

**FIRESTONE BUILDING PRODUCTS
METAL ROOF RED SHIELD AND RED SHIELD MEDALLION
SYSTEMS UC-3RS, UC-4RS(M) & UC-6RS
APPLICATION INSTRUCTIONS**

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2.01.1 GENERAL

This section of Firestone's Technical Manual provides instructions for the installation of Firestone's Metal Roof System. Reference to the Metal Design Guide, Technical Information Sheets (T.I.S.), and other sections of Firestone's Technical Specifications may be necessary to ensure that the finished roof system is installed in compliance with Firestone requirements.

The Firestone Metal System and Warranty requires special considerations with regards to fasteners, insulations, and attachment requirements. These requirements are provided as a part of this application guide.

NOTE: IF A PROPOSED APPLICATION FALLS OUTSIDE OF THIS SPECIFICATION, CONTACT THE FIRESTONE ROOF SYSTEMS SOLUTIONS GROUP FOR ADDITIONAL INFORMATION, PRIOR TO BID AND INSTALLATION.

2.02.1 JOB SITE CONSIDERATIONS (CAUTION AND WARNINGS)

- A.** Keep all adhesives, sealants and cleaning materials away from ALL ignition sources (i.e., a flame, fire, sparks, etc.). Do not smoke while using these materials.
- B.** Consult container labels, Material Safety Data Sheets and Technical Information Sheets for specific safety instructions for all products used on the project.
- C.** Care must be used when installing fasteners to avoid possible conduits and other piping in and under the deck.
- D.** Do not use oil-base or bituminous-base roof cement with the Firestone Metal.
- E.** Insulation must be properly stored and protected from ignition sources, moisture and damage.
- F.** Do not allow other non-compatible metals to interact with the Metal System.
- G.** Tarp panel crates when first delivered to the jobsite and at the end of each workday.

2.02.2 PERSONAL SAFETY

Safety has to be the top priority. Walking on any roof system can be dangerous. Always use a method of fall protection that will meet the approved OSHA standards or any regulatory agency responsible for your building. Serious injury or death can result if the proper safety equipment is not provided. Monetary fines for noncompliance could result from any neglect in fall protection.

It is your responsibility as an Owner or employer to make sure that proper training of your maintenance personnel is adequate for safety procedures and that safety equipment is in proper working condition.

Remember during roof inspections take the following precautions:

- A.** Use fall protection and all safety equipment
- B.** Never walk on eave, rake, hip or ridge flashings
- C.** Never walk or stand on any skylight, fiberglass type panel or any other component not designed for the weight of a person.
- D.** Rope off open areas or assign a person to guard these locations during the inspection process to prevent accidental injury.
- E.** Never go on a roof with any moisture or other substance present.

2.03.1 ROOF SUBSTRATE PREPARATION

A. Preparatory Requirements

1. The UC-3 & UC-6 Double Lock System requires field seaming. Seamers are available for purchase or rental from a qualified distributor. Other types of field seaming machines may NOT properly seam the UC-6 Double Lock panels and Firestone/UNA-CLAD cannot be responsible for any damage caused by using another type of field seamer. The UC-4 No-Clip System does not require field power seaming.
2. The substrate must be no more than $\frac{1}{4}$ " (6.4mm) in 10' (3048mm) out of plane in any direction.
3. The building must be squared, acceptable to standard practices.
4. Verify that the purlins at the ridge and endlaps are installed as detailed and that they are straight from rafter to rafter. Misplacement or swaying of the members will cause the fasteners to fail at the ridge or endlaps as the panels expand and contract.

B. CAUTIONS

1. Avoid restricting the thermal expansion and contraction of the UC-3 & UC-6 Double-Lock panels.
2. Avoid restricting the thermal expansion and contraction of the UC-4 Snap-Lock panel by assuring proper placement of fasteners in the attachment slots.
3. Do not attach panels to the substrate at both the eave and ridge.
4. Limit panel length to account for movement range of system.

C. Correct Substrate Defects:

1. Defects that need to be corrected before work can commence should be brought to the attention of the General Contractor or Owner in writing and addressed by them.
2. Complete removal of all existing roof system components is required. Re-cover applications are not acceptable for the Firestone Red Shield Metal Roof System.

D. Remove Moisture:

Water, snow, frost and/or ice, present in more than trace amounts must be removed from the work surface(s) prior to installing the Firestone Metal Roof System.

E. Prepare Surface:

Acceptable substrates to which the Firestone Metal Roof System is installed must be properly prepared prior to (metal roof system or underlayments) membrane installation. The surface must be relatively even (no more than $\frac{1}{4}$ " (6.4mm) in 10' (3048mm) out of plane in any direction), clean, dry, smooth, free of sharp edges, fins, loose or foreign materials, oil, grease and other materials that may damage the metal roof system. Rough surfaces that could cause damage to the roof panel must be overlaid with insulation.

G. Install Underlayment

Install an acceptable metal roof system underlayment as specified by the project designer from the Firestone Design Guide.

2.03.2 Material Handling

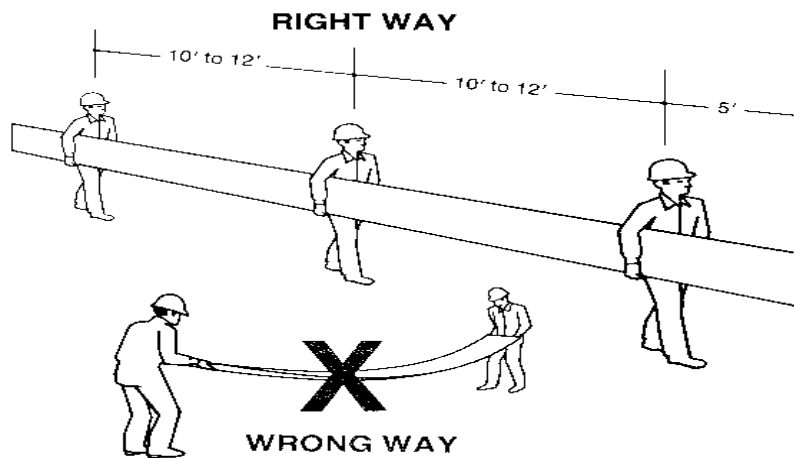
A. Shipping

1. Metal panels are shipped with the panels stacked vertically, up to 40', and braced as needed for security. Handling requirements are the same as listed below.
2. BLOCK AND BAND - 2x4's are strapped under the bundles to allow access for straps or a forklift. Bundles less than 25' long may be handled by a forklift. The forklift should have at least 5' between forks. Bundles longer than 25' should be lifted utilizing a spreader bar with nylon straps.

B. Handling

For correct handling of Metal panels Firestone suggests the following:

1. Position three installers (One in the front, one in the back, one in the middle)
2. Please ensure metal panel does not bend!



2.04.1 WOOD NAILER LOCATION AND INSTALLATION

Wood nailers must be installed as specified by the project designer or as noted in Firestone Details and the System Design Guide when insulations are used between the deck and coverboard. Install wood nailers as follows:

A. Position Wood Nailer

Total wood nailer height must match the total thickness of insulation and or coverboard being used and should be installed with a 1/8" (3.2 mm) gap between each length and each change of direction. Multiple nailers must have joints staggered a minimum of 6" (152.4mm)

B. Secure Wood Nailer

Wood nailers must be firmly fastened to the deck or building. Mechanically fasten wood nailers to resist a minimum force of 200 lbf (890 N) in any direction, typically 12" (305 mm) o.c. Refer to attachment requirements as specified by the project designer.

C. Taper Wood Nailer

The wood nailer must be tapered (if applicable) so that it will always be flush at the point of

contact with the insulation (refer to Firestone Details).

D. Chemical Treating of Wood Nailer

Chemical treating for fire resistance or pressure treating for rot Resistance is not required by Firestone, it may affect the performance of the Firestone Metal Membrane and accessories. Submit MSDS sheets for any chemically treated lumber that comes in contact with the Firestone Metal Roof System, with active ingredients listed, to Firestone Technical Services for acceptance regarding compatibility.

E. Installation of Wood Nailers by Others

Make these specifications and details available when nailers are to be installed by others. Work that compromises the integrity of the system may jeopardize the warranty for the entire Firestone Metal Roof system project.

2.05.1 INSULATION INSTALLATION (OPTIONAL)

A. Install Insulation:

Install only as much insulation as can be covered with roofing underlayment membrane and completed before the end of the day's work or before the onset of inclement weather.

B. Fit Insulation:

Neatly fit insulation to all penetrations, projections, and nailers. Insulation should be loosely fitted, with gaps greater than 1/4" (6.3 mm) filled with acceptable insulation. The edges of insulation boards running parallel with the deck should be supported by the top flange. Under no circumstances should the membrane be left unsupported over a space greater than 1/4" (6.3 mm).

C. Stagger Insulation Joints:

When installing multiple layers of insulation, all joints between layers must be staggered a minimum of 6" (152mm).

D. Attach Insulation

1. Using Firestone Fasteners the Firestone Insulation/coverboard must be fastened at a rate of no less than 16 Firestone Fasteners and Insulation Plates per 4' x 8' (1.2 m x 2.4 m) board. Refer to the Technical Information Sheet for the specific insulation attachment patterns. The Firestone Fastener must be appropriate for the deck or substrate.

2.06.1 UNDERLAYMENT INSTALLATION

1. Install approved underlayment on slopes of $\leq 5:12$ per Manufacturer's Guidelines to achieve 100% coverage. For a list of approved underlayments please consult the Metal Design guide located in the Technical Database at www.firestonebpco.com.

2. Slopes greater than 5:12 may use a synthetic underlayment provided an approved self-adhered underlayment is used at all roof edges, valley, rakes, eaves, hips, base/sidewall flashings and penetrations.



25 year Red Shield Medallion UC-4 metal roof systems require a full application of self-adhered underlayment prior to panel installation.

2.07.1 SYSTEM INSTALLATION GUIDELINES

The following guidelines are for installing the UC-3, UC-4, & UC-6 Metal Roofing Panels:

A. Installation considerations to reduce oil canning:

1. Assure that all substrates are within roofing manufacture's required or approved designs and tolerances prior to commencement of work.
2. Assure that all supplied materials are as specified approved and ordered for the job.
3. Proper care and handling of all materials at all times.
4. Proper use and adjustment of all installation tools.
5. Install all materials with proper clearance for thermal movements with manufacture's supplied accessories and details.

2.07.2 UC-4 No-Clip Roofing System

A. Fixed Hip / Ridge

1. Install Modified J-Channel flashings at 3-1/2" Down roof, from top of ridge, at both sides. fasten on lower single thick hemmed flange with approved fastener at every 8.0" (203mm) o.c.
2. Fill hem of modified J-channel with butyl sealant (continuous).
3. Run a 1/4" Diameter Bead of Butyl Sealant up 6" from low end of panel to marry with continuous factory applied sealant inside panel seam. Apply (3) 1/4" diameter continuous beads of Butyl sealant vertically in panel rib.
4. Insert Panel into J-channel, firmly with linear flange of panel sliding into hem of modified J-channel.
5. With approved fastener, hard fasten through top of hem on modified J-Channel into substrate at every 4" (101.6mm o.c.).
6. Install Hip / Ridge Flashing and finish closing hem.

B. Fixed Pitchbreak @ Reglet

1. Install Modified J-Channel flashings at 2" Down roof, from top of high eave. Fasten with approved fastener at every 8.0" (203mm) o.c.
2. Run a 1/4" Diameter Bead of Butyl Sealant up 6" from low end of panel to marry with continuous factory applied sealant inside panel seam. Apply (3) 1/4" diameter continuous beads of Butyl sealant vertically in panel rib.
3. Fill hem of modified J-Channel with Butyl Sealant, and insert panel tightly into Modified J-Channel.
4. Hard fasten with approved fastener through top of hem on the modified J-Channel into the substrate.
5. Install Pitch break flashing. Fasten with Approved fastener into exterior substrate at 4" o.c.
6. Install reglet flashing as per field conditions.

C. Fixed Pitchbreak @ Wall

1. Install Modified J-Channel flashings at 2" Down roof, from top of high eave. Fasten with approved fastener at every 8.0" o.c.
2. Run a 1/4" Diameter Bead of Butyl Sealant up 6" from high eave of panel to marry with continuous factory applied sealant inside panel seam. Apply (3) 1/4" Diameter continuous beads of Butyl sealant vertically in panel rib.

3. Fill hem of modified J-Channel with Butyl Sealant, and insert panel tightly into modified J-Channel.
4. Hard fasten with approved fastener through top of hem on the modified J-Channel into the substrate.
5. Install Pitchbreak flashing. Fasten with approved fastener into exterior substrate at 4" o.c.
6. Install Wall Panel.

D. Vented Ridge

1. Install Modified J-Channel flashings at 3-1/2" Down roof, from top of ridge, at both Sides. Fasten with approved fastener at every 8.0" o.c.
2. Fill hem of modified J-Channel (both Sides) with Butyl Sealant (continuous).
3. Run a 1/4" Diameter Bead of Butyl Sealant up 6" from high end of the panel to marry with continuous factory applied sealant inside panel seam. Apply (3) 1/4" Diameter continuous beads of Butyl sealant vertically in panel rib.
4. Insert Panel firmly into the modified J-Channel
5. With Approved fastener, hard fasten through the top of hem in the modified J-channel into the substrate at every 4" o.c.
6. Install Cobra venting on top of modified J-channel.
7. Install Ridge Flashing and finish closing hem.

E. Rake Edge

1. Install Modified J-Channel at 2" from rake edge. Fasten with approved fastener at 8" o.c.
2. Fill hem of modified J-Channel with Butyl Sealant, and insert panel tightly into modified J-Channel.
3. Install rake flashing and finish closing hem.

F. Side Wall Flashing @ Reglet

1. Install Modified J-Channel at 2" from side wall. Fasten with approved fastener at 8" o.c.
2. Fill hem of modified J-Channel with Butyl Sealant, and insert panel tightly into modified J-Channel.
3. Install sidewall flashing and fasten into exterior substrate at 4" o.c.
4. Install reglet Flashing as per field conditions.

G. Fixed High Eave

1. Install Modified J-Channel flashings at 2" Down roof, from top of high eave. Fasten with approved fastener at every 8.0" o.c.
2. Run a 1/4" Diameter Bead of Butyl Sealant down 6" from high eave of panel to marry with continuous factory applied sealant inside panel seam. Apply (3) 1/4" diameter continuous beads of Butyl sealant vertically in panel rib.
3. Fill hem of modified J-Channel with Butyl Sealant, and insert pane tightly into modified J-Channel.
4. With Approved fastener, hard fasten through the top of hem in the modified J-channel into the substrate at every 4" o.c.
5. Install high eave as per field conditions.

2.07.3 UC-3 & UC-6 Double Lock System Roofing System

A. Fixed Hip / Ridge

1. Install Modified J-Channel Flashings at 3-1/2" down roof, from top of ridge, at both sides. Fasten with approved Fastener at every 8" o.c.

2. Install Panel using Panel clips, noting that first clip is to be 18" maximum from the centerline of hip / ridge.
3. Run a ¼" Diameter Bead of Butyl Sealant up 6" from low end of panel to marry with continuous factory applied sealant inside panel seam. Apply (3) ¼" diameter continuous beads of Butyl sealant vertically in panel rib.
4. Insert Panel into J-Channel Firmly with Linear Flange on panel sliding into hem of modified J-Channel.
5. Install Hip / Ridge flashing and finish closing hem.

B. Eave at Gutter

1. Place gutter tightly against the eave.
2. Install eave starter flashing, fasten with approved fastener at 8.0" o.c.
3. Flash in Ice and Water Shield over top of eave starter flashing.
4. Run a ¼" Diameter Bead of Butyl Sealant up 6" from low end of panel to marry with continuous factory applied sealant inside panel seam. Apply (3) ¼" diameter continuous beads of Butyl sealant vertically in panel rib.
5. Install panel using panel clips, noting that the first clip is to be 18" maximum from eave.
6. Hem panel over lip of eave starter flashing, leaving the hem partially open for drainage.
7. Fold end tabs of panel seams over the end of the seam. Always fold tab to the inside of the seam.
8. Install Gutter Strap into Gutter assembly and fasten using 12-14x1-1/4" with washer (ss) (Niss 12x1-1/4") through eave starter flashing. *Note Max 2'0" o.c. gutter strap spacing.

C. Fixed Pitchbreak at Reglet

1. Install modified J-channel at 2" down roof, from top of high eave and fastens with approved fastener at 8.0" o.c.
2. Run a ¼" Diameter Bead of Butyl Sealant up 6" from low end of panel to marry with continuous factory applied sealant inside panel seam. Apply (3) ¼" diameter continuous beads of Butyl sealant vertically in panel rib.
3. Install Panel using Panel clips, noting that the first clip is to be 18" from high end of the panel.
4. Fill hem of modified J-Channel with Butyl Sealant, and insert panel tightly into into modified J-Channel.
5. Hard fasten with approved fastener through top of hem on the modified J-Channel.
6. Install Pitchbreak flashing. Fasten with approved fastener into exterior Substrate at 4" o.c.
7. Install reglet Flashing as per Field Conditions.

D. Fixed Pitchbreak at Wall Panel

1. Install modified J-channel at 2" down roof, from top of high eave and fasten with approved fastener at 8.0" o.c.
2. Run a ¼" Diameter Bead of Butyl Sealant up 6" from low end of panel to marry with continuous factory applied sealant inside panel seam. Apply (3) ¼" diameter continuous beads of Butyl sealant vertically in panel rib.
3. Install Panel using Panel clips, noting that the first clip is to be 18" from high end of the panel.
4. Fill hem of modified J-Channel with Butyl Sealant, and insert panel tightly into into modified J-Channel.
5. Hard fasten with approved fastener through top of hem on the modified J-Channel.
6. Install Pitchbreak flashing. Fasten with approved fastener into exterior substrate at 4" o.c.
7. Install Wall Panel (optional)

E. Rake at Gable End

1. Install Modified J-channel at 2" from rake edge. Fasten with approved fastener at 8.0" o.c.
2. Fill hem of modified J-Channel with Butyl Sealant, and insert panel tightly into modified J-Channel.
3. Install rake flashing and finish closing hem.

F. Wall flashing at Reglet

1. Install modified J-channel at 2" down roof, from top of high eave and fasten with approved fastener at 8.0" o.c.
2. Fill hem of modified J-Channel with Butyl Sealant, and insert panel tightly into into modified J-Channel.
3. Install Sidewall Flashing and fasten into exterior substrate at 4" o.c.
4. Install reglet flashing as per field conditions.

G. Fixed High Eave

1. Install modified J-channel at 2" down roof, from top of high eave and fasten with approved fastener at 8.0" o.c.
2. Run a ¼" Diameter Bead of Butyl Sealant down 6" from low end of panel to marry with continuous factory applied sealant inside panel seam. Apply (3) ¼" diameter continuous beads of Butyl sealant vertically in panel rib.
3. Install Panel using UC-3 or UC-6 Panel Clips, noting that first clip is to be 18" maximum from high end of the panel.
4. Fill hem of modified J-Channel with Butyl Sealant, and insert panel tightly into into modified J-Channel.
5. Hard fasten with approved fastener through top of hem on the modified J-Channel, into substrate at 4" o.c.
6. Install High eave flashing as per field conditions.

H. Vented High Eave

1. Install modified J-channel at 2" down roof, from top of high eave and fasten with approved fastener at 8.0" o.c.
2. Run a ¼" Diameter Bead of Butyl Sealant down 6" from low end of panel to marry with continuous factory applied sealant inside panel seam. Apply (3) ¼" diameter continuous beads of Butyl sealant vertically in panel rib.
3. Install Panel using UC-3 or UC-6 Panel Clips, noting that first clip is to be 18" maximum from high end of the panel.
4. Fill hem of modified J-Channel with Butyl Sealant, and insert panel tightly into into modified J-Channel.
5. Hard fasten with approved fastener through top of hem on the modified J-Channel, into substrate at 4" o.c.
6. Install cobra venting on top of modified J-Channel.
7. Install high eave flashing as per field conditions.

I. Valley

1. Install Valley Flashing into Valley
2. Install cleat at 1" from top hems of valley flashing (both sides). Fasten over 3/16 x 2-1/2" triple beaded Butyl Tape, with approved fastener, through valley flashing into substrate.
3. Run a ¼" Diameter Bead of Butyl Sealant up 6" from low end of panel to marry with continuous factory applied sealant inside panel seam. Apply (3) ¼" diameter continuous beads of Butyl sealant vertically in panel rib.
4. Install Panel using Panel clips, noting that first clip is paced at maximum 18" from centerline of valley (both sides)

5. Hem end of panels and fill hem with Butyl Sealant (both sides)
6. Install Panel over end of cleat (both sides)

J. Seam Section

1. Run a ¼" Diameter Bead of Butyl Sealant up 6" from low end of panel to marry with continuous factory applied sealant inside panel seam.
2. Fold end tabs of seams over the end of the seam. Always fold to the inside of the panel seam.

K. Outside Closure

1. All panels must be seam before installing the outside closure.
2. Using the hand crimper, crimp the remaining unseamed section of panels (not completed while power seaming).
3. Install triple Bead Butyl Tape Sealer across the width of the panel. Begin tape at the top of the seam and continue down the seam, across the width of the panel, up to the adjacent seam and across the top. Field cut the end of the closure to accept the seam of the panel.
4. Install First closure flashing. Fasten using approved fasteners at 4" o.c.
5. Install triple bead of Butyl tape Sealer across top leg of first outside closure (where it laps over the seam) and continue tape sealer across next panel, as outlined in step 3. Repeat process for next and all subsequent closures.

L. Vented Ridge

1. Install modified J-channel at 3-1/2" down roof, from top of high eave and fasten with approved fastener at 8.0" o.c.
2. Fill hem of modified J-Channel with Butyl sealant.
3. Run a ¼" Diameter Bead of Butyl Sealant up 6" from high end of panel to marry with continuous factory applied sealant inside panel seam. Apply (3) ¼" diameter continuous beads of Butyl sealant vertically in panel rib.
4. Install Panel using UC-3 or UC-6 Panel Clips, noting that first clip is to be 18" maximum from centerline of Hip / Ridge.
5. Install panel firmly into J-Channel
6. Hard fasten with approved fastener through top of hem on the modified J-Channel, into substrate at 4" o.c.
7. Install cobra venting on top of modified J-Channel.
8. Install ridge flashing and finish closing hem.
9. Install high eave flashing as per field conditions.

2.08.1 FLASHING – PENETRATIONS

2.08.1.1 General:

1. Remove all existing flashing (i.e. metal, bituminous materials, mastic, etc.).
2. Flash all penetrations passing through the panel.
3. Relocate any penetration that will be within four (4) inches of a metal roof seam
4. The flashing seal must be made directly to the (Metal Roof) penetration.

2.08.1.2 Pipes, Round Supports, Structural Steel Tubing, etc.:

1. Flash penetrations with Pre-Molded Pipe boots wherever possible.
2. Refer to Firestone's Technical Information Sheet for minimum and maximum pipe diameters that can be successfully flashed with Pre-Molded EPDM Pipe Flashings.
3. Structural Steel Tubing: Use a field-fabricated pipe flashing detail when the corner radius is greater than 1/4" (6.35 mm) and the longest side of the tube does not exceed 4"

(101.6mm). When the tube exceeds 4" (101.6 mm), use a standard curb detail including base tie in and suitable termination.

4. Additional flashing treatments are required for pipe flashings. See the applicable Firestone Detail for flashing requirements.

2.08.1.3 Expansion Joints:

Install where specified by the project designer. Install expansion joints in accordance with Firestone details.

2.08.1.4 Snow Guards

The installation of snow guards must be restricted to **non-penetrating** mechanical attachment to the seams of the roof panels. Adhesive attachment to the pan is detrimental to the panel of a metal roof system and may void the Firestone Metal Roof System warranty.

2.09.1 ROOF MAINTANENCE

As an owner, you have invested time and financial resources into selecting a high performance metal roof system. Maintaining your investment will assure that you get the full benefits a metal roof system can deliver. With this comes the added responsibility of making sure that you and those you employ keep the roof system well maintained. All roofs, metal or shingle, require periodic maintenance. There are certain tasks that any owner can perform in order to keep the roof system in excellent condition. Obviously, an expert should perform any complex repair or component addition. In order to validate the Firestone Red Shield Warranty the owner must perform required periodic maintenance.

2.10.1 ROOF MAINTANENCE GUIDELINES

A. To assure continued coverage under the Firestone Red Shield Warranty provisions, the owner must perform regular inspection of the roof system. The inspections must meet the following criteria:

1. Notify FIRESTONE immediately of any leaks or areas that indicate potential concerns. If repairs are required, as determined under the coverage of the FIRESTONE Red Shield Warranty or necessary by the Building Owner, engage a FIRESTONE Certified installer to perform the repairs.
2. Notify FIRESTONE of any leaks that occur between inspections. Please refer to the "Leak Notification" section of the "Terms and Conditions".



The failure of the Owner to adhere to the maintenance required may void the FIRESTONE Red Shield Warranty in place for the roof system. Roof systems are exposed to sever weather conditions and as a result require inspections and maintenance. FIRESTONE suggests that a comprehensive maintenance program suited to your building be established.

B. As discussed above, regularly scheduled maintenance is required. Additional inspections should be conducted if any of the following occurs:

1. Fire, vandalism, damage from debris or other non-weather related causes.
2. Extreme or sever weather such as high winds, hail, heavy rain, ice or snowstorms. In the event of high winds the roof system should be inspected for debris from trees or other

structures. Inspect for loose flashings and fasteners. Inspect the roof panels for damage from falling debris. After hailstorms inspect the roof panels and components for puncture damage. Heavy rains will cause gutters to over fill. Inspect for ponding water on the roof panels and clear all debris from the gutter system. Inspect the gutter brackets for loose fasteners or supports. After heavy snow or ice storms inspect all penetrations for damage to the pipe flashings, curb housings, skylights, etc.

3. Un-trained individuals that access the roof system. They can and do cause unintentional damage to the roof system. Inspect the roof system for the use of chemicals or solvents that may have spilled on the roof panels. Inspect for scratches in the finish of the panels. Inspect for bent or depressed panels from excessive walking. Inspect for punctures from dropped equipment or tools. Inspect for debris left behind and clean immediately. Inspect that the roof panels were protected from the use of welder, torches or other cutting tools that produce sparks or flames.

SUGGESTIONS

DO:

- Inspect the roof system on a regular basis
- Remove any debris from the roof and gutter system
- Inspect the roof system after heavy snow or ice storms
- Provide instructions for untrained personnel to protect the roof panels
- Obtain written approval from FIRESTONE prior to any roof modification
- Implement a regular roof maintenance program

Don't:

- Neglect to maintain the roof system
- Walk on the major ribs of the roof panels
- Allow storm debris to collect on the roof panels
- Allow any roof damage to go undetected
- Allow metal tools and mechanical equipment to be used for snow or ice removal
- Use any roof coatings not approved in writing by FIRESTONE
- **Allow additional equipment or accessories to be installed without written approval from Firestone Building Products**

2.11.1 PROTECTING YOUR ROOF SYSTEM

In order to maintain the effectiveness of your Firestone Metal roofing System, Firestone Recommends that the following precautions be taken:

A. All foot traffic should be kept to a minimum and only walk on the roof when absolutely required. Never step on the rib portion of the roof panel.

B. Keep foot traffic to a minimum. Keep all roof hatches and access ladders or other access points secured. Only allow properly trained and authorized personnel on the roof system. Have authorized personnel accompany untrained individuals while they are on the roof system. Maintain a "Roof Access Log" to track individuals that have accessed the roof system.

C. The design of the roof system is to drain or shed water. The following items should be avoided and could hinder water drainage:

1. Do not allow equipment or structures to be installed that would impair or trap the flow of water.
2. Do not allow debris to collect in the gutter system or on the roof panels.
3. Do not allow wood blocking to be used as equipment supports. The blocking will trap water and chemically treated wood contains salts and copper sulfates that harm the roof panels.
4. Do not allow water to shed freely from one roof system onto a lower roof.
5. Do not allow condensation from air conditioning units to drain onto the roof panels. Condensate will cause galvanic corrosion and will harm the roof panels. Use PVC pipes for drainpipes.

D. After heavy snow or ice storms the excessive snow should be removed from the roof system. Do not use mechanical equipment to remove snow. Do not use metal tools. Use extreme caution when removing snow or ice around roof penetration flashings. Be cautious of skylights, fiberglass panels, etc.

E. Prior to the installation of additional equipment, pipes, vents, stacks, curbs, etc. Firestone must be notified in writing. Firestone must approve all added conditions or the warranty may be voided.

F. Dissimilar metals and certain chemicals can be harmful to the roof panels. Do not allow metals such as copper, lead or graphite to come in contact with the roof panels. Some examples are plumbing vents, copper lightning rods, copper trim or copper gutter systems.

G. If the roof system panels become scratched, completely clean with mineral spirits and use touch up paint supplied by the roof panel manufacturer.

2.12.1 CLEAN THE METAL ROOF:

Immediate clean up is required by all workers. If the use of mortar or concrete is necessary near or on the roof panels, the roof panels must be protected to avoid chemical reaction from the mortar or concrete. If solvents are spilled on the roof panels, immediately clean by scrubbing and flushing with fresh clean water.

A. CLEANING PRECAUTIONS:

Two precautions should be observed:

1. Do not use wire brushes, abrasives, or similar cleaning tools which will mechanically abrade the coatings surface, and
2. For cleaning agents Firestone recommends that it should be tested in an inconspicuous area before use on a large scale.

2.13.1 TEMPORARY CLOSURE (NOT WARRANTED BY FIRESTONE)

Temporary closures which assure that moisture does not damage any completed section of the new roofing system are the responsibility of the licensed applicator. Completion of flashings, terminations and temporary closures are required to provide a watertight condition.

2.14.1 SHEET METAL WORK

A. For specific installation instructions for Firestone Sheet Metal, refer to the System Design Guide and Technical Information Section of this manual.

B. For sheet metal work not supplied by Firestone, refer to fabrication and installation requirements specified by the project designer, as well as industry standards.

-- END OF SECTION --