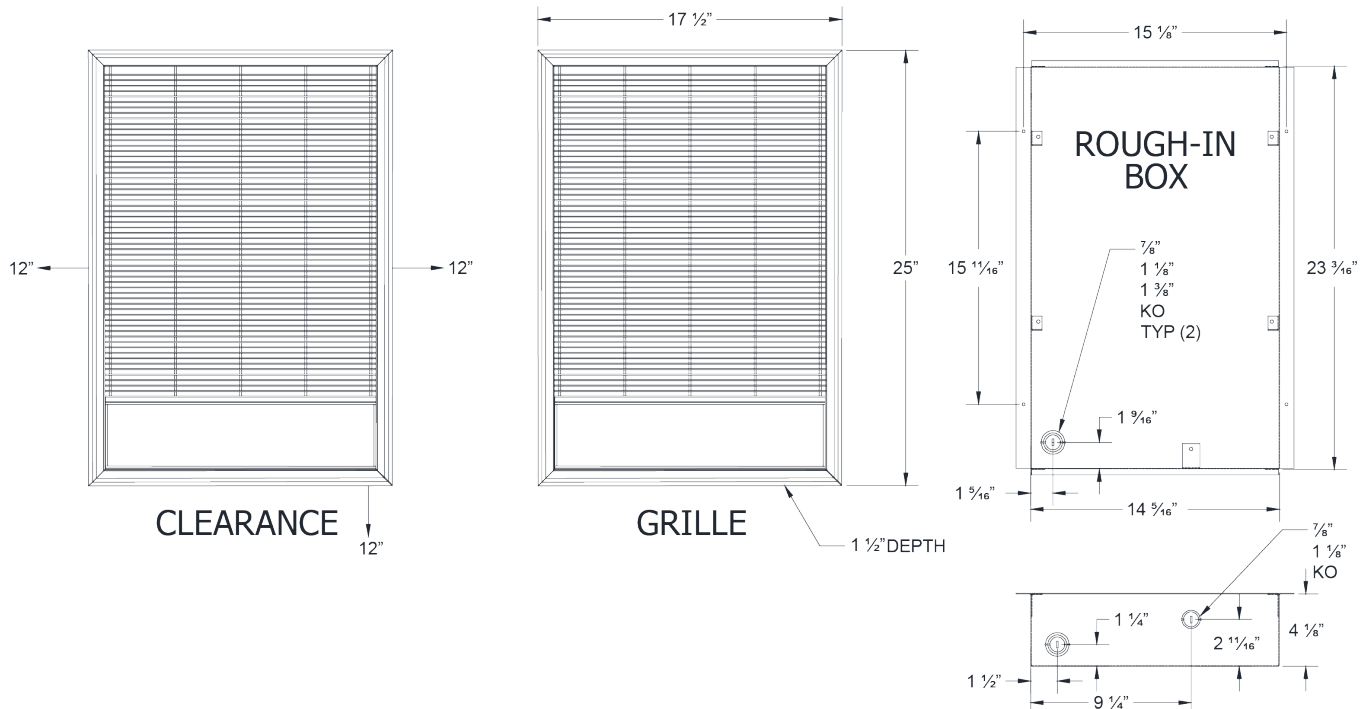
SALES ORDER NO.		QUOTE	STPJW
CUSTOMER		DATE:	05/08/2023
PROJECT	Farm Credit – Russellville, AR		
SALES REP			
ENGINEER			
CONTRACTOR			
SUBMITTED BY	Powersar		
APPROVED BY			
APPROVED BY			



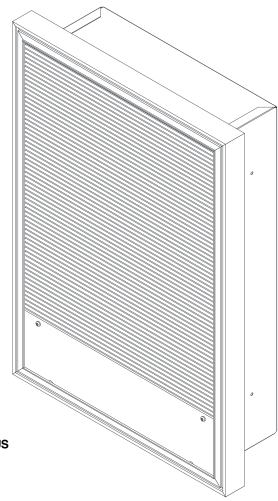
SUBMITTAL DATA SHEET

QTY	MODEL	TAG	WATTAGE	VOLTS	PHASE	AMPS	CFM	DISCONNECT	THERMOSTAT	OPTIONS
1	AFH8130TC	WH-1	3	208	1	14.4	245	Built-In	Yes	3450EX34

NOTES/SPECIAL
INSTRUCTIONS:



- Heavy 16 gauge steel construction
- Powder coated paint finish
- Steel block fin element
- All units equipped with manual reset thermal limit switch
- Van Axial fan blade produces 245 CFM
- Dual wattage and voltage units available foe 208/240 volts
- Surface Mounting Frames available for non-recessed and semi-recessed applications
- Units built with factory installed Disconnecting Tamper-Proof Thermostats



HEATER		WALL BOX		WATTS	BTUs	VOLTS	PH	AMPS	WT. (LBS)
MFG CATALOG NUMBER	MFG MODEL NUMBER	MFG CATALOG NUMBER	MFG MODEL NUMBER						
SERIES AFH - ROUGH-IN DIMENSIONS: 23 5⁄16" H X 14 7⁄16" W X 4 1⁄8" D GRILL DIMENSIONS: 25" H X 17 1⁄2" W									
06916102	AFH8120T	06919102	Box 3450	2000	6826	208	1	9.6	55
06916802	AFH2120T					240		8.3	
03122902	AFH7120T					277		7.2	
03846602	AFH8320			2000	6826	208	3	5.6	
03846801	AFH2320					240		4.8	
06876802	AFH8130T			3000	10239	208	1	14.4	
06917702	AFH2130T					240		12.5	
03122802	AFH7130T					277		10.8	
03846702	AFH8330			3000	10239	208	3	8.3	
03846901	AFH2330					240		7.3	
06917802	AFH8140T			4000	13652	208	1	19.2	
06918102	AFH2140T					240		16.7	
03119902	AFH7140T					277		14.4	
06918502	AFH8340T			5000	17065	208	3	11.1	
03166502	AFH2340T					240		9.6	
03129802	AFH8150T					208	1	24.03	
03121302	AFH2150T					240		20.8	
03123802	AFH7150T					277		18.1	
06919002	AFH8350T			5000	17065	208	3	13.9	
03130702	AFH2350T					240		12.0	

Factory Installed Accessories

Units with transformers must have a contactor. A control transformer with 120V secondary is available on all 3-phase models, 208V/240V 1-phase units up to 3KW, and up to 4KW on 277V. All heaters must be installed with a wall box

MFG MODEL NUMBER	DESCRIPTION	SERIES OPTIONS	
		AFC	AFH
Suffix - R	Contactor with Coil same as heater	YES	YES
Suffix - R1	Contactor with 24V Coil	YES	YES
Suffix - R2	Contactor with 120V Coil	YES	YES
Suffix - C	Circuit Breakers - all models	NO	YES
Suffix - A1	Control Transformers with 24V Secondary	NO	YES
Suffix - A2	Control Transformers with 120V Secondary	NO	YES

MFG CATALOG NUMBER	MFG MODEL NUMBER	DESCRIPTION	WT. (LBS)
06919402	AFHEX34	4" Surface Mounting Sleeve	6
06919302	AFHEX16	2" Semi-Recessing Sleeve	4
06919202	AFHEX8	1" Semi-Recessing Sleeve	3
06915702	Box AFH	Wall Box for AFH	5

Product Specifications

Contractor shall supply and install heavy duty wall mounted forced air electric heaters of the wattage, voltage and phase as specified. The heater shall so be designed to provide an even distribution of heated air to the space to be heated by drawing return air in the peripheral area of the heater across and through the element which shall then be discharged from the center section of the heater by means of an electric motor and axial flow fan blade. Heaters shall be recessed type to extend no more than 1 ½" from the finished wall or surface mounted to extend no more than 5 ¾" from the finished wall or semi-recessed type to extend no more than 3 ½" from finished wall or semi-recessed type to extend no more than 2 ½" from finished wall.

ENCLOSURE:

Heater front shall withstand 10.8 ft. lbs. (324 poundals) impact and 400 lbs. static force applied to an 8 sq. in. area at center grille location with less than 1/16" permanent distortion. The combination return and supply grille assembly shall be constructed of 1/16" x 3/8" rounded edge horizontal steel louvers which shall be spaced for maximum opening of 1/4". Louvers shall be welded at every intersection to three evenly spaced 1/4" diameter vertical members and completely framed in a heavy gauge natural anodized Aluminum extrusion. Front assembly shall be attached to the chassis by hidden tamper-resistant (Allen-head) machine screws. All other parts shall be 16 gauge steel Zinc coated, both sides finished in a high gloss or bronze colored baked powder coat finish.

MOTOR:

Motor shall be a permanently lubricated unit bearing, totally enclosed shaded pole type with impedance protection. Motors shall operate at no more than 1400 RPM and shall be same voltage as the heater. A protective shield shall surround the motor to separate return air from heated air

PERFORMANCE:

Heaters shall have a rating of 245 CFM at 660 F.P.M. with a maximum temperature rise of 73°F

ELEMENTS:

Element assemblies shall consist of two or three corrosion resistant steel sheathed type elements mechanically bonded to common corrosion resistant steel fins. Each sheathed element shall consist of helically coiled Nickel Chromium alloy resistant wire completely embedded in and surrounded by Magnesium Oxide, enclosed and wedged into corrosion resistant steel sheaths. Elements shall have 2" cold conductor pins extending into the sheath and shall have a density of no more than 60 Watts per inch.

THERMAL OVERLOAD:

Heaters shall be equipped with a "manual reset" thermal overload which disconnects elements and motor in the event normal operating temperatures are exceeded. For safety, if opened due to abnormal temperature, thermal overload shall remain open until manually reset. Automatic reset thermal overloads which allow the element to continue to cycle under abnormal conditions will not be accepted.

APPROVAL:

Heaters shall be ETL Listed.

OPTIONAL CONTROL SYSTEMS:

Heaters shall be operated from wall-mounted, line voltage, heavy-duty (tamper-proof) thermostats. Heaters with built-in, pre-wired contactors shall be operated from wall-mounted, line voltage, pilot duty (tamper-proof) thermostats. Heaters built with, pre-wired contactors (and control transformers) shall be operated from wall-mounted, pilot duty (24V) or (120V) wall-mounted tamper-proof thermostats. Heaters shall be controlled by integrally mounted thermostats. Thermostats shall be heavy-duty, hydraulic type with a temperature range of 40°F-120°F for double pole units and 40°F-120°F for three pole units and with remote sensing bulb placed in the return air. Thermostats shall be electrically rated at least 125% of heater rating. Thermostats shall be electrically rated at least 125% of heater rating. Thermostats shall also act as a disconnect by breaking all ungrounded conductors in the OFF position. (Thermostat control knob shall be covered by a 16 gauge tamper-proof access plate to prevent adjustment by unauthorized personnel.)

CONTACTORS:

Where required, heaters shall be equipped with heavy-duty, definite purpose contactors with flame path separators and dust covers. Contactors shall cycle all ungrounded conductors. Contactors shall have holding coils (of the same voltage as the heater) or (120 Volts) or (24 Volts).

CONTROL TRANSFORMERS:

Heater shall be equipped with a Class 2 control transformer, sealed rating of 20 VA, to supply control circuits of (24 Volts) or (120 Volts). (120 Volt secondaries not available in single phase heaters over 3 KW).

CIRCUIT BREAKERS (AFH Series Only):

Heaters shall be equipped with built-in circuit breakers in order to allow the heaters to be supplied from feeder taps. A separate switch providing a positive off for control circuits shall be included where required. Circuit breakers and control switches shall be arranged so that all line side conductors will be separately enclosed when heater front is removed for servicing so that no current carrying parts are accessible without the use of additional tools.