



Solarwall™ Installation Guide

Immediately after receiving your Solarwall Kit, check the packing list that comes with your kit and verify that you have received all components listed on the packing list. If any components are missing, contact Solar Unlimited, Inc. immediately. All components have been inspected prior to shipment to insure that inferior components are not shipped. Components damaged during shipment are the responsibility of the shipper. Contact the shipping company for remedy of damaged goods. Sheet metal framing may have minor variations, which do not affect the Solarwall system. This is normal and is not considered damage or an inferior component.

Thank you for choosing the Solarwall solar heating system. The Solarwall system will give you many years of dependable, trouble-free service. Remember, Solarwall is not a primary heating source. Please read this Installation Guide in full before installation.

Though the system is simple in concept and simple to install, care should be taken in selecting the location and installation of the collectors. There is no way that Solar Unlimited, Inc. can foresee all installation situations, and therefore must leave it to the consumer and/or the installer to determine the suitability to any specific purpose, including weather and structural conditions of any such installation. Where necessary, please consult with the appropriate professionals to determine factors such as suitability to purpose, architectural, electrical and structural concerns.

Solarwall panels and framing are sheet metal products, and may have sharp edges. Care should be taken in handling to prevent risk of injury to self and others.

Choosing an appropriate collector location.

Careful consideration should be given to Solarwall heating collector location. Factors such as shading by trees, hazard from falling limbs, general aesthetics, etc. should be examined.

Solarwall is generally mounted on the roof or wall of a residence



In retrofit situations, the perforated solar cladding can be applied over most existing walls and roofs. A few obstructions on a wall or roof should not present a problem.

Roofs

Solarwall panels can be roof-mounted provided snow can slide off and the main roof is waterproof. If mounted directly to the roof itself, it is advised that the top of the collector be pushed as far toward the roof peak as is practical, to avoid excessive snow, water and debris

buildup at the top of the collector. If the collectors are mounted near a sewer roof vent pipe, chimney or stove pipe, it is strongly suggested that an extension be placed on the vent, pipe or chimney nearby, or the collectors be moved away from the vent in order to prevent vented odors and gases from being drawn into the building when the Solarwall heaters are in use.

Collector Angle

The sun's position in the sky will vary depending on the latitude and the month of the year. In winter the sun will have a low angle relative to the horizon and it will reach a maximum angle in June. Solar heating is most efficient when the sun's rays are perpendicular to the solar collector. If the collector is to be used for space heating then the panel should be closer to vertical to maximize the winter sun angle. Solar designers have traditionally recommended that collectors used for space heating applications be sloped at the degree of latitude, plus 10° to 15°. By having the collectors at this slope, the incident radiation is maximized during the months in which there is a space-heating requirement, however, there are other factors to consider. Unless the collectors can be supported on a sloped roof near this angle, a collector support rack must be built. In areas where snow is common and may accumulate, the collector slope should be at least 45° to allow the snow to slide off the panels.

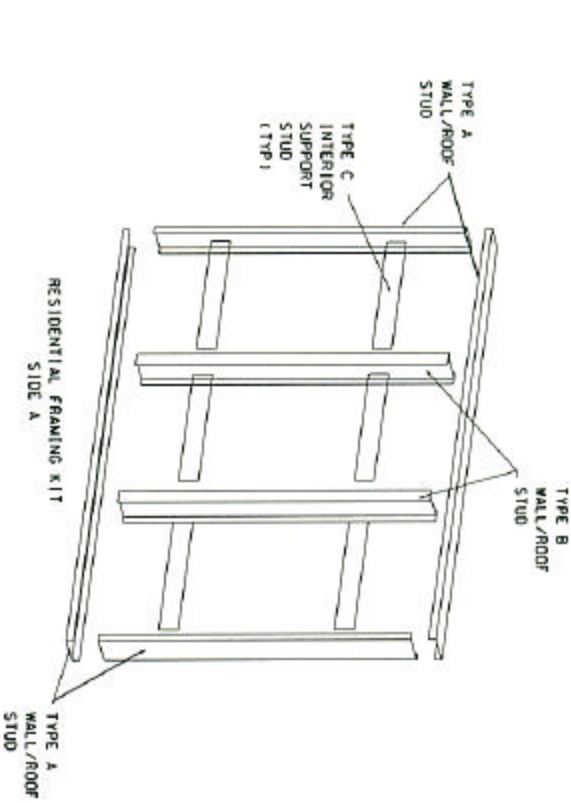
Collector Orientation

The solar panels absorb most sunlight when facing south plus or minus 20°. If the south wall is not suitable, consider either or both east and west walls. If a large volume of air is to be heated, all three walls can be utilized. Remember, only the solar contribution is affected by collector orientation.

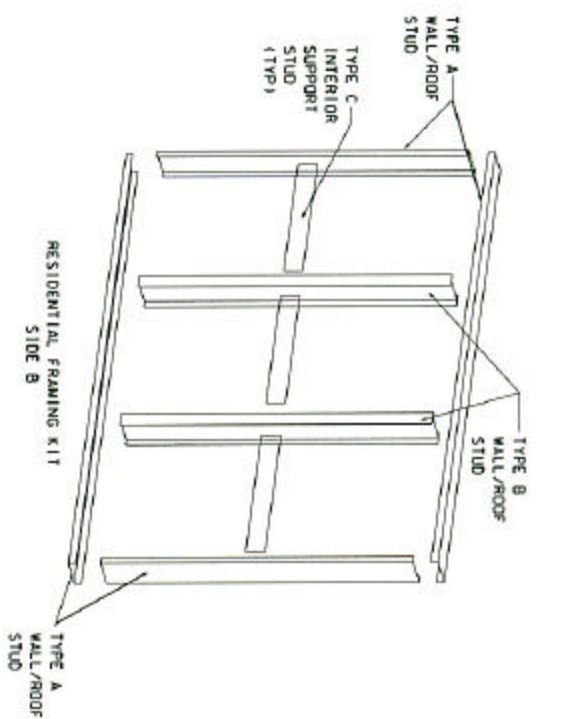
Collector Backing

In some cases, a backing skin is not required on Solarwall collectors. However, Solar Unlimited, INC. strongly suggests the use of a collector backing skin (purchasable through Solar Unlimited, INC.) for cosmetic, serviceability and functional reasons.

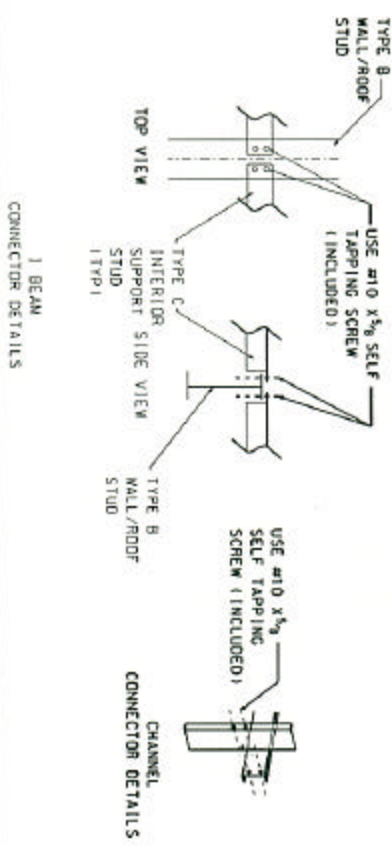
Framing Kit Assembly



RESIDENTIAL FRAMING KIT
SIDE A



RESIDENTIAL FRAMING KIT
SIDE B



CONNECTOR DETAILS

1 BEAM

RESIDENTIAL FRAMING KIT ASSEMBLY

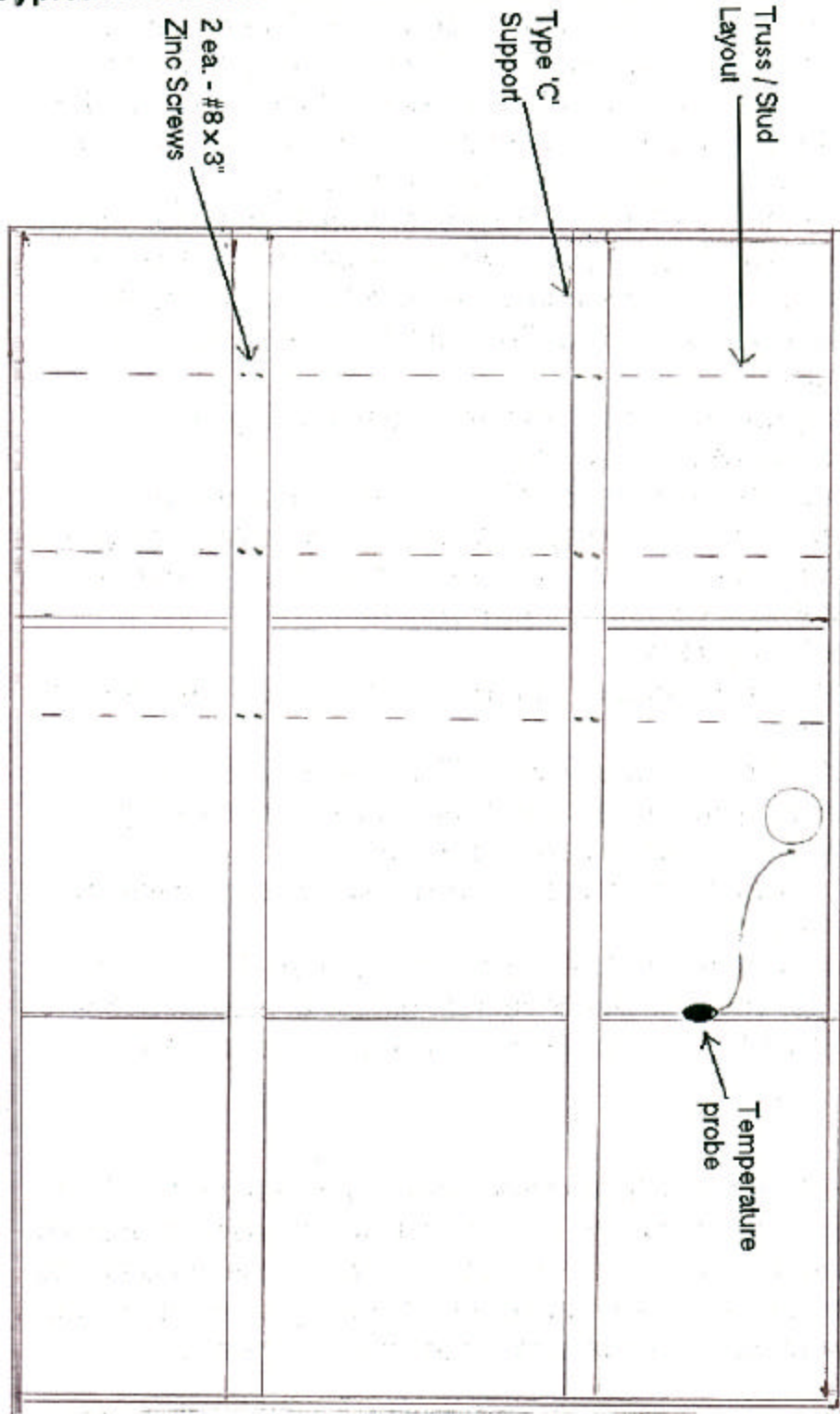
PARTS LIST:

- 2 - TYPE B 1-BEAM 96" LENGTH
- 2 - TYPE A CHANNEL 119.5" LENGTH
- 2 - TYPE A CHANNEL 96" LENGTH
- 9 - TYPE C CHANNEL 39 1/8" LENGTH
- 70 - #10 X5/8" SELF TAPPING SCREWS

INSTRUCTIONS:

- 1) ASSEMBLE PERIMETER FRAME AS SHOWN.
- 2) ENSURE THAT FRAME IS SQUARE.
- 3) PLACE TYPE B (1-BEAM) SUPPORTS USING CONNECTOR DETAILS AT LAYOUT MARKS.
- 4) PLACE TYPE C INTERIOR SUPPORTS AT SIDE A LAYOUT MARKS.
- 5) FLIP STRUCTURE TO EXPOSE SIDE B.
- 6) ATTACHE TYPE C INTERIOR SUPPORTS USING CONNECTOR DETAILS AT LAYOUT MARKS AS SHOWN.

Typical Solarwall Frame Installation Procedures



- 1) Locate and cut 6 ½" hole for duct attachment opening at appropriate location in roof or wall for duct entrance. When a backing skin is used, a hole must be cut in the appropriate location also and duct adapter ring attached to the backing skin and sealed using silicone adhesive around the edges to prevent air leakage.
- 2) Roof mount – Install 6" roof boot (roof boot is not included in kit. Roof boot type varies with roof type and may be obtained at most hardware or building supply retailers.)
- 3) Install skin on back of Solarwall frame for roof or wall mount.
- 4) Apply caulking to perimeter to seal backing skin.
- 5) Locate truss or stud layout.
- 6) Attach frame using 2 - #8 x 3" grabber screws at each stud or truss. (Use screws also at any points that top or bottom of frame that coincide with studs or trusses.)
- 7) Install wall vent ring or roof vent hood.
- 8) Caulk any gaps.
- 9) Use #8 x 3" grabber screws in Type A stud (perimeter of frame).
- 10) Install temperature probe. (The probe itself must not touch any surfaces so true air temperature readings inside the Solarwall are measured.)
- 11) On installations where a trim kit will be used, install the framing trim.
- 12) Drill weep holes, 1/8" diameter in bottom of collector frame, one hole per lineal foot of frame. (Holes should be drilled after trim has been installed, if trim is used.)

Air Flow

Air in a Solarwall system will normally travel in two directions. Once air enters the panels through the perforations it will travel vertically to the plenum, then horizontally to nearest fan intake. It is important to balance the airflow to ensure that air enters through the entire panel surface; otherwise, some of the solar heat gains may be lost.

Materials

In general, all materials used in construction of rack support system, framing, etc., as well as any materials used in installation should be

suitable for an exterior weather exposed environment and conditions, (i.e., weatherproof, corrosion resistant, etc.)

Adhesive/Sealants Some adhesives or sealants may have a tendency to mildew in warm, high humidity environments causing undesirable or unhealthy air quality, may become brittle and crack, or may not hold up well in extreme weather and UV light conditions. In general, (but especially where bonds to metal occur,) the adhesive/sealant preferred is an RTV type silicone, which does not produce glacial acetic acid during cure, (such as SU 5007 available through Solar Unlimited, Inc.)

Fasteners Fasteners should be suitable for exterior use and withstand corrosion, i.e., zinc coated screws or nails.

Installation Tips Keep Solarwall panels shaded prior to installation. They may become very hot and difficult to handle if they are left in the sun.

Leave plastic protective coating on panels, exposing only areas where screws and overlap occur. Remove only after installation has been completed.

Assemble framing kit on a flat hard surface, and square the perimeter of the frame by measuring corner-to-corner, prior to installing center support members.

All joints and seals between the collector and the frame, as well as corners and other joints, where air leakage may occur, should be adequately sealed to prevent air leakage that could otherwise affect overall performance

and efficiency of the Solarwall collector system.

The fan unit has a built in damper and in order for the damper to function properly, the fan unit needs to be installed in a level position.

Solarwall temperature sensor should not be in contact with any surfaces, mounted about 12" away from intake hanging from the web support.

Care should be taken when hoisting assembly onto roof at time of installation so as not to tear or puncture the backing.

Questions, Concerns or Comments? Contact:

Solar Unlimited, INC. 390 S. Main Cedar City, UT 84720

Phone (435) 867-9876 Fax (435) 867-8920

e-mail address gwhip@infowest.com

**For product and installation guide updates visit our website:
<http://www.solarunlimited.net/>**

Solarwall Residential Shipping Check List

COLOR: _____ **CUSTOMER** _____
SHIP DATE ___/___/___ ? 6 Panel ? 8 Panel

SHIP TO ADDRESS: _____

6 Panel List

- ? 6-panel w/foam enclosures
- ? 6 panel package colored screws
- ? 6 panel framing kit
- ? 2 tubes SU 5007 RTV silicone
- ? Controller
- ? Thermostat
- ? Fan
- ? Transformer
- ? 9"x9" square to 8" round
- ? Backing skin
- ? 6 panel backing skin screw pkg.
- ? 6 panel Trim kit
- ? Installation Guide
- ? Wiring diagram

8 Panel List

- ? 8-panel w/foam enclosures
- ? 8 panel package colored screws
- ? 6 panel frame kit with 2 panel extension
- ? Controller
- ? Thermostat
- ? Fan
- ? Transformer
- ? 9"x9" square to 8" round
- ? 3 tubes SU5007 RTV silicone for 8 panel
- ? Backing skin
- ? 8 panel backing skin screw pkg.
- ? 8 panel Trim kit
- ? Installation Guide
- ? Wiring diagram

BY: _____ **DATE:** ___/___/___