

METAL ROOF REPAIRS



**CUT COST WITHOUT CUTTING
CORNERS**

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CHAPTER ONE

Cut Cost Without Cutting Corners

So you have an aging metal roof on your building and it's developed some persistent leaks. You know sooner rather than later it will need to be repaired but where do you start? What are your options and most importantly, do they fit into your budget?

Let me introduce you to three strategies that could help you cut cost without cutting corners on your next metal roof repair project.

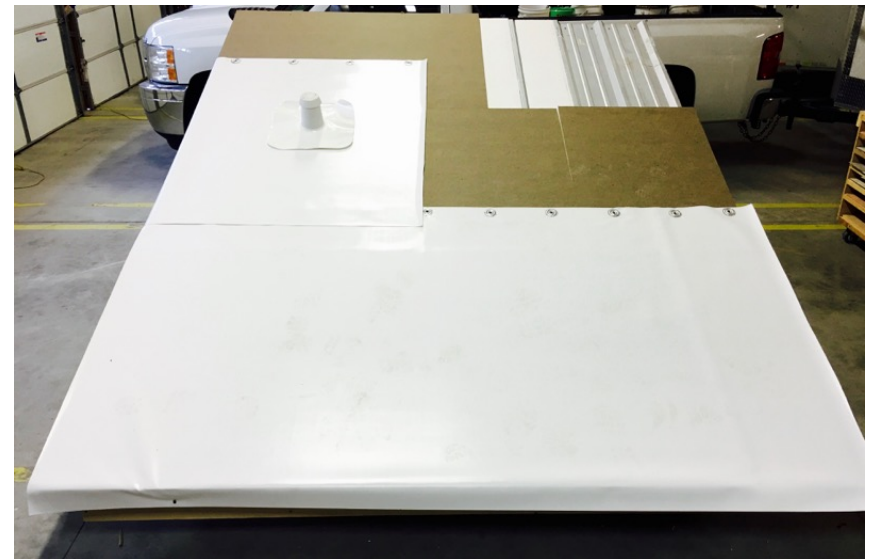
Sometimes the best place to start is to begin with what **NOT** to do especially if you are looking to cut or control cost.

Tearing off the old metal roof and insulation only to replace it with new insulation and new metal roof will not only be the most expensive route you could take but it will also be the most messy and disruptive approach to your metal roof repair. More than likely it will shut down entire sections of your facility and expose the machines, inventory, personal or your customers to the elements and possibly falling debris. If you didn't enjoy the idea of your business going through a messy shut down and just thought to yourself "There must be a better way than that" you would be correct. Let's take a closer look at three possible solutions to your metal roof repair dilemma.

- ◆ **A PVC Membrane Metal Roof Recovery system**
- ◆ **A Metal over Metal Recover System**
- ◆ **Targeted use of Sealants and metal roof coatings**

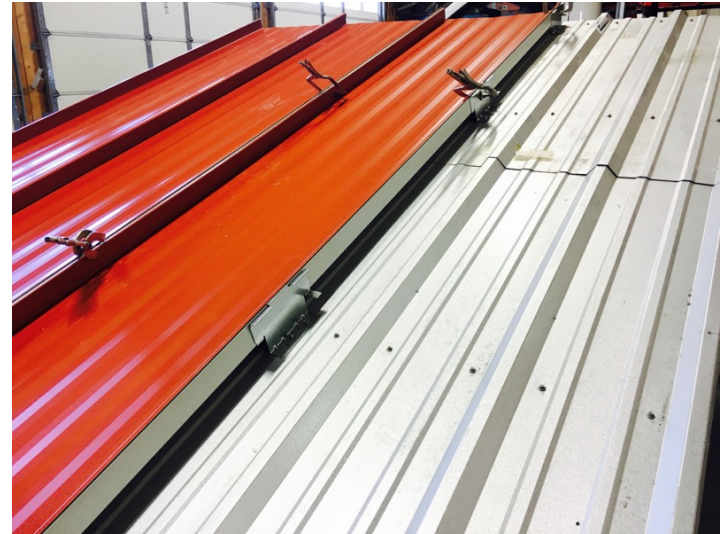
PVC Metal Roof Recovery System

A proven, cost effective method to eliminate metal roof leaks and keep a building dry for up to 20 years, recovering your existing metal roof with a PVC membrane might just be the answer for your facility. Not only can this metal roof repair option be installed over top of your existing roof which saves the mess and expense of a tear off, it goes down quickly and cleanly without harmful chemicals, open flames or loud equipment. Metal roofs that have many stack flashing and HVAC curb that currently leak will be especially glad to know about the customer sized flashings that compliment the metal roof recover keeping water of your building even around the toughest roof penetrations. Finally, no other metal roof repair option on the market matches the PVC metal roof recover's value. The metal roof recover offers an affordable, long term solution to roof leaks at a fraction of the cost of removing and replacing the old metal roof.



Metal Over Metal Recovery system

Next on the list of cost saving Metal roof repair options is a Metal over metal overlay. The idea is similar to the PVC metal roof recover but instead of using a white membrane to cover over the existing metal roofing it uses new metal roofing panels to cover the existing metal. In both cases large savings happen because no tear off is required and the building is only minimally exposed to the elements if any so the roofing contractor liability is greatly reduced. New metal roofing can be used to recover existing metal in three basic ways 1) certain metal roofing profiles can be laid directly on top of existing metal and screwed down, 2) High clips can be used to install new standing seam metal over the existing roof, 3) Roof huggers can be used to support new metal roofing panel which are usually standing seam style and have no exposed screws. The variety of metal over metal recover applications ensure that a “good fit “ can be found for just about every type of existing metal roof panel out there.



Targeted use of sealants and Metal Roof Sealants

Often times budget constraints and persistent metal roof leaks meet head on in an all out battle with either a facility manger or building owner caught in the middle. Damaging leaks will cost more in the long run if not repaired but the budget just isn't there to do either a PVC or Metal over metal recovery. Try a targeted approached using metal roof sealants and or metal roof coatings to get control of the leaks especially the "high priority" leaks. Slowing or stopping the worst of you leaks will give you some breathing room and prep time so you can prepare for the larger up coming metal roof repair. It will also give you a chance to do smaller repairs with a roofing company giving you a chance to build a working relationship with them before you award them a large metal roof repair project. One more benefit of starting the repair process by doing isolated and targeted repairs on your metal roof is that many times these repair cost can be paid for out of the maintenance budget where as larger metal roof repair project can be paid for out of the general fund. Doing targeted repair now many not necessarily postpone the larger more expensive repair if you can pull from different funds but stopping the leaks now may save you big in the future.

CHAPTER TWO - PVC Metal Roof Recover System

Don't replace your leaking metal roof, Re-cover it!

Metal roof repair made simple with a metal roof recover system by Exterior Pro.

A metal roof recover is a effective, long term way to eliminate leaks on aging metal roofs.

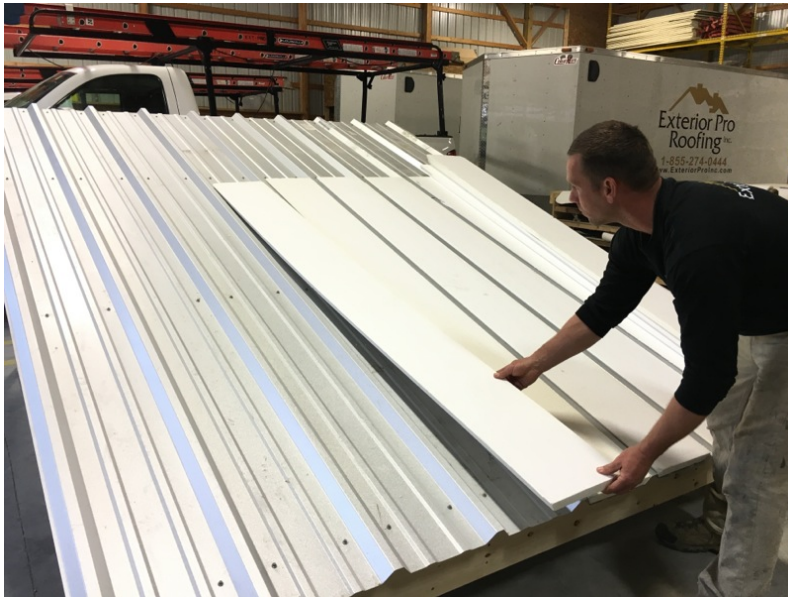
The system's simple design keeps installation cost low and building disruption to a minimum.

HERE'S HOW IT WORKS



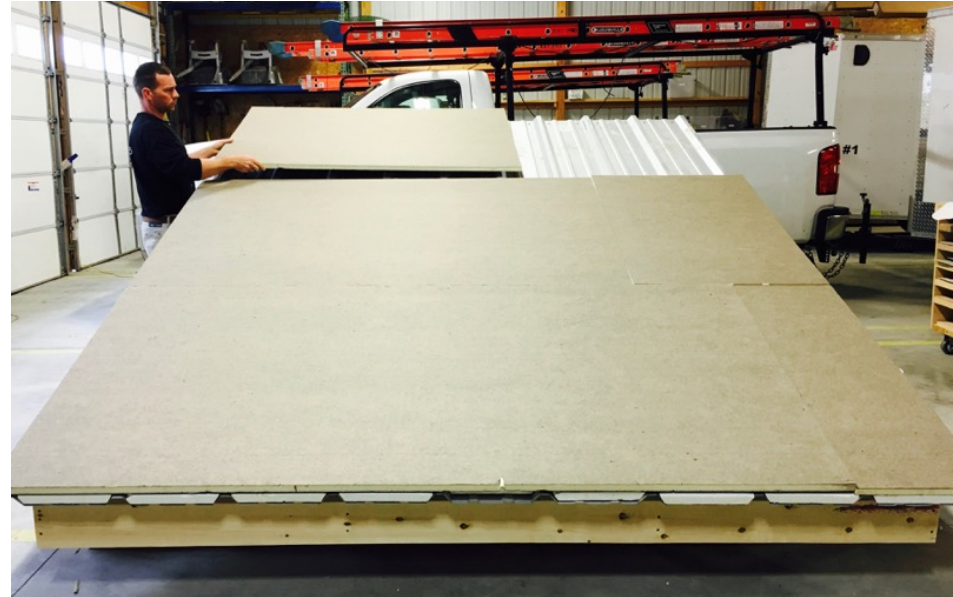
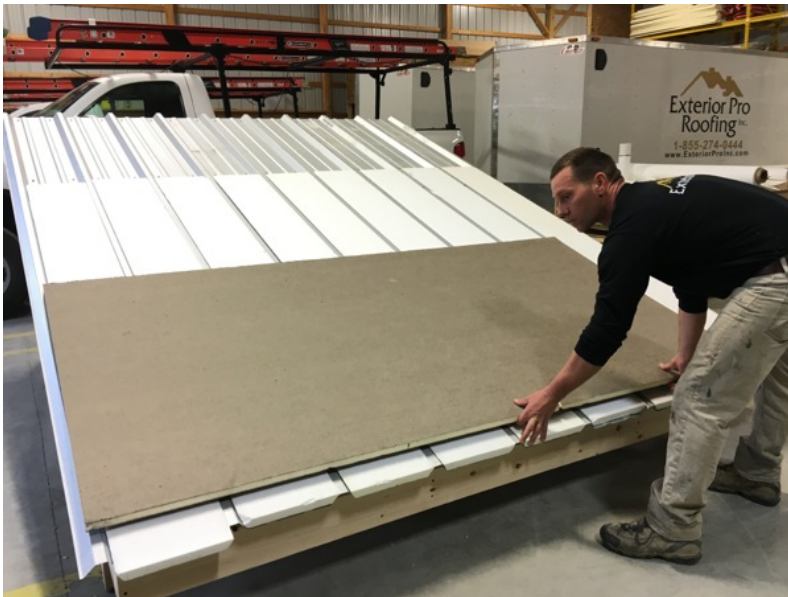
STEP ONE:

Measure the existing metal roof's profile such as width and height of rib. Next, cut insulation to fit flat in the pan of the metal roof panel and to be flush with the height of the rib. Then, lay the pieces of cut insulation into the pan of the metal and secure as needed to stay in place.



STEP TWO:

Install an additional layer of insulation to flatten out the entire surface and to add R value to the building. This layer of insulation is a minimum 1/2 thick but can be up to several inches depending on desired R Value. The Thicker the roof insulation the more insulate value or resistance to heat flow (R-value) it has.



STEP THREE:

Recover the surface with a new PVC membrane. The rubberized membrane is re enforced by woven threads between layers of the PVC called scrim. Because the membrane is so tough, it can be installed by using screws with large washers called plates. This method of roof installation is know as “mechanically attached”. Because the mechanically fastened method of attachment doesn't rely on glue, the metal roof recover system can be installed much faster, much less expensive, and in a wider temperature range than more traditional glue down style roofing often associate with membranes or rubberized roofing products.



STEP FOUR:

Once the membrane has been rolled out the custom flashing are then installed and the seams and flashings are seamed together using hot air welding. Drain boots, pipe flashing and HVAC flashing are all hot air welded in the same manner as the seams between the sheet of roofing membrane. At a temperature be 250 and 300 degree the PVC membrane briefly turns from a solid into a liquid and the two pieces of membrane blend together and cool returning back into a solid only this time the two membrane are permanently fused together.



STEP FIVE:

Last but not least in step five 2 way air vent are installed into the new PVC roof so that the roof system can breath and vent moisture migrating up from inside the building. This is a very important part of the over all functioning of the Metal roof recover By Exterior Pro.



A Metal Roof Recovery by Exterior Pro not only saves a building owner time, money, and disruption, they come with a twenty year non prorated warranty that covers workmanship and material failure!

CHAPTER THREE- PVC Metal Roof Recover FAQ

1. How can you screw down the PVC membrane without poking holes in it that leak?

The membrane is screwed down every five feet using screws and plates. The plates act like a washer helping to hold the membrane over a larger surface area. The screws and plates are usually placed 12” on center. The next sheet of PVC is then layered over top of the line of fasteners and usually over laps the line of screws and plates by 6”. Then, the two sheets are hot air welded together which forms a permeant water tight seam The over lap covers the screws and this is how you can screw down a membrane without poking holes in it that leak.

2. How long is this metal roof recovery system guaranteed for ?

There is a 15 year and a 20 year system. The difference is the thickness in PVC material, all the trims, flashings, and application techniques are the same.

3. Is the warranty included in the price ?

Yes there is no additional up charge for the warranty

4. How much does a metal roof recover cost?

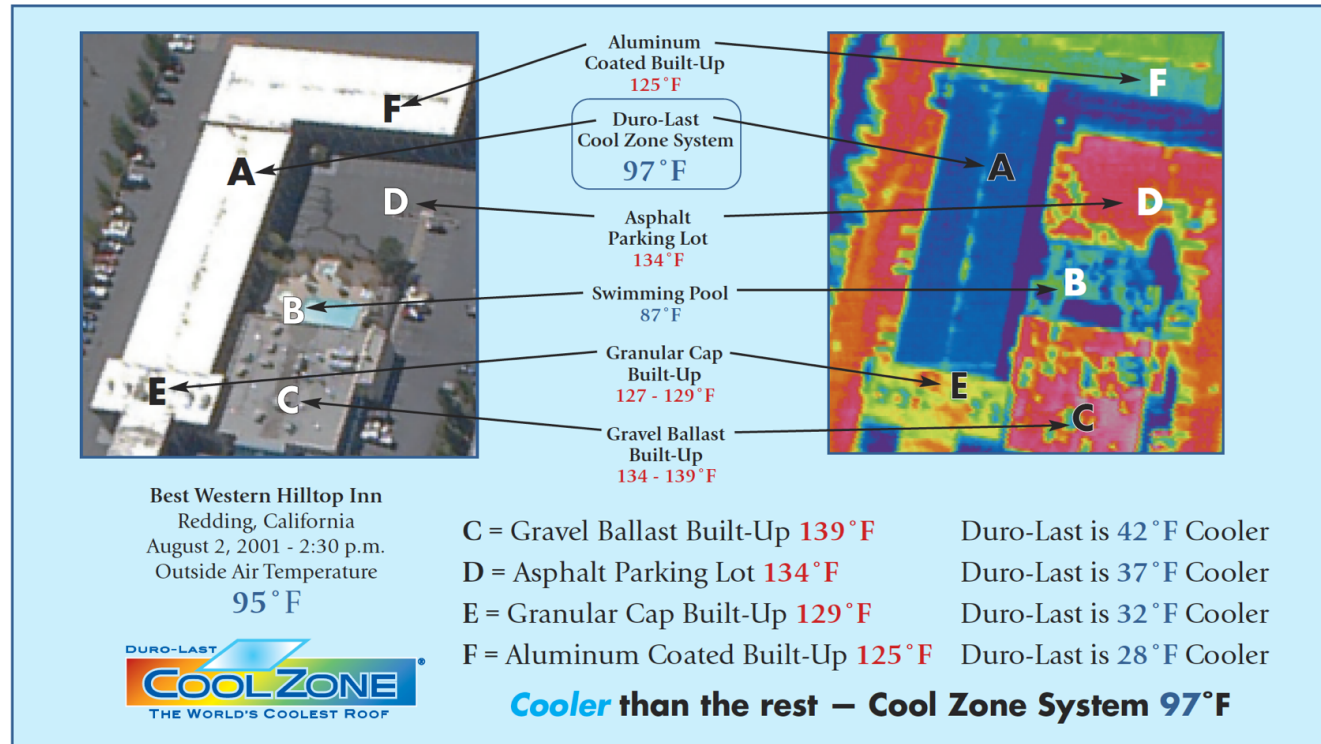
The price will vary depending on the existing metal roof profile to be covered and the amount of insulation along with the sq. footage and amount of stacks and flashing on the roof but an average price of \$3.00 per sq. Ft installed will get you close. Larger jobs may be less and smaller jobs may be more.

5. How long does it take to install?

The metal roof lay over is a very fast installation, we can usually installed anywhere between 7,000 and 10,000 sq. Ft per day.

6. Does the white color of the membrane really help reduce heating?

Yes, it does, the white membrane reflects heat in the summer and can reduce heating and cooling cost by up to 15% and for uncooled buildings it creates a more tolerable working temperature for employees and staff working inside the building.



7. How does it compare cost wise to a metal roof coating?

If the metal roof coating is a warranted project with multiple coats of paint the PVC metal roof recover is usually much less expensive. If a coater is only going to slop tar or spray one thin layer without prepping the surface correctly the coating will be cheaper. Basically the only way a metal roof coating can beat a PVC metal roof recover is to cut corners on the products and installation.

8. How does this compare to a metal roof coating?

This is different from a coating in that the membrane is manufactured in a controlled environment and is only installed on the job site whereas a metal roof coating is basically building a membrane on top of the metal roof one layer at a time. Most coatings consist of a good power wash or chemical wash to remove dirt, a base layer that must have a mesh rolled into it while it is wet and then two top coats. Each time a layer is installed the weather must cooperated and the the coating must dry completely before applying the next coat. We find this to be very difficult with morning and evening dew on the metal and high humidity and pop up thunderstorms during summer months. The PVC membrane allows us to work in a variety of weather conditions and since we are not removing the existing roof we are not exposing the building to rain or snow and we aren't worried about dry times.

9. What about along the walls of my building, this is where we have many leaks?

This is one area that the PVC metal roof recover really works great as we are able to use the membrane to go up and over the walls encapsulating the entire wall. Metal roof coatings often fail along this transition because of thermal movement. The movement of the masonry wall and of the metal roof is very different and the coatings can't flex enough to hold a seal on both substrates.

10. What happens in 20 years?

Simple, you remove the old PVC membrane but leave the insulation and filler in place and install a new PVC membrane.

11. How much does it weigh ?

The PVC membrane only weighs about 1/4 pound per square Foot

12. Is it easy to repair ?

The PVC is very easy to repair, simply clean the area to be repaired with acetone sold at your local paint store and hot air weld a patch on. The great thing about the PVC is that it will hold a weld throughout its entire life cycle so it can easily be repaired even as it ages, this is not the case with other membranes especially TPO as it loses its ability to hold a hot air weld and therefore is difficult to repair as it ages.

13. Are the seams Glued together ?

The seams are hot air welded and do not rely on glue or caulking to stay water tight. Watch our video on hot air welding to learn more

14. How are the flashings done?

The PVC membrane is more than just rubber roofing, its a complete roofing system that has custom sized flashing to fit even the trickiest metal roofing detail . The Flashings around HVAC units and Stacks are all custom sized to fit then hot air welded down. The PVC recover system's accessories include inside and outside corners, custom sized stack flashings, custom sized HVAC flashings, edge metal, pitch pockets for line sets, custom through the wall scuppers and collector head boxes for drainage.

15. Do I have to change my gutters if I choose to recover my existing metal roof with PVC ?

No, you can leave the existing gutters in place and terminate the PVC membrane into them or use a metal drip edge at the existing gutter.

CHAPTER FOUR - Metal Over Metal Recovery Systems Explained

Retrofitting old existing metal roofs with new standing seam metal roofing is quickly becoming one of the best metal roof repair options on the market. Not only does the new metal roofing stop leaks, the lay over or recovery system eliminates the need for a tear off saving the cost, mess, and building disruption of removing old metal and insulation.

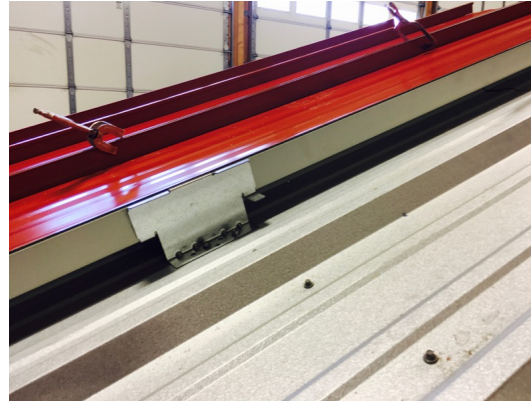
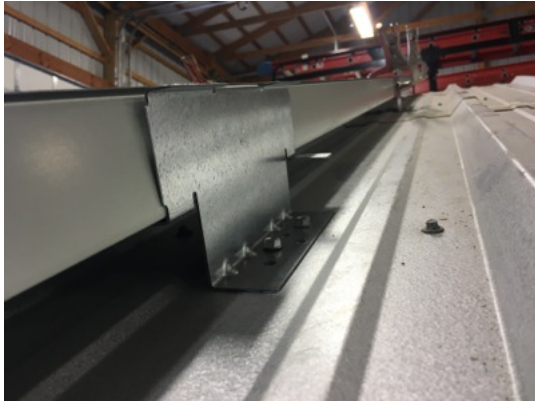
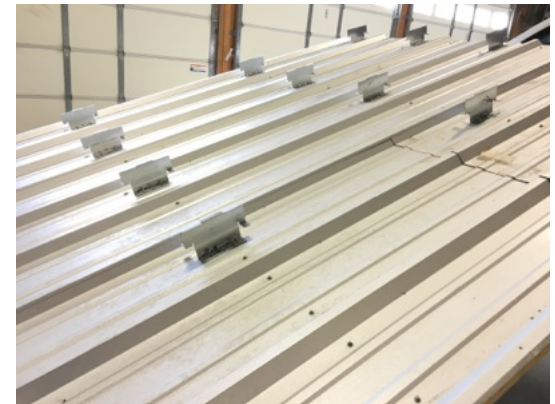
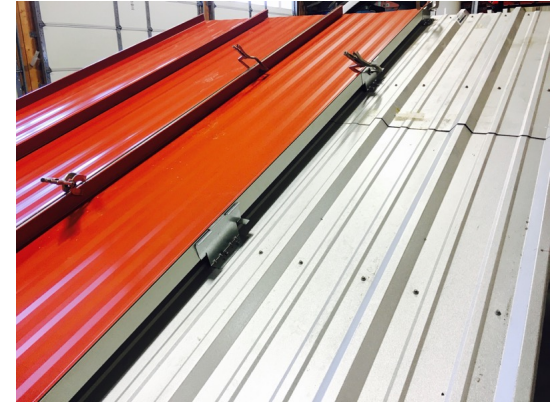
How does a Metal over Metal Recovery system Work?

We'll I'm glad you asked, new metal roofing is usually installed over existing metal roofing in one of three ways.

- 1 Using a high clip in conjunction with a new standing seam panel
- 2 Using sub purling called Roof Hugger to attach new metal roofing to
- 3 Installing a new metal roofing panel directly over the existing metal

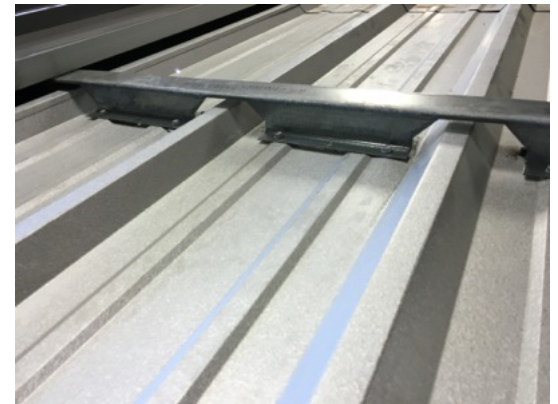
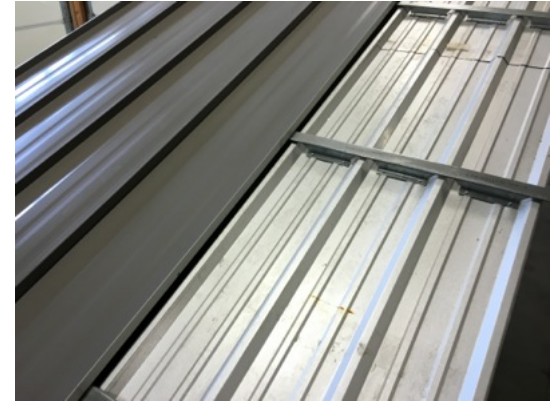
High Clip System

The high clip system works with a standing seam metal roofing panel by elevating the new metal roofing over top of the existing roof. The Clips are specially designed to provide the necessary clearance and are installed over the purling of the metal building. Insulation may be used in-between the old and new metal or the cavity may be vented to allow air flow. Major metal roofing manufacturers like McElroy and MBCI both offer high clips systems for several of their standing seam roofing panels.



Roof Hugger System

The Roof Hugger is sub-purling usually made from 16 gauge steel in 10-12 Ft lengths. They are notched to fit over top of your existing metal roofing profile and are installed directly on the existing purling. Insulation may be used over the roof hugger to add insulation to a building but the cavity can also be left open. New metal roofing panels can then be installed onto the new roof hugger-sub purling. One benefit of a roof hugger system is that you don't necessarily have to go back with a standing seam roof panel, the roof hugger will also take screws such as R-panel or other types of screw down metal roofing although standing seam metal is preferable.



Metal on Metal Lay Over

The least expensive way to do a metal over metal recover is to installed the new panel directly over top of the existing metal without any high clips or roof hugger then fasten the new metal down through the old into to existing purling. This types of metal roof overlay uses a screw down metal roofing panel such as an R-panel or PBR panel and does not have the option of adding insulation.

Recovering your existing metal roof with new a metal roof is a simple and lower cost metal roof repair alternative to removing old metal and insulation and replacing it.

Curious about which option may be a fit for your metal roof repair and how much it might cost?

Let us help Call or click to set up a sit visit to discuss your options.

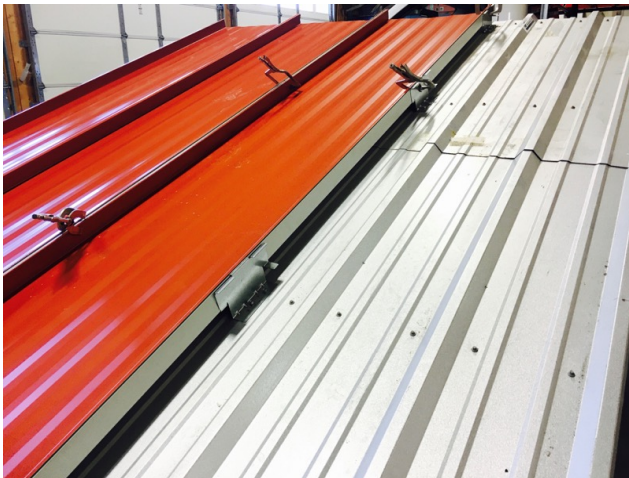
CHAPTER FIVE- Metal Over Metal Recover FAQ

1. Does installing metal roofing over top of my existing metal roof add too much weight to the structure of the building ?

Just the opposite of what you might think, doing a metal over metal recover may actually add strength to your existing structure especially when using the roof hugger system. The roof huggers are structurally attached to the existing purling and designed in a way that stiffens the purling. That being said reputable metal roofing contractors will take advantage of the engineering services offered by roof hugger or the metal roofing manufactures and will have a recover system designed to your specific building's needs.

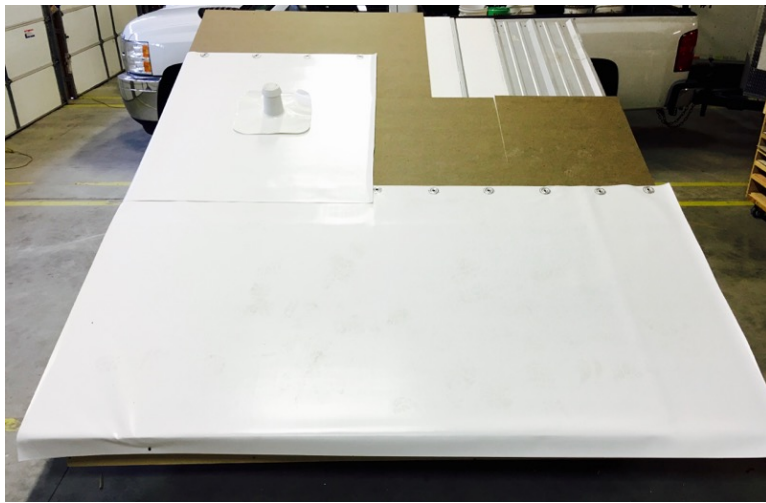
2. Do I have to use a standing seam metal?

You do not have to use a standing seam metal roofing panel with roof hugger and the metal directly over metal type of recovers but the high clip system only works with standing seam. That being said most building owners and facility managers are looking to avoid the problems and maintenance associated with screw down metal roofing and choose to re roof with standing seam.



3. How Much does a metal over metal recover cost?

There are far too many variables in metal roofing, types of steel buildings, and geographical snow load consideration to throw out unit price figures or even ball park numbers. But I can tell you that doing a metal over metal recover is far less expensive than trying to tear off your existing metal roof and insulation and replace it but it is more expensive doing a PVC metal roof lay over or a metal roof Coating. For the folk who just need a dry building the PVC metal roof lay over is a great option but many people prefer the look and performance of metal and are willing to pay more to get what they want.



4. Do you have to add insulation to fill the space between the old metal roof and the new?

You do not have to add insulation to fill the cavity created by laying metal over metal but it is recommended. Not only will you be adding R - Value to your building the added insulation can greatly reduce the chance of having condensation between the two pieces of metal. Another benefit of the insulation is that wind blowing hard over standing seam and cause “panel chatter” and the insulation stops this from happening. Panel chatter is when the metal roofing panel vibrates against the purling and makes noise that can be heard inside the building.

5. What if I want to spend the extra money to Remove the old metal and insulation and go back with new insulation and standing seam metal roofing?

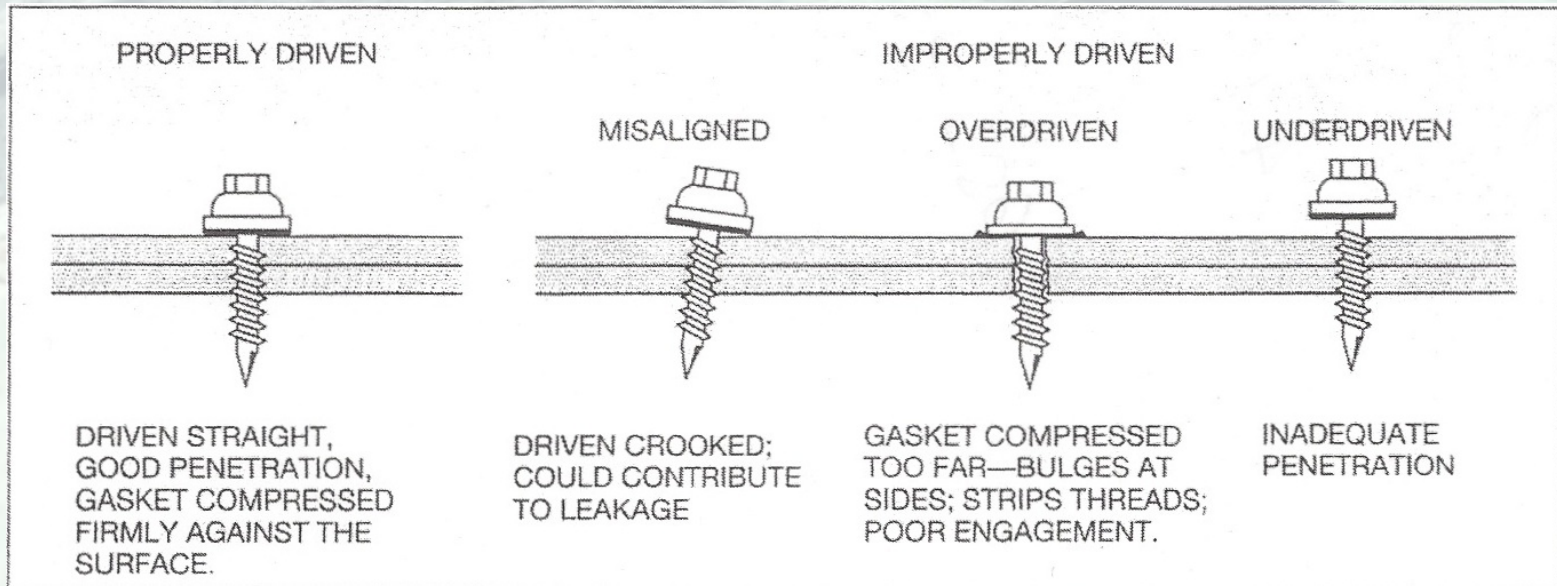
This can be done and some folks may prefer to pay more and remove old metal and insulation however a structural engineer must be hired especially if the old metal that is to be removed is screwed down. The screwed down metal provides the Structure with Diaphragm strength. Standing seam metal because it moves along the clips do not provide diaphragm strength so bracing must be added to properly support the purling before the standing seam metal roof can be installed. Again, Reputable metal roofing contractors will assist you will engineering calculation and specs if this is the route you would like to take.

CHAPTER SIX- 5 Common Causes of Metal Roof Leaks

Few Roofing Products offer the durability, strength, and performance of metal roofing. That being said metal roofs aren't indestructible and they can leak. Here are 6 common reasons even properly installed metal roofs can leak.

1. METAL ROOFING SCREWS

Roofing screws are responsible for the majority of leaks on metal roofs. Metal roofing screws seal water out by compressing a rubber washer at the base of the screw head. When the screw is driven into the metal roofing panel the rubber washer forms a “gasket” between the roofing panel and the screw head. It sounds simple enough but several things can go wrong like under driving screws, over driving screws, driving screws at the wrong angle and screws that missed the framing member.



Over driven screws: In an attempt to ensure a tight seal between the metal roofing and the screw head many roofing companies will over drive the screw. The unneeded torque breaks the rubber washer and tends to spin it out to the side.

Under driven screws: These are a result of not enough torque on the screw to properly seat the rubber washer to the metal roofing panel. The rubber washer is never compressed and no gasket is formed.

Screws driven at the wrong angle: These don't allow the rubber washer to sit flat on the metal roofing. Part of the screw is sealed but part is not sealed.

Screws that have missed the metal strut or wood framing below: These have nothing to seal against. These can be hard leaks to find as many times the screw is there but without touching it you wouldn't know that it didn't hit anything and didn't seal.

CHAPTER SIX- 5 Common Causes of Metal Roof Leaks



Even if the screws were installed correctly with the right amount of torque it doesn't mean that the rubber washer is safe. Hot summers followed by hard cold winters are unkind to the rubber washers. They degrade and lose their seal and it can be very difficult to distinguish which screw is leaking and which is not.



2. STACK FLASHINGS

Another area very prone to leaks on a metal roof is the area around stack flashings. Stack flashings are the “boots” or flashings around pipes that come out of the metal roof. HVAC vents, air vents, and plumbing pipes all have to vent and come through the metal roof. The stack flashing is how the pipe is water proofed. Most stack flashings are rubber or rubberized material that sits flat on the metal roof and forms a seal but also “squeezes” around the pipe to form another seal. The movement in the metal roofing from expansion and contraction is always testing these seals. The sun also degrades the rubber flashings which last only about half the time of the metal roof. The more caulking, sealant, or tar that is placed behind and around the stack the more they seem to pond water and leak, it’s a catch 22.

Plan on replacing worn or rotten stack flashings in order to keep your building dry.



3. MISSING SEALANTS

Metal roof sealants that are installed in conjunction with a metal roof rarely last as long as the metal roofing panels do and need to be replaced with regular roof maintenance. Sealants under trims such as metal ridge caps and Z flashings, around roof transitions, counter flashings, reglets, and pitch pans will all need to be “topped off” from time to time as they wear. Use a metal roof sealant specifically made for metal roofing. Other types silicone caulking may not adhere to the paint on the roofing panel and trims. Metal roofing goes through a daily expansion - contraction cycle and if any sealants are to last they must be able to remain flexible and stretch with metal without breaking their seal.

4. CURB FLASHINGS

HVAC units on Metal Roofs are usually sitting on curbs. Installing metal roof panels is a relatively easy process but it's the flashing that really test a metal roofers ability. HVAC offer little room for error when fabricating the flashing and keeping a curb dry can be easier said than done. The up hill side of curbs and the two upper corners of the curb flashing are difficult areas especially on lager HVAC units. Water often gets trapped behind the unit and “stands “ behind the flashing which eventually erodes sealants and begins to leak. The more you caulk, seal, or tar the uphill side the more water it will hold. This Catch 22 is difficult to remedy without removing metal roofing panels and starting over.

5. Seams and over laps

Seams where 2 pieces of metal roofing over lap each other often leak because of a condition called capillary draw. Capillary Draw is when water can actually travel up hill between two tightly joined pieces of metal. Sealant or butyl tape between the two pieces of metal can break the capillary draw but if not used correctly can actually make leaks worse than if none had been used at all.

CHAPTER SEVEN - How Much Does Metal Roof Repair Cost?

Gain general knowledge about metal roof repair cost and the factors that influence the price of roof repairs. For more detailed repair estimates based on your specific building's metal roof, we strongly recommend that you invite us out to do a site visit and free evaluation or have a reputable roofing company in your area look at your metal roof repair project.

Targeted Use of Metal Roof Sealants and Metal Roof Coatings

Targeted specific leaks on metal roofs is the least expensive type of repair because it is isolated and usually confined to specific area. Our skilled roofers can usually track down a leak to its source and make necessary repairs within the first visit.

Minor metal roof repairs that can found and fixed during the first trip out usually cost somewhere between \$200-\$600 depending on the length of time spent on the building and amount of material used to make the repair. More difficult or mystery leaks that require follow up trips to completely eliminate will cost more but how much more will depend on the following factors:

- **Amount of leaks to be stopped**
- **Size of the leaking areas**
- **Accessibility to roof**
- **Amount of materials needed to make repairs**



PVC Metal Roof Recovery System

Our best overall metal roof repair option available to building owners and facility managers is to recover the existing metal roof with PVC membrane. Not only does this repair method lock out leaks for the long term, it cost far less than trying to remove and replace a metal roof. **At a mid range of \$2.75-\$4.00 per sq. ft.** installed the metal roof recovery system is hard to beat. Factors that drive cost are:

- **Size of area of metal roof to be recovered, larger jobs usually have lower price per sq. ft.**
- **The amount of insulation added to the building. You can add only the minimum or add more to achieve a desired R-Value**
- **Number of roof penetrations such as HVAC units, stack flashings, or exhaust vents**
- **Duration of the warranty of the PVC membrane, 15 year, 20 year, or 20 plus years**

Recovering your existing metal roof with a PVC membrane is a great way to get a long lasting and leak free roof that fits into your budget.



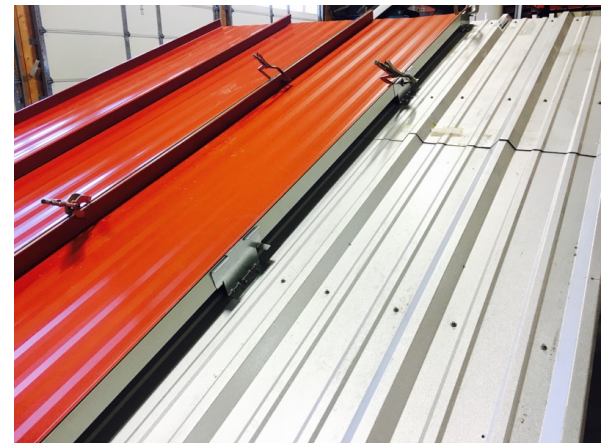
Metal Over Metal Recover

The higher cost of **\$7.00-\$10.00** per sq. ft. installed is well worth the price for those who won't have anything less than the strength and durability of a standing seam metal roof on their building. The performance and long life of standing seam metal is unmatched in the roofing industry and having it installed on your building ensures decades of service life.

Factors that drive the cost of metal over metal recover:

- **Profile of your existing metal roof and whether or not sub purlings are needed**
- **Type of standing seam used to recover existing metal**
- **Adding insulation to building**

Installing a standing seam metal roof on your building is an investment you won't regret





THANK YOU

Contact us for a free consultation & estimate today!

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