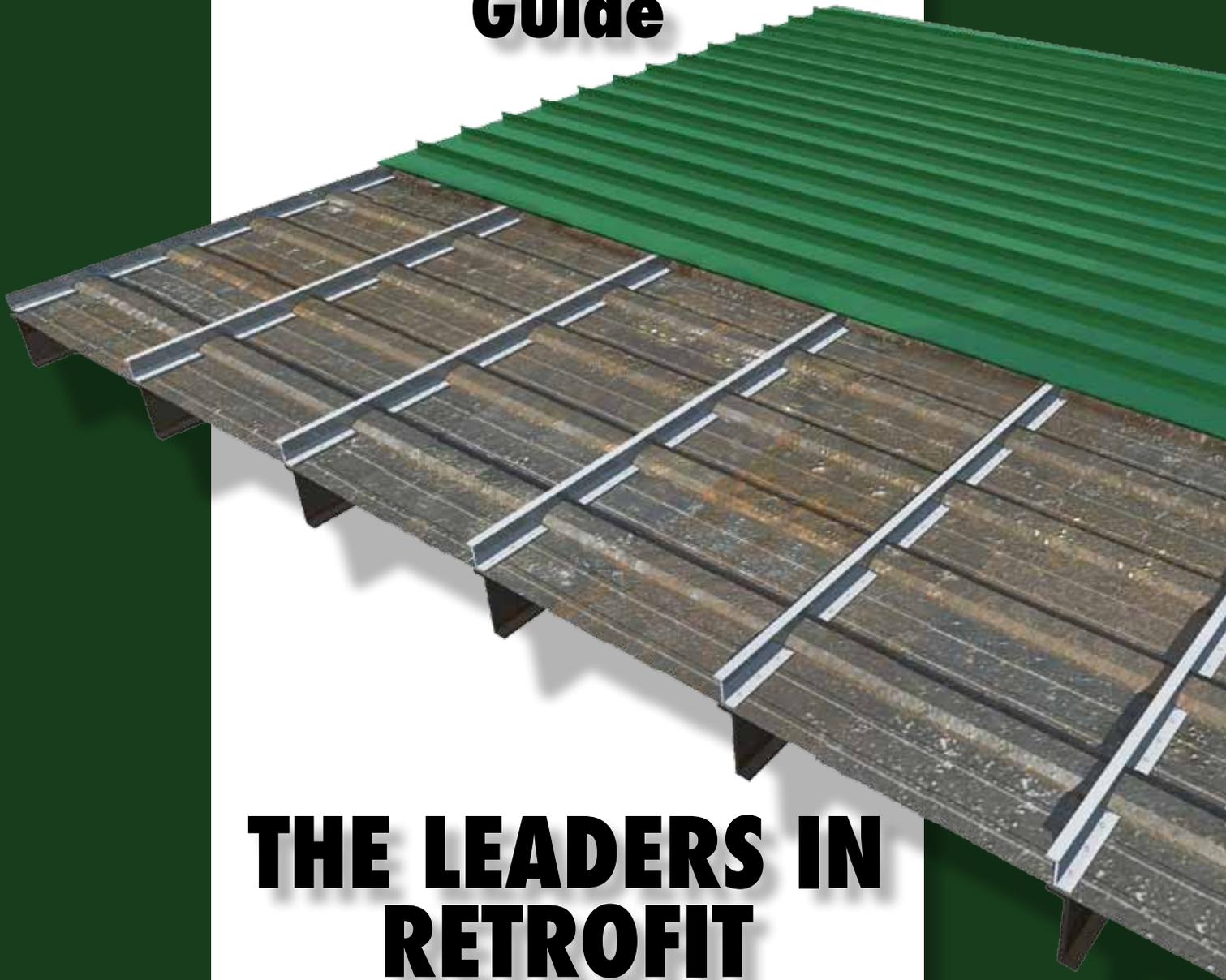


ROOF HUGGER[®]

Patent #5,367,848

Retrofit Framing Information Guide



THE LEADERS IN RETROFIT RE-ROOFING

www.RoofHugger.com

What Is Retrofit Reroofing?

Retrofit reroofing is the installation of a new long life metal roof over the old existing roof in a way that it is structurally correct, non-disruptive and cost effective.

It is a system that adds strength, is environmentally friendly, cooler in summer, warmer in winter and conserves energy.

ROOF HUGGER provides the industry's most effective way of doing this with the **ROOF HUGGER SUB-PURLIN SYSTEM!** The Roof Hugger System can fit any existing metal panel, support any new roof panel and be configured to add insulation and solar energy equipment.

THE ROOF HUGGER SYSTEM ADVANTAGES:

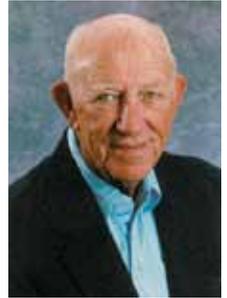
- No need to remove old roof at high cost, business interruption and possible weather damage.
- Huggers maintain desirable "Zee" shape of sub-purlins.
- Saves up to 70% of labor on preparation of old roof.
- Requires only standard tools and fasteners.
- Precision punched notches act as continuous template.
- Punched pilot holes for rapid fastening into existing support structurals.
- Unique "nesting" into old panel profile achieves rugged - stable - low silhouette connection system.
- Improves integrity of original design loadings.
- Achieves "thermal break" air space between old and new roof sheets. Allows for optional insulation.
- Allows for easy upgrade from screwdown to standing seam roofing.

The founders of Roof Hugger are the Inventor, Red (Red Mc-1) McConnohie and company President, Dale Nelson. They have been associated for over thirty-five years in the design-build construction of metal buildings in the U.S. and abroad in five foreign countries and nine off shore islands.

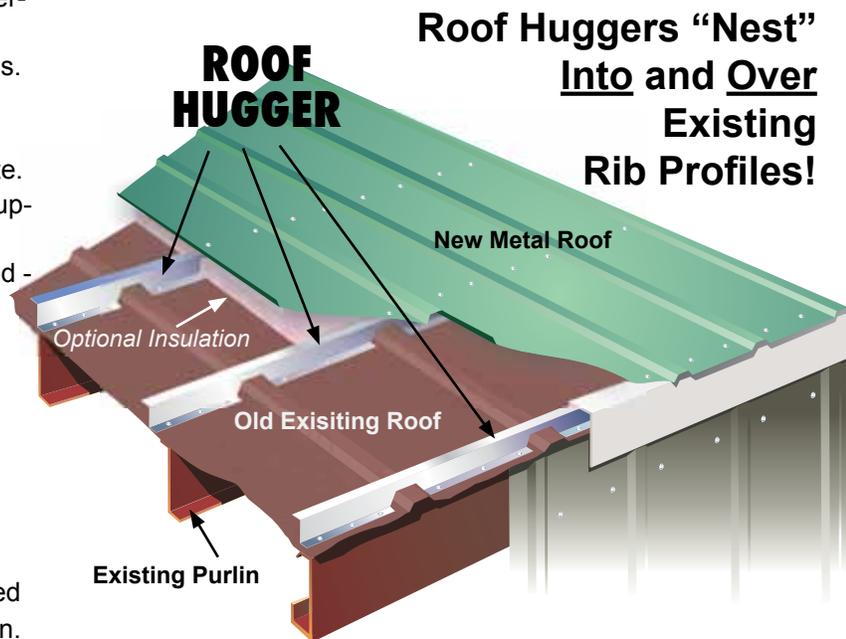
Their combined 85 years of experience is at your fingertips for quotes, questions or just to reminisce about the "good old days" of 40x60 galvanized "tin buildings". We enjoy talking to you and serving your needs with **ROOF HUGGERS**, the very best retro-fit attachment system in the world.



D.V. "Red" McConnohie,
Inventor of the Roof Hugger System
(49 years of Metal Building experience.)
The "old guy" - slower but still a "goer".



Dale Nelson,
President of Roof Hugger Inc.
(36 years of Metal Building experience.)
The "young guy" - a mover and shaker.
Call us anytime to discuss your re-roofing project!



Roof Huggers "Nest"
Into and Over
Existing
Rib Profiles!



Roof Huggers make fast work of this 24,000 sq. ft. retro-fit project.

Call TOLL FREE **800-771-1711** or fax TOLL FREE **877-202-2254**

All Retrofit Reroofing Systems Are NOT Created Equal!

ROOF HUGGER RETROFIT FRAMING SYSTEM IS THE BEST BECAUSE:

- Roof Huggers are 10' long, single piece, "Zee" shaped parts, ideal for the attachment of screwdown and standing seam panels.
- Huggers have a low profile typically 3/8" – 1/2" above the existing ribs.
- Huggers are pre-punched for easy fastener installation.
- Huggers can be designed to meet the new building codes.
- Huggers can increase the capacity of the existing purlins.

ROOF HUGGERS ARE GREEN BECAUSE:

- They are produced from recycled steel.
- They eliminate removal and disposal of the old roofing material and insulation.
- They can be designed for ASV (Above Sheeting Ventilation).
- They can be designed to accommodate additional depths of insulation.
- They can be designed to support thermal recovery systems. Any new panel can be attached to the Huggers allowing for Solar Generation Systems, Cool Roofing, Standing Seam Upgrades and many other enhancements.

Q.- Who is Specifying and Using Roof Huggers?

- A.- Architectural Firms
- Engineering Firms
- Contractors
- Erectors
- Metal Building and Panel Manufacturers

COMPETING SYSTEMS CAN BE EXPENSIVE AND INEFFICIENT:

Removal of the existing roof is always an option but it exposes the buildings interior and contents to the elements. It requires disposal of existing roofing and insulation materials. Upgrading the structure to the current codes often requires the addition of more purlins prolonging this exposure. ***An existing screwdown roof that is removed cannot be upgraded to a standing seam roof without significant bracing additions to the existing purlins.*** Labor costs are significantly higher.

Hat channel systems cannot be a single piece system by simply running a hat over the tops of the existing panel ribs. To be structurally correct, hat systems must be 2-piece with a hat blocking piece connected to the purlins and a second hat rail attached to the blocking. This makes for a taller assembly, a more labor intensive assembly and a very rigid system, not recommended for screwdown panels.

Structural Clips and "Zees" also require multiple parts, more fasteners, more labor and results in a excessively tall assembly that can place the new roof as much as 6" - 10" above the old roof sheets complicating trims and flashings.

Coatings can also be applied to an old roof but extensive and high quality surface preparation is required. Often fasteners must be capped, laps taped and panel perforations patched. Imperfections in the coating can actually accelerate corrosion of the existing panels. Coatings cannot change the rated capacity of the roof and bring it up to the new codes. Coating life is limited while the cost can be very close to retrofit replacement cost.

Q.- What Type of Projects use Roof Huggers?

- A.- Military Buildings: Army, Navy, Air Force, Corps of Engineers, Coast Guard
- Schools
- Churches
- Industrial Projects
- Recreational and Sports Facilities
- Municipal Buildings
- Departments of Transportation



ROOF HUGGERS are installed without any disruption to your business and can be designed to bring your old roof up to the new codes!



ROOF HUGGERS now support over 50 MILLION SQUARE FEET OF RETROFIT ROOFS! Pictured is a typical Roof Hugger retrofit in the process of installation.



Roof Huggers being installed with rigid insulation.

Typical ROOF HUGGER Applications



"R" Panel installed over "R" Panel

UPGRADING TO A STANDING SEAM ROOF?

Did you know that you cannot remove an existing screw down roof and install a new standing seam system without major purlin bracing additions?

BUT THERE IS NO PROBLEM IF YOU HUG IT!

Leave the old screw down roof in place.

Install **ROOF HUGGERS** and get that new standing seam roof you want AND with all of the necessary purlin bracing for free!

Q.What lengths are the ROOF HUGGERS?

A.Typically 10' Lengths- +/- to fit existing panel modules.

Q. How tall are the ROOF HUGGERS?

A.Typically 3/8" to 1" above the existing ribs, but you can specify any special height.



Vertical Rib Standing Seam over "R" Panel

"R" Panel Over "R" Panel

The 12" o.c. ribbed "R" Panel is the most common existing panel on older metal buildings. Roof Hugger mass-produces a part that will fit most but not all existing "R" panel roofs. This part is normally an inventory item ready for immediate shipment.

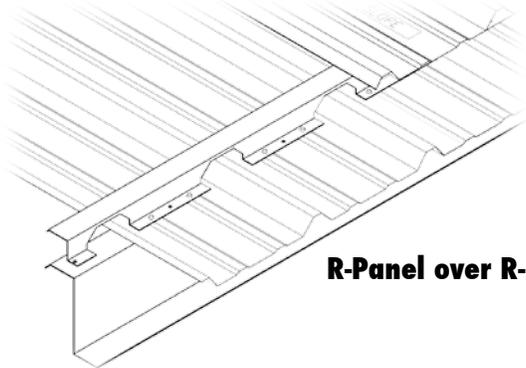
Thermal efficiency can be increased by ventilating the new cavity. Insulation can also be added. Taller Huggers are produced for increased insulation depth with greater energy savings.

FLORIDA PRODUCT APPROVALS

FL 10141 R-1 and FL 9561 R-1

FLORIDA PRODUCT APPROVED: Roof Hugger, Inc. has 4-product approved installations for new 26 ga. "R" panel systems. System capacities vary from -40 to -140 lbs./psf. Roof Hugger also has 4-product approved installations for new 24 ga. "R" panel systems. System capacities vary from -35 to -145 lbs./psf. depending on the specific system selected. Some systems require additional sub-rafter framing and Huggers placed between existing purlins.

(See high wind zone details on page 8 or visit www.roofhugger.com.)



R-Panel over R-Panel

Standing Seam Over "R" Panel

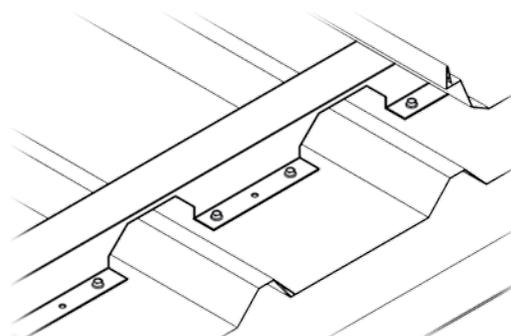
Another typical installation is a new standing seam panel roof installed over an old screwdown roof system. This upgrade eliminates the problems inherent with through fastened panels. Leaving the existing roof in place also eliminates the need for major bracing modifications to the existing purlin system to make it suitable for installing a new standing seam roof.

FLORIDA PRODUCT APPROVALS

FL 9352.2 R-1 and FL 9352.1 R-1

FLORIDA PRODUCT APPROVED: Roof Hugger, Inc. has 4-product approved installations for a 16"-24 ga. standing seam roof with capacities from -47.5 to -80.0 lbs./psf. Roof Hugger also has 4 product approved installations for an 18"-24 ga. standing seam roof with capacities from -40 to -90 lbs./psf.

(See high wind zone details on page 8 or visit www.roofhugger.com.)



Standing Seam over R-Panel

Call TOLL FREE **800-771-1711** or fax TOLL FREE **877-202-2254**

Standing Seam over Standing Seam

There are two major existing standing seam panel types: vertical rib and trapezoidal rib. Their rib spacing's vary from 12" to 30". Roof Hugger can produce a part to fit any existing standing seam profile to make retrofitting these roofs fast and easy.

Note: Roofs with standoff clips and/or thermal blocking require special Huggers and fasteners. Tell Roof Hugger if you have that condition to assure correct design and pricing (see Special Situations on page 6).



Vertical rib standing seam roof being installed over an old vertical standing seam roof.



A trapezoidal standing seam roof being installed over trapezoidal standing seam roof with optional insulation.

Q. How close are the HUGGERS cut around the existing panel ribs?

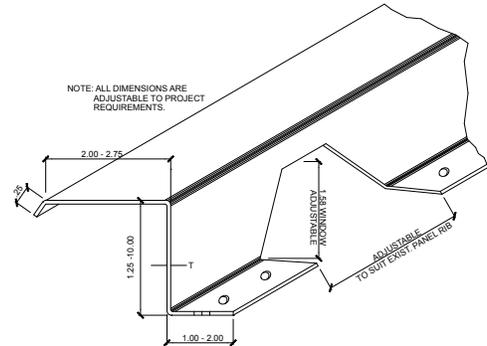
A. Typically, the HUGGERS are overcut 3/4" - 1" wider and about 1/4" taller than the existing ribs to allow for some "run-out" of the existing panel. Many panels however may have less clearance. ROOF HUGGER recommends that you check the existing panels over a 10' to 20' run to confirm the actual "In-Place" module of the existing roof panel ribs.

Special Size Roof Huggers Are Not A Problem!

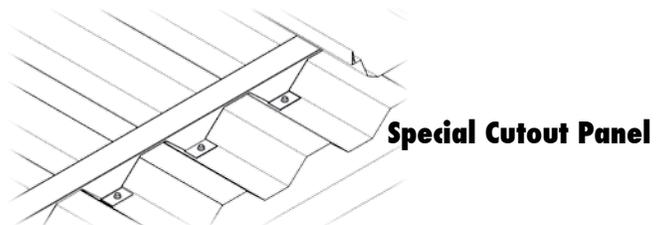
Roof Huggers are made from 16 ga., high strength, galvanized steel and produced by automatic computer controlled punching equipment. This allows us to easily control the flange size, opening sizes and spacing. **ALL DIMENSIONS CAN BE SPECIFIED INDIVIDUALLY TO SUIT PROJECT NEEDS.**

If you have a special condition such as adding a specific depth of rigid or glass insulation; or a larger top flange for a special clip... just let us know, we can produce exactly what you need!

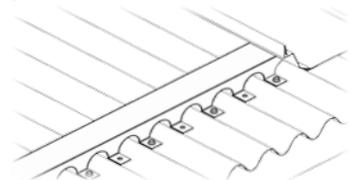
We never had a roof we couldn't fit!



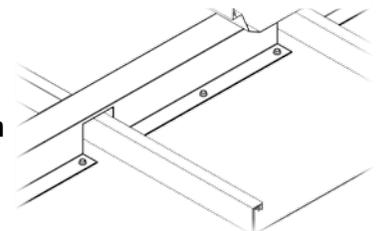
Our Patented Design is Simple, Strong and Effective!



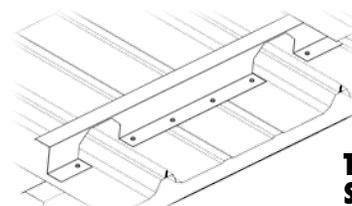
Special Cutout Panel



Corrugated Panel



Vertical Standing Seam



Trapezoidal Standing Seam

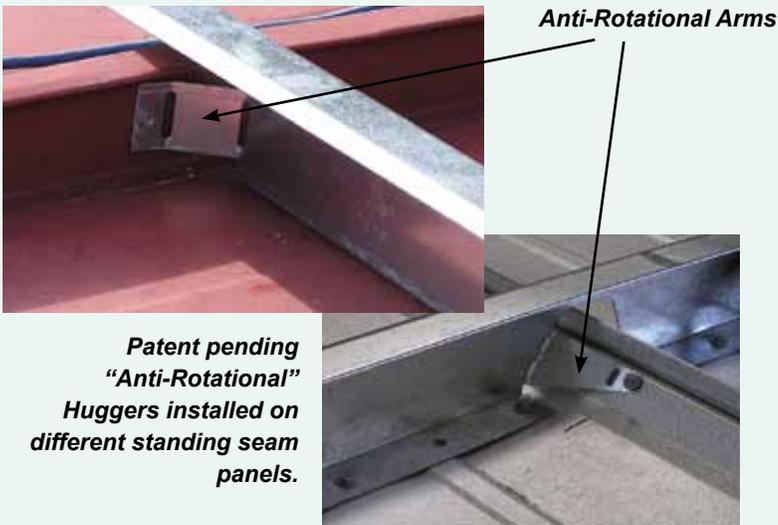
All profiles produced in +/- 10' lengths.

Special Situations

ROOF HUGGER NOW HAS A SPECIAL PATENT PENDING PART TO RETROFIT STAND-OFF CLIP STANDING SEAM ROOFS.

These uniquely designed Roof Huggers represent the first and only retrofit framing system specifically engineered to retrofit standing seam roofs installed with stand-off attachment clips.

The Huggers employ unique fasteners that hold the part firmly on the pan of the existing panel but above the purlin while providing the needed structural attachment. The special "Anti-Rotational Arm" prevents the Huggers from pivoting on these fasteners and rolling up or down slope. The perfect solution to a difficult reroofing project.



STAND-OFF CLIP & THERMAL BLOCKING



Typical standoff assembly for trapezoidal standing seam panel.



Custom patent pending fasteners are specifically designed for the stand-off condition.

REPAIRING LEAN-TO STEPS MADE EASY!

You can use TWO DIFFERENT SIZE Roof Huggers to remove irregular roof steps created when a "lean-to" was added to an existing building. No more awkward flashings and closures. No more leaks and a beautiful roof, ALL ON ONE PLANE!!



Use 2 sizes of ROOF HUGGERS to remove a step in an old roof.

Q. Is the additional weight of retro-fitting a problem?

A. Typically not. The ROOF HUGGER system will add about .25 to .5 lb p.s.f. depending on purlin spacing and panel profile. The new roof panel typically adds .8 to 1.4 lb p.s.f. depending on gauge and profile - usually less than 2 lb p.s.f. total. If this is an issue, the Huggers can be installed in a way that will actually INCREASE the existing purlin capacity by more than the added load! (See page 7.)

For more details, visit www.roofhugger.com

Purlin Capacity/Strengthening

Retrofitting a metal building typically adds 2 lbs./psf. or less, normally of no concern, to the design of the existing structure. However in some cases the original building design may not allow for the addition of even such a small amount of weight. In some cases the codes may have changed requiring the structure to be reinforced to accommodate additional loads. Finally in some cases because of equipment, solar generation panels or building additions, the building may be required to handle additional weight.

Roof Hugger can help increase the capacity of the existing purlins in a simple inexpensive way. We make the Huggers 1" taller than the opening provided for the existing panel ribs, add a few standard fasteners and "presto" you have given existing purlins 20% to over 75% more capacity.

The following charts indicate the results of our Certified AISI Gravity and Uplift Load Test from September, 2008. These results show the increased strength in load values when the Roof Hugger Retro-fit System was used.

The 16-gauge Roof Huggers on 16-gauge purlins resulted in a significant increase in strength!

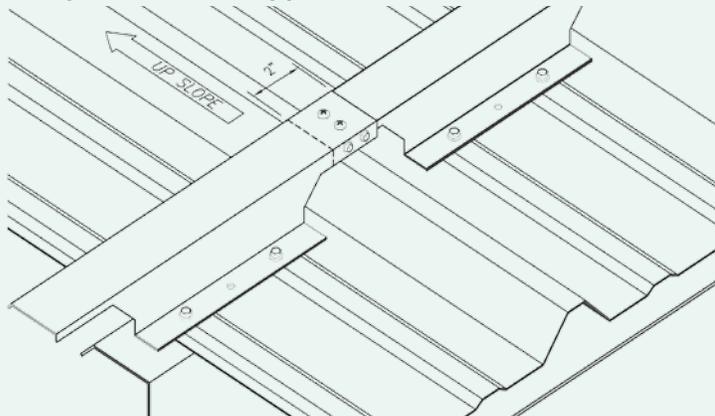
PURLIN SIZE	MAX SPAN	MOMENT REDUCTION FACTORS W/O HUGGERS	
		UPLIFT	GRAVITY
8X25Z16	25 FT	0.382	0.811
8X25Z14	25 FT	0.458	0.840
8X25Z12	25 FT	0.647	0.913

PURLIN SIZE	MAX SPAN	MOMENT REDUCTION FACTORS W/ HUGGERS	
		UPLIFT	GRAVITY
8X25Z16	25 FT	0.740	1.450
8X25Z14	25 FT	0.754	1.394
8X25Z12	25 FT	0.791	1.254

PURLIN SIZE	MAX SPAN	STRENGTH INCREASE WITH ROOF HUGGERS	
		UPLIFT	GRAVITY
8X25Z16	25 FT	94%	79%
8X25Z14	25 FT	65%	66%
8X25Z12	25 FT	22%	37%

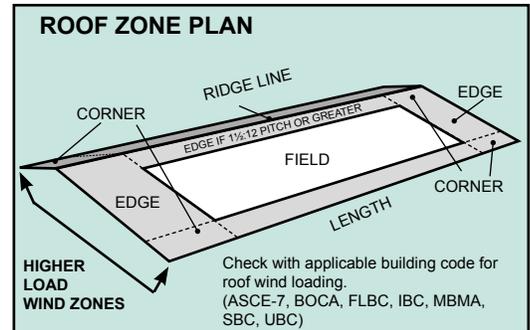
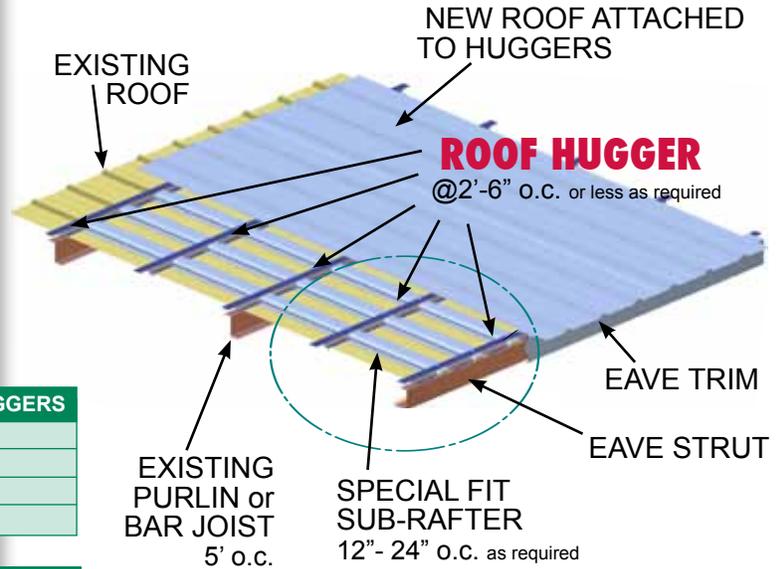
- NOTES:
 1) ALL ROOFS ASSEMBLIES WERE TESTED WITH LGSI STANDARD PURLINS W/26GA PBR ROOF PANELS ATTACHED TO TOP FLANGE
 2) ALL ROOF ASSEMBLIES WERE TESTED WITH THE BOTTOM FLANGES COMPLETELY UNBRACED
 3) ALL ROOF HUGGER ASSEMBLIES WERE TESTED WITH A 2.875" TALL 16GA NOTCHED ZEE THAT FITS OVER THE EXISTING 26GA PBR PANEL.
 4) ALL TESTS WERE CONDUCTED IN COMPLIANCE WITH AISI TS-8-02 "BASE TEST METHOD FOR PURLINS SUPPORTING A STANDING SEAM ROOF SYSTEM."

This drawing shows how the Roof Hugger assembly is secured with our unique fastener system which strengthens the existing purlins.



Trouble Meeting New Wind Zone Requirements Due To Existing Purlin Spacing?

This illustration shows ROOF HUGGERS mounted with 24" o.c. Special Fit Sub-Rafter on an existing "R" Panel to complete a new "R" Panel Retro-fit Roof (Photo Page 7). Different existing panels may require different sub-framing details. Call ROOF HUGGER to discuss your particular project.



Use ROOF HUGGER Mid-Span Attachments with Sub-rafter Support for the Corners and Edge Zone if required.

Q. What if my building is in a high wind zone and has an existing 5' o.c. purlin spacing?

A. If your building is in Florida or your permitting authority has adopted the new IBC (International Building Code), you may need to add some additional structural elements to meet the current code. The new code now calculates the roof loads by Zone: Corner Zone, Edge Zone and Roof Field. The ability of the selected new roof panel to meet the loads in each zone will dictate the need for any additional structure. Roof Hugger will provide preliminary design roof loads upon request.

Special Attachment Conditions:



When Roof Huggers are attached to Sub-Rafters (See page 7) they are usually attached with $\frac{1}{4}$ -14 drill tip 3, 1- $\frac{1}{4}$ " long. Denoted $\frac{1}{4}$ -14 x 1- $\frac{1}{4}$ " Tek-3. The number of fasteners varies.

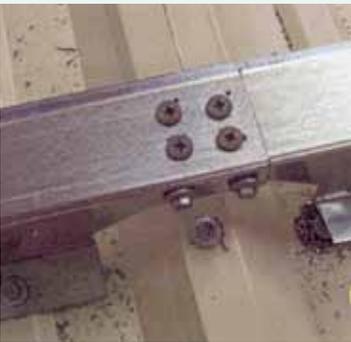
When Roof Huggers are attached to the existing metal panels a #17 x $\frac{3}{4}$ " Self-Tapping fastener is used. When this fastener is used the existing hole in the Hugger base flange will need to be drilled out from $\frac{1}{4}$ " to 5/16" diameter. Care should be taken not to drill the panel.

When Roof Huggers are used to increase the strength of existing 16 ga. purlins 2 - 1" - #10



- 16 threads/inch pancake heads, denoted #10-16 x 1" S.D. Pancake Head; plus 2 -#12-14 x 1- $\frac{1}{4}$ " Tek-3. At the point where the Roof Huggers lap 2 pancake heads are installed in the top flange and the 2 Tek fasteners in the vertical flange. Care must be taken to hold the two Huggers closely together while installing the fasteners.

When Roof Huggers are used to increase the strength of existing 12 ga. purlins 4 - 1" - #12 - 11



threads/inch pancake heads, denoted #12-11 x 1" S.D. Pancake Head; plus 2 -#12-14 x 1- $\frac{1}{4}$ " Tek-3. At the point where the Roof Huggers lap 4 pancake heads are installed in the top flange and the 2 Tek fasteners in the vertical flange.

When Roof Huggers are used to retrofit a roof that has Standoff Clips and/or

Thermal Blocking, special fasteners are required. Two types of fasteners can be used. The first is: $\frac{1}{4}$ -14 x 3" with a $\frac{3}{4}$ " washer and a loose 1" x .31" heavy wall sleeve. Panels must be pre-drilled to use this fastener. The second type is a single piece self drilling: 7/16" & $\frac{1}{4}$ -14 x 2". Roof Hugger can provide either of these fasteners if requested. (See photo on page 6.)

Information on Fasteners and Attachment

Roof Huggers are most commonly attached with 2 fasteners per L.F. The fasteners normally used are #12 - 14 threads/inch, drill tip 3, 1-1/2" long. Denoted #12-14 x 1- $\frac{1}{2}$ " Tek-3. Existing fasteners are not normally removed even though they may cause some minor distortion of the Roof Hugger base flange.



Existing fasteners usually do not have to be removed.

Q. Do you have to remove the existing fasteners?

A. It depends on the panel and existing fastener location, but typically NO. Even if the ROOF HUGGER rests on the screws it will pull down evenly on the old panel. Some bending of the base flange is normal. Any fasteners that cause the Hugger to porpoise up and down or roll out of plane with the old roof should be removed.

Q. What fasteners are typically used?

A. An inexpensive #12 - 14 threads/inch Tek-3 fastener is used. 1-1/4" - 1-1/2" length is common. Two fasteners per linear foot are typical for attachment.

Q. Is condensation an issue?

A. Depending on your building use and climate, condensation can be an issue. Standard trade practice is to ventilate and/or insulate any cavity. Roof Hugger can refer you to moisture control experts if your building has any specific condensation problems.

Q: What if the particular assembly I wish to use does not have a Florida Product Approval, can I still use Huggers and my panels in Florida or other high wind areas?

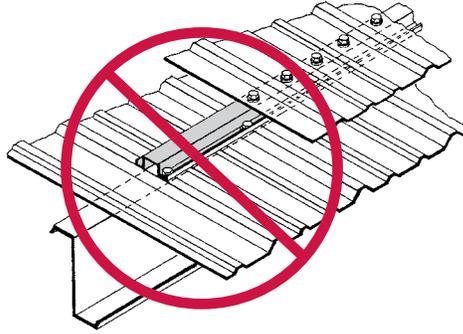
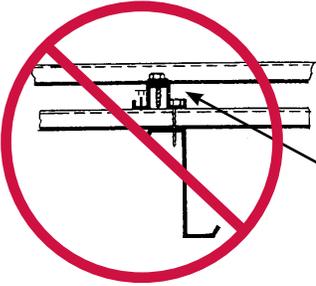
A: Yes, Roof Huggers can be designed and engineered to meet the wind loads in your area. The system may resemble our product approved systems or it may be a combination of grids and Huggers as needed.

The DO'S and DON'TS of Retrofitting Over Ribbed Metal Roofs.

Number One "DON'T"

NO CODE COMPLIANCE!
LIABILITY FOR FAILURES.

Hat or P.T. 2" x4" mounted across the top of unsupported sheet metal ribs.



Only **ONE SIDE** of the hat can be attached to purlin!
The other side is attached to the old sheeting - if at all - a non-structural, unstable connection.



Test showing typical "hat" section failure.



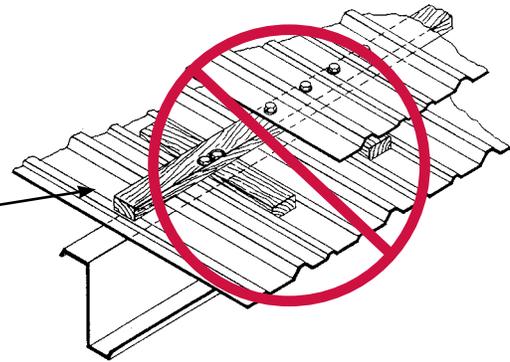
Actual resulting failure showing "peeled" roof.

Number Two "Don't"

Complicated construction of wood vertical valley blocking and cross stringers result in excessive height build-up, multiple pieces and a rigid connection that does not allow for thermal forces*. Pressure treated lumber also causes corrosion of metal panels.

- NOTE - * *Thermal expansion/contraction of new thru fastened roof panel results in trauma at the fixed fastener points - shear and "backing out" of fasteners as observed in field inspections.*

Design requires two fasteners each at blocking and stringer plus valley of new sheet for meeting wind load code. 5-6 fasteners per foot equals high labor costs for an inferior job. Fastener pullout value is reduced in wood as compared to steel.



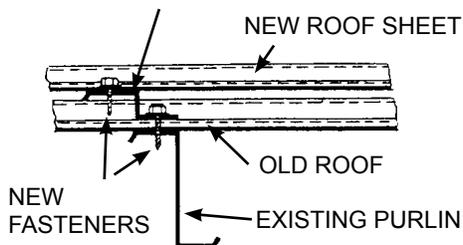
Failure of 2 x 4's on a wood framed roof.

Number Three "DO"

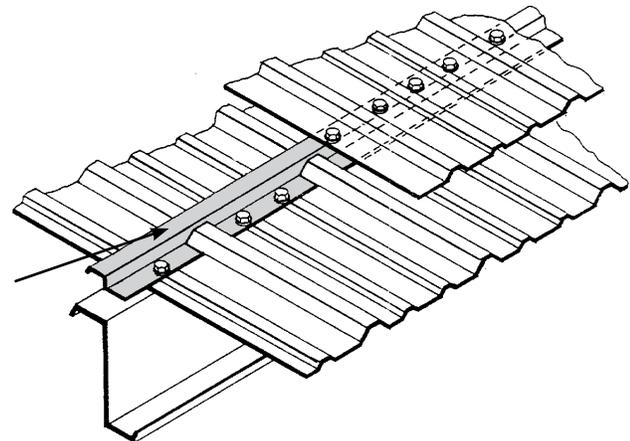
Finally everything is designed correctly! The **ROOF HUGGER** One-piece "zee" sub-purlin member is CLOSE-FITTING, STRUCTURALLY SOUND and can MEET ALL CODES!!

Roof Hugger design duplicates the desirable "roll and flex" of the original structure to accommodate thermal and wind-load movements.

ROOF HUGGER



ROOF HUGGER



**CORRECT, ENGINEERED, TESTED
FLORIDA PRODUCT APPROVALS**

FOR EITHER SCREW DOWN OR STANDING SEAM ROOFS.

ROOF HUGGER DESIGN SPECIFICATIONS

(Editable CSI Specification available Online At: www.Roofhugger.com)

Part I - GENERAL

Roof Hugger patented sub-purlin Z-section is specifically engineered for retrofitting roofs, walls and fascias over rib metal panels. It is the only one-piece; custom punched "Z" to fit into and over existing profile to be covered. Bottom flange "nests" into pan area and fastens directly into original purlin with standard fasteners, tools and technique.

Part II - MATERIAL

Formed from G-90 galvanized, ASTM A 653/ A-653M, ASTM A 1011/ A 1011M Standard Specification for Steel with yield of 50 ksi., 16 gauge. Lengths - 10' +/-.

FEATURES:

1 - LIGHT WEIGHT

Extreme light weight to tensile strength ratio adds only 4 to 8 oz. psf of roof depending on gauge and purlin spacing.

2 - VERSATILE

Top flange nominal 2" and bottom flange 1"-1.25", web height is 3/8"-1/2" above existing rib height. All flanges however are variable to fit any special requirements; ie: 1" to 8" web height where desired.

3 - DESIGN

Z-section replicates original design of the desirable "roll and flex" of existing purlins to absorb movement due to wind and thermal loads. "Nesting" bottom flange contains pre-punched holes for fast accurate insertion of fastening screws. Low silhouette minimizes wind shear forces. IBC (International Building Code) requires roofs to be analyzed by zones IE: zone-1 field, zone-2 edge and zone-3 corners. Each zone will have a different uplift load requirement. Roof Hugger recommends consulting a qualified design professional to determine the loads by zone, a compliant roof panel and the proper sub-frame spacing

4 - SPECIFYING HUGGERS

Quantity Huggers: _____ L/F (Same as all purlin runs and eave struts of existing building plus any intermediate, mid-span, runs and perimeters of framed roof penetrations).

Quantity Sub-rafters or Grid Parts: _____ L/F (Specify as needed if required, to reduce the existing purlin spacing and provide the correct attachment of panels, allowing them to meet load requirements). (More details available in the Florida Product Approved assembly area of www.roofhugger.com)

Gauge: _____ GA. Typically 16ga., G-90, 50ksi. (Special gauges are available check with Roof Hugger, Inc. regarding engineering values and lead-time). (Specify Sub-rafter & grid parts if other than 16 ga.)

Attachment Huggers: _____ Fasteners per L.F. Typically 2 fasteners per L.F. are required into existing purlins. Pre-punched base flange may have additional holes, for ease of installation. Huggers installed in mid-span use #12-14 Tek-3 fasteners into structural hat support and #17 into existing panels. The #17's require field drilling of the Hugger base flange holes and care should be taken when installing them into the panel to avoid stripping of fastener. When joining the top flange of the Huggers to increase existing purlin capacity consult Roof Hugger, Inc. for specific attachment fasteners, details and pattern.

Fasteners: _____ Size #12-14 threads/inch, self-drilling, Tek-3, 1-1/2", is typical for attachment to metal building purlins, (12-14x1-1/2", T-3). Fastener length shall be as needed to provide the required penetration into the existing purlins. Attachment to structural steel

channels or joist will require special fasteners. Sub-Rafters are typically attached with 1/4" x 14 x 1-1/2" fasteners into the existing purlins. Quantity will be as specified by the engineered design. Huggers installed mid-span may be attached with a combination of #12, #17, and #10 fasteners as detailed. Fasteners are typically furnished by others.

Profile Punch Out: Field verify existing panel profile and panel rib dimensions. Check for panel run-out by measuring roof over several 20' areas to confirm panels were installed on module. (See required "Job Information Form" insert for essential details for quotes and/or ordering.)

Hugger size Requirements: Roof Huggers are nominally 3/8"-1/2" above existing rib profiles, 2" top flange and 1"-1-1/4" base flange. Specify additional web height to accommodate insulation or mechanicals between roofs - note any special flange dimension requirements. Web height is from flat of existing roof panel to top of Roof Hugger. Specify Sub-rafter and grid part sizes if needed. Note if corner grid is required Roof Hugger height must match grid height.

Special Situations: Retrofitting of standing seam roofs with stand-off clips and thermal blocking require special fasteners and Roof Hugger parts. Phone Roof Hugger, Inc. to discuss details.

Submittals: "Job information form" must be submitted with all orders.

5 - SHIPPING

Palletized for handling, 3-14 work days average lead-time. LTL shipments are in an enclosed trailer, loads in excess of 20,000 #'s are by flat-bed shipment. LTL Flat-bed shipping rates available upon request.

6 - SERVICES

Project consultation, preliminary load requirements, cad details and test data available upon request. Project Engineering is available on a fee basis.

NOTES:

- 1.) 14 gauge available upon request. Verify availability and lead time. All flange dimensions are +/- 1/8".
- 2.) Limiting W/L load factor is panel capacity itself. Check panel manufacturer's E-1592 allowable load tables for panel limits. Note projects in Florida may require a higher factor of safety than was used to create the load table.
- 3.) Intermediate HUGGERS placed @ 2 1/2' o.c. or closer at edges and corners may be required to provide needed IBC capacities. Panels installed mid-span (between existing purlins) may not achieve their full rated capacity, check with Roof Hugger when sub-rafter and mid-span parts are used. E-1592 test data available upon request.
- 4.) Condensation: Standard trade practice is to ventilate and/or insulate any cavity. If special conditions exist, consult a local moisture control professional.
- 5.) Insulating of cavity is not required however unlike exposed fastened panels, standing seam panels may "rumble" in certain wind conditions. Consult the new panel provider for their specific sound attenuation recommendations.

NOTES on UL-90:

A UL-90 roof panel assembly rating is obtained by testing under Underwriters Laboratory (UL) UL580 procedures. The UL-90 uplift rating is for an exact roof assembly, which consists of specific purlin, spacing, gauge, fasteners, clips, and panel type and gauge. The entire roof system is tested. The test simulates the cyclic wind loads to the underside of a roof panel as well as to its outside. UL certification does not recognize anything that, even though similar, has not been tested and approved by their testing laboratories. Therefore, if each roof assembly is not tested by UL, it cannot be considered a UL-90 rated system.



Call TOLL FREE 800-771-1711 or fax TOLL FREE 877-202-2254



JOB INFORMATION FORM

REQUIRED FOR QUOTES AND ORDERING

Buyer: _____
 Contact: _____
 Address: _____
 City/State/Zip: _____

Ship To: _____
 C/O: _____
 Address: _____
 City/State/Zip: _____

Project Name: _____
 Bldg. Owner: _____
 Address: _____
 City/State/Zip: _____
 Telephone: _____

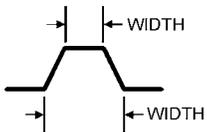
Delivery Contact: _____
 Telephone: _____
 Required Delivery Date: _____
 Quant.(L/F): _____ Gauge: _____
 Area Wind Load Code: _____ mph

FILL IN CRITICAL DIMENSIONS BELOW: Sketch Your Existing Panel.

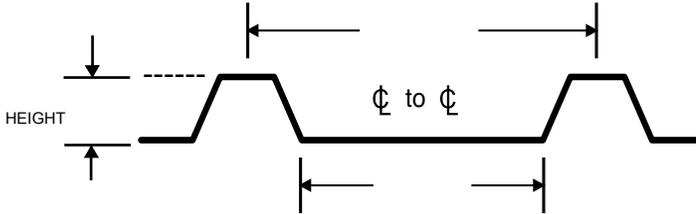
ESSENTIAL Dimensions we must have to quote and/or fabricate

Through-Fastened Panel

Please fill out dimensions:



Roof Huggers correctly for you!



Please fill out dimensions of your particular roof shape

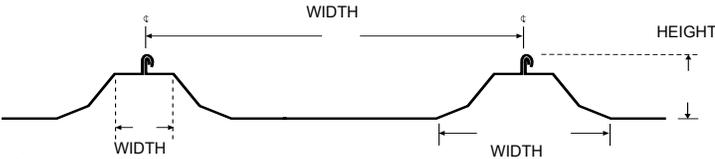
Corrugated Panels

- If corrugated panel is 2.67" 9 ribs = 24"
- If corrugated panel is 2.50" 8 ribs = 20"
- If corrugated panel is 2.75" 8 ribs = 22"
- If corrugated panel is 4.20" 5 ribs = 21"

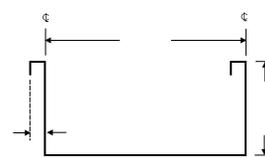


Trapizodial Standing Seam*

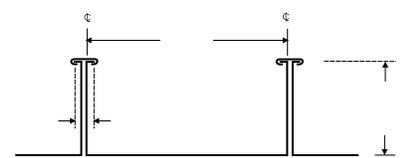
Please fill out dimensions:



Vertical Standing Seam *



"T" Rib *



* Does existing roof have thermal blocks? YES NO

ROOF HUGGERS ARE NORMALLY 3/8" - 1/2" TALLER THAN THE EXISTING RIBS.

SPECIAL SIZES ARE AVAILABLE.



Sketch any special panel configurations:
If profile is different than above, please sketch below...

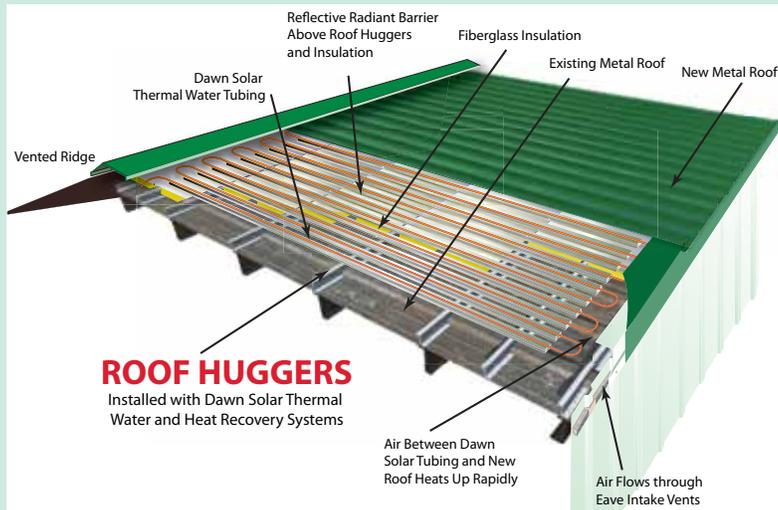
Contractor should verify the existing panel module is maintained over several 20' areas of existing roof. Panel run-out may require adjustments to Hugger punching. **This should be known in advance for both of us doing a perfect job!**

I hereby certify that the above dimensions are correct.

Your Name (Please Print): _____ Date: _____

Signature: _____ Title: _____

ECO-FIT



Retrofit Re-roofing can be Green AND Economical with HUGGERS!

The BEST way to RE-ROOF!

- ADD INSULATION FOR GREATER ENERGY EFFICIENCY
- VENTILATED SYSTEMS TO REDUCE HEAT GAIN/LOSS
- USE VENTILATED AIR TO HEAT YOUR BUILDING
- SOLAR THERMAL SYSTEMS FOR SPACE AND WATER HEATING
- HARNESS SOLAR ELECTRICITY WITH PHOTOVOLTAICS
- 100% RECYCLABLE MATERIALS
- AVAILABLE FOR FEDERAL & LOCAL TAX INCENTIVES

Solar Thermal Water System with Roof Huggers

1-800-771-1711

Call, write or FAX (877-202-2254)

Or for more information and CAD downloads, visit our website at:

www.roofhugger.com



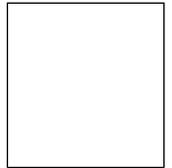
The Leader in Energy Efficient Retrofit Re-roofing Systems



P.O.Box 1027
Odessa, FL 33556
Phone: 800-771-1711
Fax: 877-202-2254

MFG.PLANTS:
Tampa, Florida
Longview, Texas
Spokane, Washington
Logansport, Indiana

The CHAMPION one-piece attachment system formed to "nest" into and over your existing roof profile!



**For Retrofit Re-roofing
The RIGHT Way!**