

**WARNING**

IMPROPER HEATER INSTALLATION, VENTING, OPERATION OR MAINTENANCE MAY RESULT IN SEVERE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH. THOROUGHLY READ THE MANUAL PROVIDED BY THE MANUFACTURER OF THE HEATER BEFORE INSTALLING OR SERVICING THE EQUIPMENT, AND KEEP IT FOR FUTURE REFERENCE. THESE INSTALLATION INSTRUCTIONS PERTAIN ONLY TO THE MOUNTING OF HEATERS IN GREENHOUSES MANUFACTURED BY AGRA TECH, INC. AND ARE NOT INTENDED TO REPLACE THE INSTRUCTIONS PRODUCED BY THE HEATER MANUFACTURER.

**PROPELLER TYPE HEATER HANGER WITH FAN JET**

HEATERS MAY FACE A FAN JET EQUIPPED WITH A CONVECTION TUBE TO DISTRIBUTE HEAT THROUGHOUT THE HOUSE (FIG. 1). HEATERS WITH HAVE 2 MOUNTING HOLES REQUIRE 1 HORIZONTAL (MOUNT) BAR. HEATERS WITH 4 MOUNTING HOLES REQUIRE 2 HORIZONTAL BARS. A FAN JET CAN BE FED BY 1 OR 2 HEATERS AS SHOWN.

**BLOWER OR PROPELLER TYPE HEATER HANGER FACING OPPOSITE GABLE**

BLOWER TYPE HEATERS DO NOT REQUIRE A FAN JET TO DISTRIBUTE HEAT, AND CAN BE HUNG FACING THE OPPOSITE GABLE (FIG. 2). PROPELLER TYPE HEATERS MAY ALSO BE HUNG THIS WAY IF HORIZONTAL AIR FLOW FANS ARE PROVIDED TO DISTRIBUTE HEAT (FIG. 3). EACH HEATER REQUIRES 2 HORIZONTAL (MOUNT) BARS.

**IMPORTANT**

DO NOT REMOVE STRUCTURAL MEMBER OF THE HOUSE TO ACCOMMODATE THE INSTALLATION OF HEATERS. THIS INCLUDES ALL END BAY BRACING AND TRUSS MEMBERS.

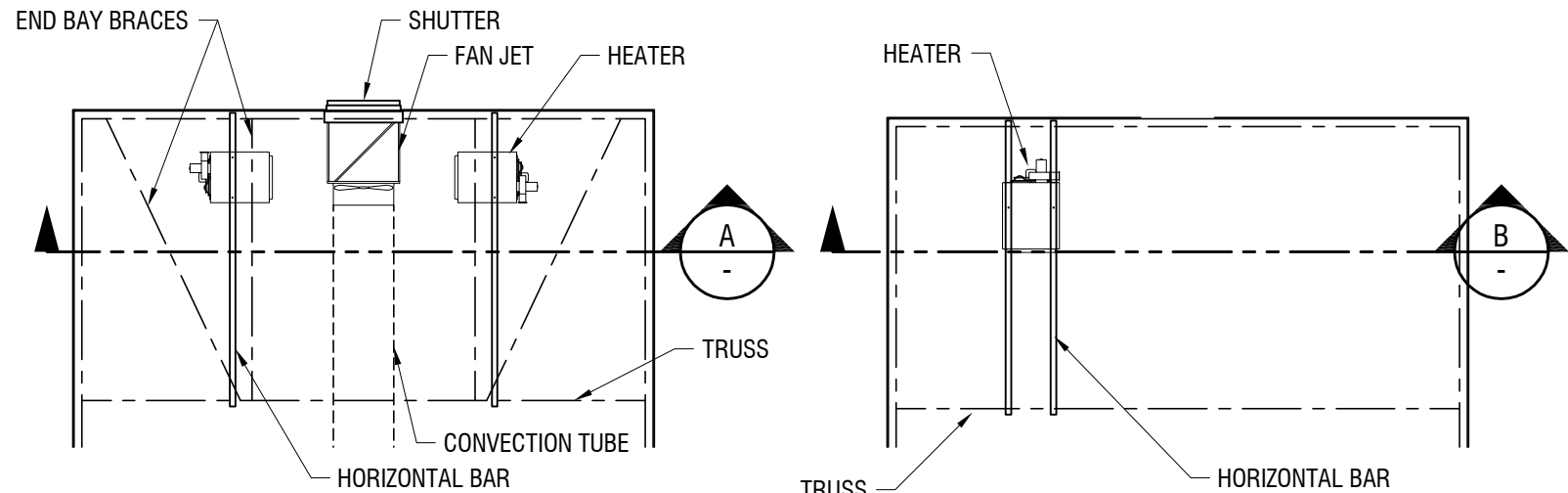
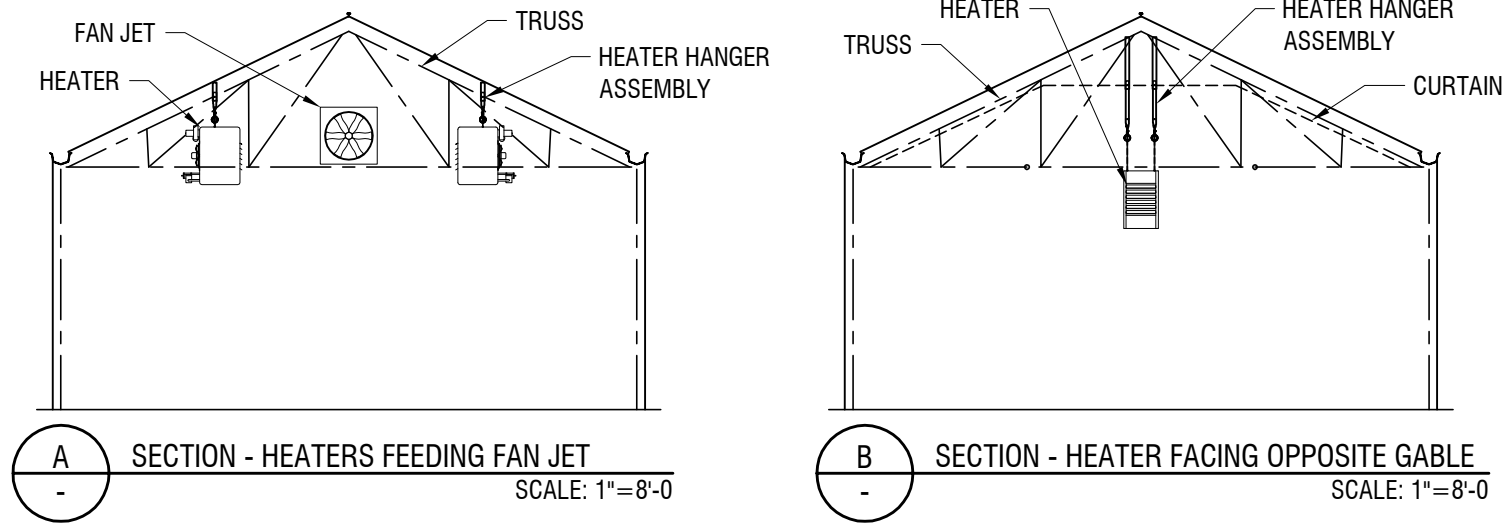


FIG. 1 - PLAN - HEATERS FEEDING FAN JET

SCALE: 1"=8'-0"

FIG. 2 - PLAN - HEATER FACING OPPOSITE GABLE

SCALE: 1"=8'-0"



SECTION A - HEATERS FEEDING FAN JET

SCALE: 1"=8'-0"

SECTION B - HEATER FACING OPPOSITE GABLE

SCALE: 1"=8'-0"

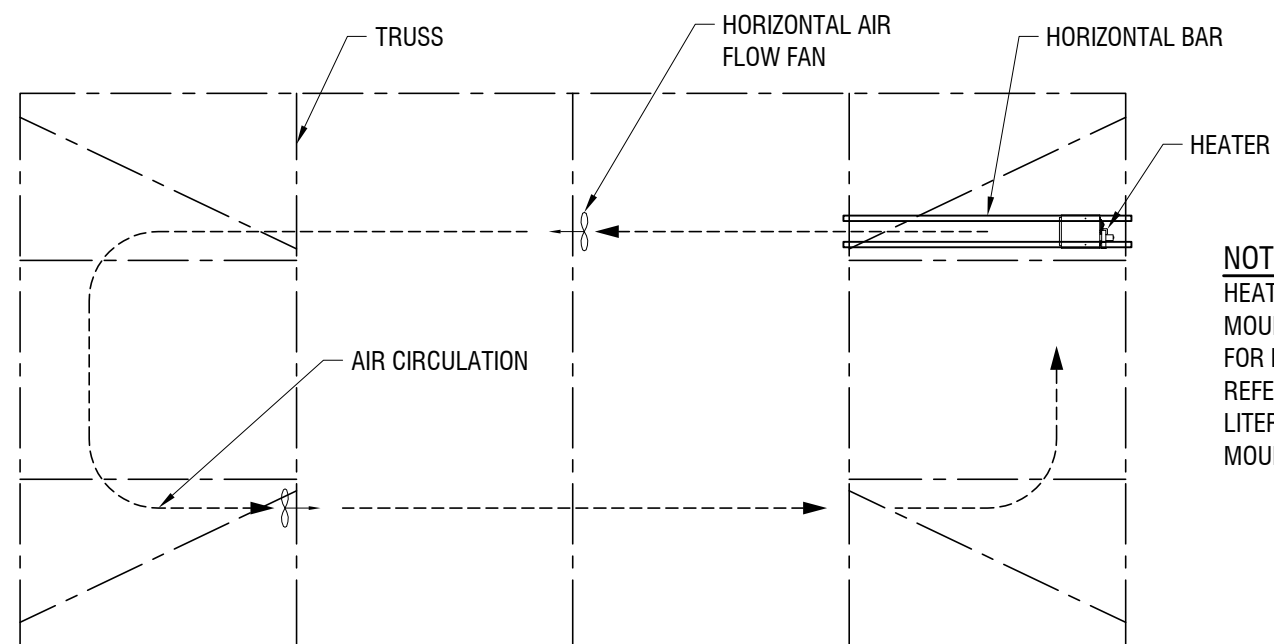


FIG. 3 - PLAN - PROPELLER TYPE HEATER FACING OPPOSITE GABLE

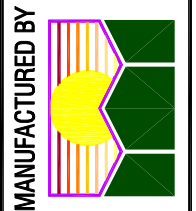
SCALE: 1:100

**NOTE**  
HEATER AND FANS MUST BE MOUNTED AT THE SAME HEIGHT FOR PROPER AIR CIRCULATION. REFER TO FAN MANUFACTURER'S LITERATURE FOR PROPER MOUNTING AND SPACING.

REVISIONS:  
A 10/28/05 alp  
move fj up  
B 10/21/10 alp



**TECH**  
TEL (925)432-3399  
FAX (925)432-3521



**AGRA**  
2131 PIEDMONT WAY  
PITTSBURG CA 94565

HEATER HANGER  
INSTALLATION OVERVIEW

DATE:  
5/11/2000  
JOB NO.

DRAWN BY:  
DLR

DRAWING NUMBER

H1  
HH-SL1

**GENERAL INSTALLATION PROCEDURE**

1. DETERMINE A LOCATION FOR THE HEATER(S), FAN JET & SHUTTER. MAKE SURE THAT THE EQUIPMENT WILL HANG CLEAR OF THE HORIZONTAL AND DIAGONAL BRACING IN THE END BAY. DRILL Ø9/16 HOLES IN THE TOP CHORDS AND HANG THE UPPER VERTICAL BARS WITH Ø1/2 x 3 1/2 BOLTS.
2. INSTALL BRACE BANDS ON THE HORIZONTAL BAR(S) AND ATTACH A LOWER VERTICAL BAR TO EACH ONE WITH A Ø3/8 x 1 CARRIAGE BOLT. MAKE SURE THE VERTICAL BARS ARE PARALLEL TO EACH OTHER, THEN DRIVE A #14 SD SCREW THROUGH THE SIDE OF EACH BRACE BAND TO BIND IT IN PLACE ON THE HORIZONTAL BAR.
3. LIFT THE HORIZONTAL BAR(S) AND GUIDE THE LOWER VERTICAL BARS INTO THE OPEN ENDS OF THE UPPER VERTICAL BARS.
4. DETERMINE THE HEIGHT REQUIRED FOR THE HORIZONTAL BAR(S). IF THERE IS AN AGRA TECH CURTAIN IN THE HOUSE, THE HORIZONTAL BAR(S) MUST BE AT LEAST 6" BELOW IT. IT MAY BE NECESSARY TO SHORTEN THE VERTICAL BARS TO ACHIEVE THE REQUIRED MINIMUM CLEARANCE TO GRADE.

**NOTICE**  
REFER TO THE HEATER MANUFACTURER'S MANUAL FOR CLEARANCES.

5. DRILL A Ø7/16 HOLE THROUGH EACH VERTICAL BAR SLIP CONNECTION AND INSTALL A Ø3/8 x 2 1/2 BOLT TO SUPPORT THE HORIZONTAL BAR AT THE DESIRED HEIGHT.
6. DRILL THE HORIZONTAL BAR(S) FOR THE ALL-THREAD RODS. FOR Ø3/8 RODS, DRILL Ø7/16 HOLES. FOR Ø1/2 RODS, DRILL Ø9/16 HOLES.
7. CUT THE ALL-THREAD RODS TO LENGTH, IF REQUIRED, AND THREAD THEM INTO THE MOUNTING HOLES ON THE HEATER WITH A NUT ON THE ROD JUST ABOVE THE HEATER. TIGHTEN THE NUT AGAINST THE HEATER TO LOCK THE ROD IN PLACE.
8. THREAD ANOTHER NUT ONTO EACH ALL-THREAD ROD ABOUT 6" THEN LIFT THE HEATER INTO PLACE. ADD 2 NUTS TO EACH ROD ABOVE THE HORIZONTAL BAR AND ADJUST THEM TO LEVEL THE HEATER. THE TOP OF THE HEATER MUST BE LEVEL FOR PROPER OPERATION. TIGHTEN THE NUTS BELOW THE HORIZONTAL BAR(S) THEN TIGHTEN THE TWO NUTS ABOVE THE BARS TO LOCK THE ENTIRE ASSEMBLY IN PLACE (FIG. 4).

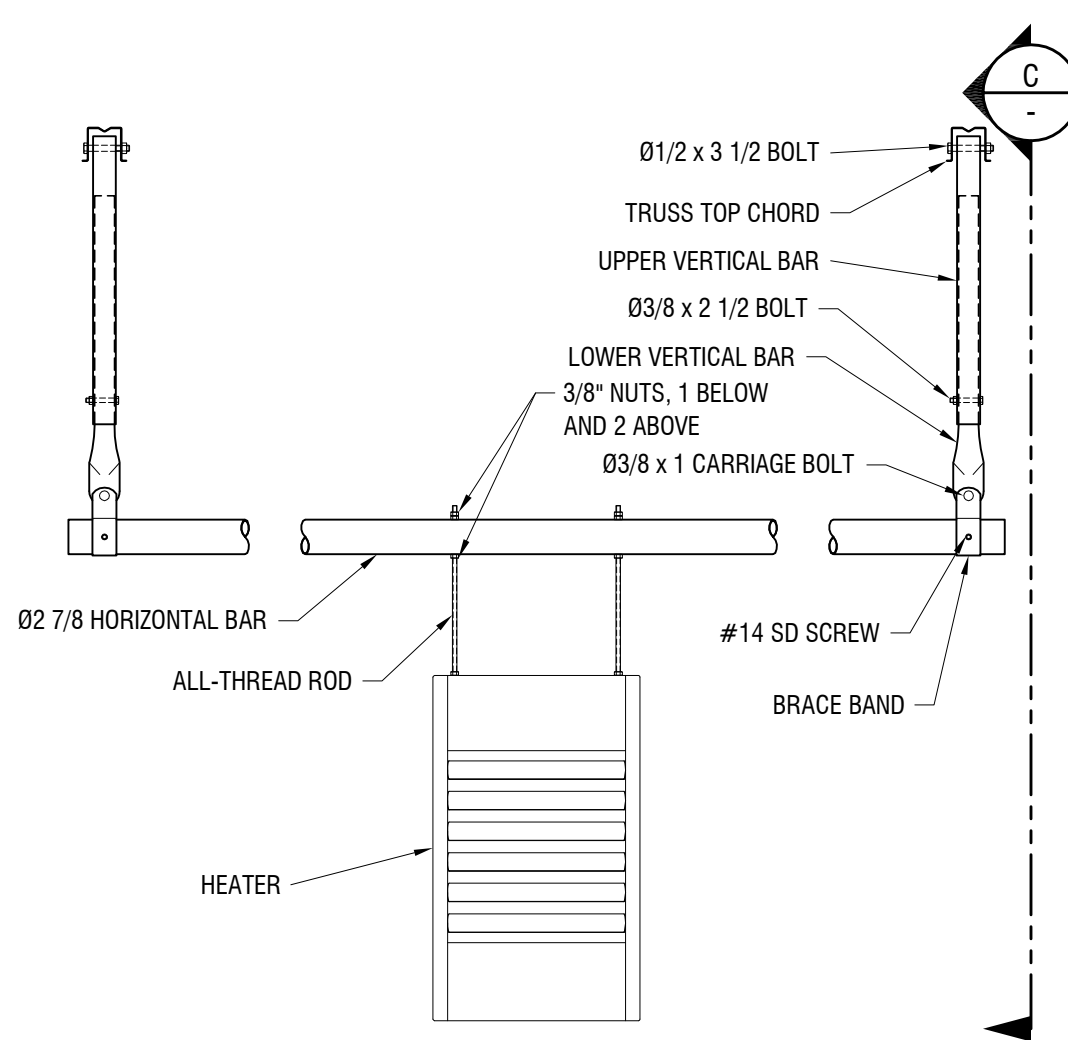
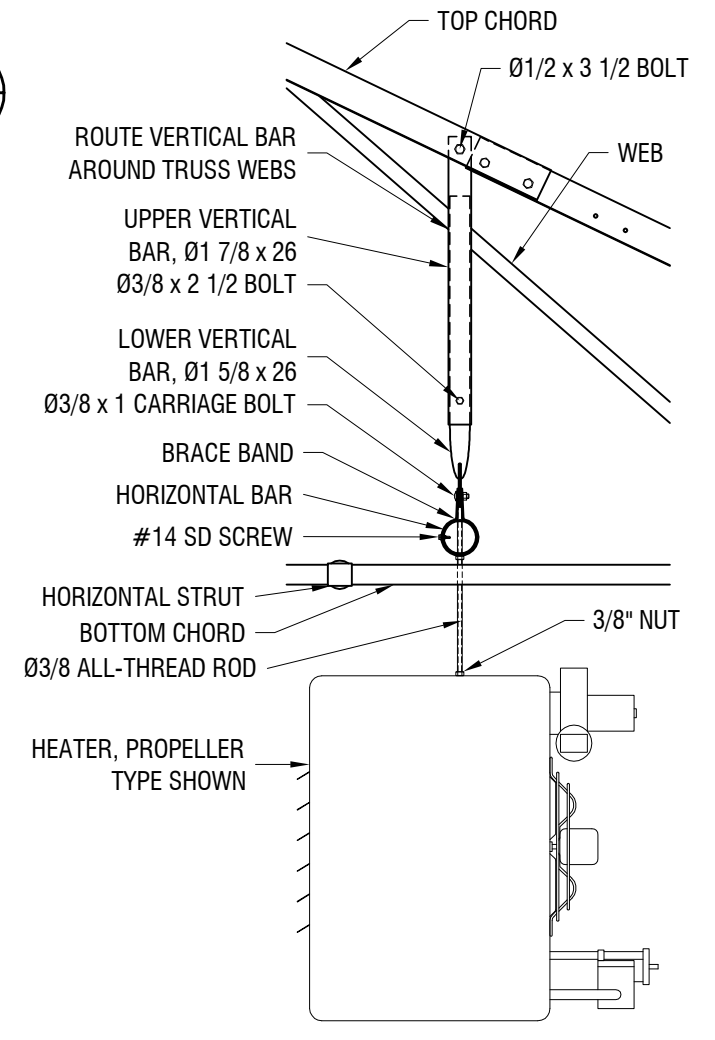


FIG. 4 - TYPICAL HEATER FACING FAN JET

SCALE: 3/4"=1'-0

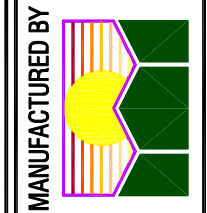


SECTION C - HEATER HANGER AT TRUSS

SCALE: 3/4"=1'-0



**TECH**  
TEL (925)432-3399  
FAX (925)432-3521



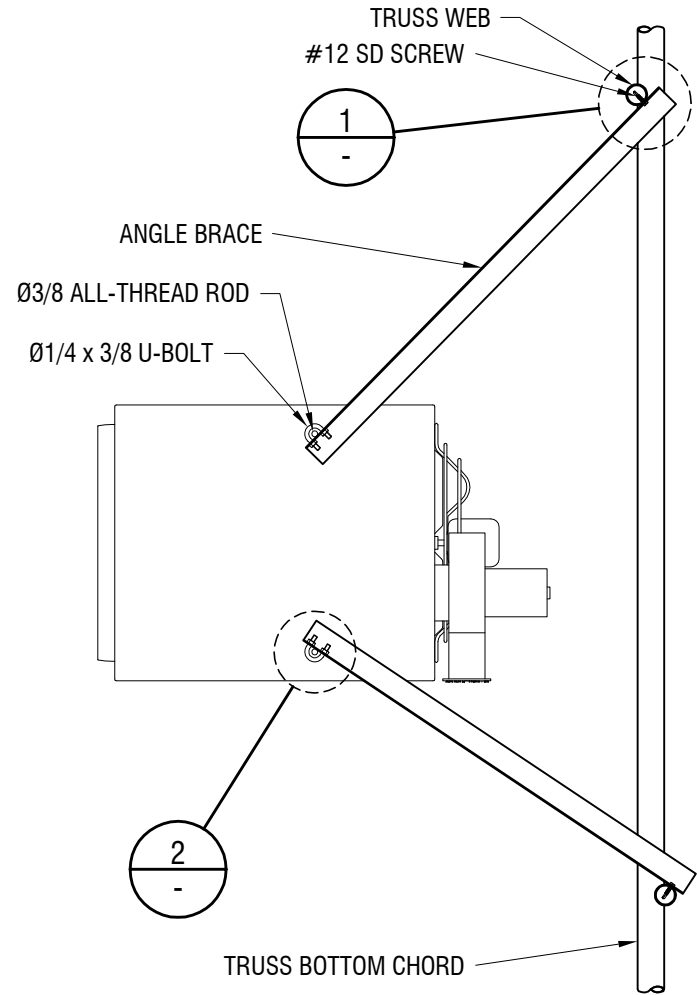
**AGRA**  
2131 PIEDMONT WAY  
PITTSBURG CA 94565

SOLAR LIGHT SERIES  
HEATER HANGER  
INSTALLATION

DATE:  
5/11/2000  
JOB NO.  
-  
DRAWN BY:  
DLR  
-  
DRAWING NUMBER  
H2  
HH-SL1

**HEATER ANGLE BRACING INSTALLATION**

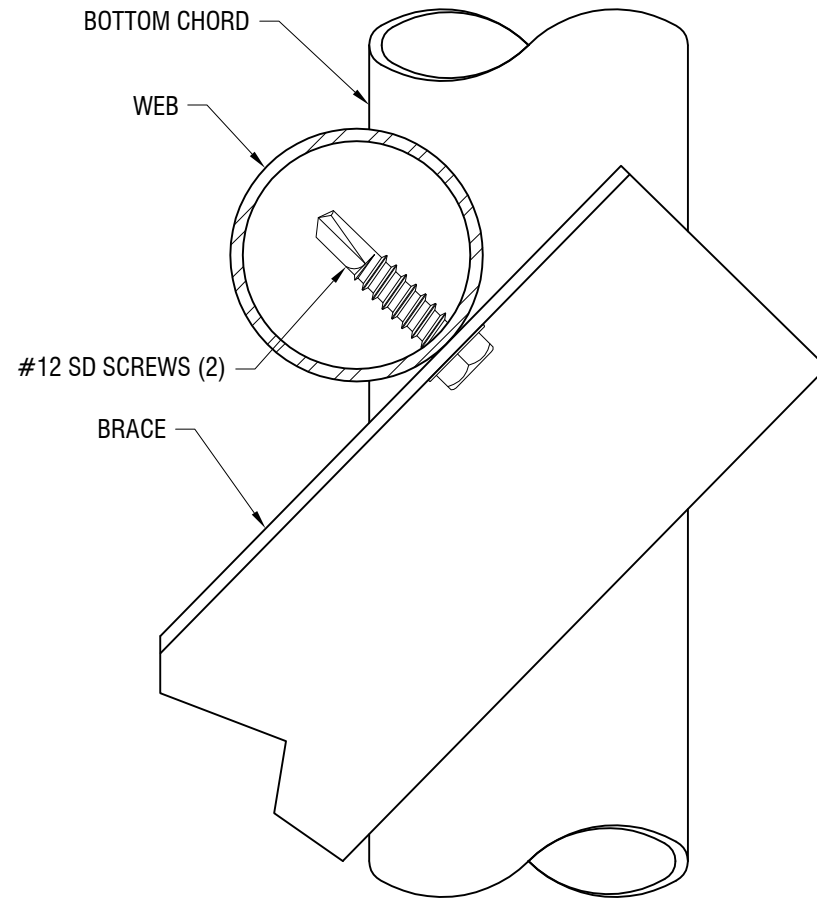
CUT 1 1/2" x 1 1/2" x 60" SECTIONS OF ANGLE BRACING TO FIT BETWEEN THE ALL-THREAD RODS AND NEARBY TRUSS WEBS. ATTACH THE BRACES TO THE RODS WITH Ø1/4 x 3/8 U-BOLTS AND TO THE WEBS WITH #12 x 1 SD SCREWS (FIG. 5).



**FIG. 5 - PLAN - HEATER BRACING**

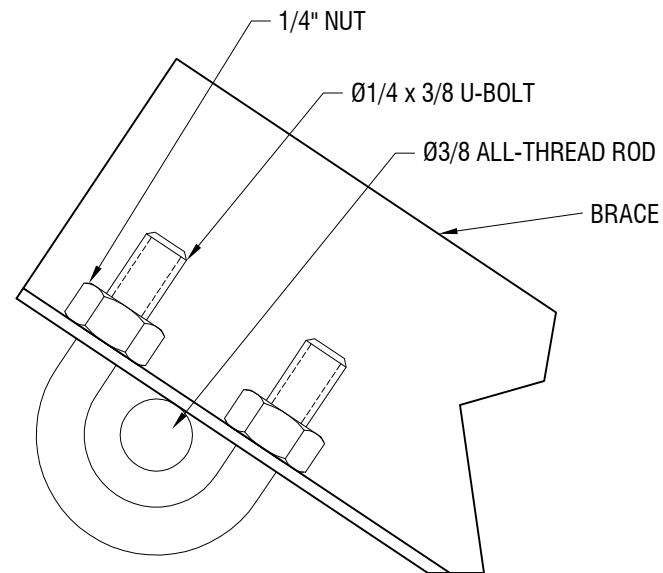
SCALE: 1"=1'-0

**NOTE:** THE U-BOLTED CONNECTION OF THE ANGLE BRACE TO THE ALL-THREAD ROD WILL REMAIN LOOSE AFTER THE NUTS ARE TIGHTENED.



**1** - **DETAIL - ANGLE BRACE AT TRUSS WEB**

SCALE: 1:1



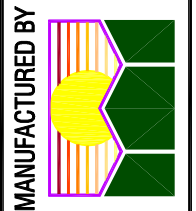
**2** - **DETAIL - ANGLE BRACE AT ALL-THREAD ROD**

SCALE: 1:1

REVISIONS:
A 4/3/2001 VI
BRACING TO WEBS ONLY



**TECH**  
 TEL (925)432-3399  
 FAX (925)432-3521



**AGRA**  
 2131 PIEDMONT WAY  
 PITTSBURGH CA 94565

**ALL HOUSES  
 HEATER HANGER  
 ANGLE BRACING  
 INSTALLATION  
 BRACING TO WEBS ONLY**

DATE: 5/11/2000
JOB NO. -
DRAWN BY: DLR
DRAWING NUMBER H3
HH-SL1