



SWEPCO METAL GUARD ROOF SYSTEM

APPLICATION GUIDE

IMPORTANT -- These specifications and application instructions are provided for the use of all persons who are to apply SWEPCO Products. Please read this document and all product container labels thoroughly before proceeding with application. Careful attention to the specifications and application instructions contained in this document and on product container labels is required for registration and activation of the SWEPCO Roof Products Limited Warranty. For additional technical information or questions concerning application of SWEPCO Products or Systems, please call Southwestern Petroleum Corporation TOLL FREE at 1-800-US-SWEPCO (or 817-332-2336 if outside the USA) between 8 AM and 5 PM CST and ask for the Application Services Department. Or you can write Southwestern Petroleum Corporation, P.O. Box 961005, Fort Worth, Texas 76161-0005 USA. You can also Fax us at (817)877-4047 or email us at bpusa@swepecousa.com.

SECTION 1: GENERAL INFORMATION

Congratulations on selecting a SWEPCO Roof System to maintain your roof. It has been designed to provide years of superior roof protection.

To insure that this expectation is realized, it is very important that the system be installed correctly. Proper application is not difficult . . . just important. For not even premium quality products like SWEPCO can perform according to specification if they are installed incorrectly.

These Application Specifications have been prepared as a reference for any person responsible for or involved in the application. The techniques and specifications presented here are the result of experience in manufacturing waterproofing products since 1933, as well as extensive testing, research and field experience.

A few moments spent reviewing this guide will help insure a successful installation and years of superior service. You cared enough to buy the very best, now take the small amount of time required to make sure you get what you paid for.

1.1 Acceptable Surfaces

Before beginning installation of the system, you must confirm that the roof meets all of the following conditions of an acceptable surface. This is important, as it affects warranty coverage to which you may be entitled.

The SWEPCO Metal Guard Roof System is designed only for metal roofs in sound structural condition. It can be applied to most metal roofs which have a slope of at least 1/4 inch per foot (2%). **Roofs must be minimum 26 gauge (0.63 mm) and must be designed to support the weight of workmen and materials without damage or deformation of metal panels.** It should not be applied to metal roofs that have rusted so severely that the metal panels are no longer structurally sound. Waterproofing of damaged roofs with damaged or badly bent or deformed panels should not be attempted until properly fitted replacement panels have been installed.

1.2 Organization and Labor Estimation

Organization is absolutely essential to any roofing job, regardless of how small. A properly organized job is more efficient, costs less and gives better final results.

After determining exactly what work is required on a roof, organize the different phases of the job and assign a time table for completion of each. Completion of a job should not necessarily be given in terms of a calendar date since there are many possible delays due to weather or unforeseen circumstances. Instead, completion of each phase of the job should be expressed in terms of a certain number of man hours.

Once the required work has been determined and a timetable set, assign responsibilities to individual workers. Each person connected with the job should know exactly what he is supposed to do.

Listed below are the approximate times required for different phases of the project. Each is an estimation based on actual application experience. Some jobs will be easier and will require less time. Others will be harder and require more time. Simply multiply the average by the total square/lineal feet or square/lineal meters to be completed:

<u>Task</u>	<u>Man Hours Per 100 Sq. Ft. (M²)</u>
Set Up	0.22 (0.020)
Sweeping	0.06 (0.005)
Priming	0.16 (0.015)
Coating	0.22 (0.020)
Applying Reflective Coating (Optional)	0.16 (0.015)
Clean-Up	0.11 (0.010)

<u>Task</u>	<u>Man Hours Per Lineal Ft. (M)</u>
Sealing Seams, Joints, Flashings with Metal Guard Seam Tape	0.01 (0.030)

1.3 Roofing Tools

There are only a few simple tools required to install this SWEPCO Roof System. Be sure they are available in sufficient quantity for the number of workers involved before beginning work:

Roofing Brush

Utility Knife

Wire Brush

Trowel

Rubber Gloves

Paint Brush

Screwdriver/Socket Wrench

Tape Measure

Consult individual SWEPCO Product container labels for the tools best suited to apply each SWEPCO Roofing Product.

1.4 Application By Hand-VS-Spray

On roof jobs of less than 10,000 square feet or 1,000 m² hand applications are generally more economical than spray applications. Spray application can be an economical way to apply some liquid SWEPCO Roofing Products over very large areas.

Spray application can be uneconomical on small roof jobs because set up and clean up often require more time than actual spraying of the products. For more information regarding spray application of SWEPCO Roofing Products, write the Engineering Department, Southwestern Petroleum Corporation, P.O. Box 961005, Fort Worth, Texas 76161-0005.

1.5 Material Requirements & Waste

Material requirements for this system are provided in the chart below. A waste factor of 5% should be added to these requirements, making sure there is a little too much material rather than not enough to finish the job. Even with these precautions, there can be problems if care is not taken. It is essential to supervise workers closely to make sure coverage rates are followed very carefully.

Any number of methods can be used to control coverage rates. The most basic is to mark off an area that is covered by a pail of roofing material at the proper coverage rate

MATERIAL REQUIREMENTS	
MATERIAL	PER 100 SQ FT (M ²)
FOR SURFACE PROTECTION*	
Aluminum Roof Coating	1.0 gal. (0.41 liter)
OR	OR
White Acrylic Coating	1.25 gal. (0.51 liter)
FOR SURFACE PREPARATION	
Anti-Rust Coating	0.33 gal. (0.13 liter)
FOR SEALING FASTENERS, PANEL OVERLAPS & FLASHING JOINTS	
Guardian General Purpose Primer	0.33 gal. (0.13 liter)
Metal Guard Seam Tape	1.0 lineal ft./lineal ft.(1.0 m/m)

***Note:** On corrugated metal roofs add 15% to coating quantity to compensate for corrugations.

and then evenly spread the contents of the pail over that marked off area. Another method is to mark off larger sections and simply keep a running tally of the material you use and compare this quantity with the quantity needed for proper application.

1.6 Safety

Carefully read and observe all safety precautions, product warnings and instructions presented in these Application Specifications, on all product container labels and in all Material Safety Data Sheets before commencing any roof work. THIS IS NOT ROUTINE ADVICE. It is a necessary prerequisite to insuring the safety of everyone involved in the project.

Before beginning any application work, be sure underside of roof is checked for signs of deterioration which might affect the ability of the roof to support the weight of workmen. Also be sure all skylights and skylight panels are clearly marked and fall protection measures have been taken.

1.7 Weather

Do not apply roofing materials to wet or damp surfaces. Wet or damp surfaces cause moisture to become entrapped in the new roof and seriously threaten the performance of the new materials. Some SWEPCO Products become thicker in cold weather. In cold weather, these products can be brought to proper application consistency by storing in a warm room for 72 hours prior to application or by using Underwriters Laboratory approved warming devices.

1.8 Product Storage & Shelf Life

Most SWEPCO Roof Products have an indefinite shelf life provided all containers are kept tightly sealed. It is best to store materials in a warm and dry environment protected from the elements.

SECTION 2: INSTALLATION

Once it has been verified that the existing roof condition meets the specifications described in Section 1.1, installation of the system can begin.

Installation of the system is accomplished in a few simple steps as described below in words, pictures and drawings:

Insure Panel Tightness/Replace Damaged Panels

Tighten/Replace Fasteners

Clean the Roof

Prime Rusted Areas

Seal Panel Overlaps & Flashing Joints

Seal Fasteners

Coat The Roof

Post Installation Inspection & Clean Up

Perform the installation steps one-by-one in the sequence presented.

2.1 Insure Panel Tightness/Replace Damaged Panels

Replace all badly bent or deteriorated metal panels and any panels which prevent a tight fit at the panel overlaps. Gaps between overlapping panels or panels and flashing assemblies should not exceed 1/16-inch (1.6 mm). Install additional fasteners with rubber washers where necessary to insure a tight fit.



FIGURE 2.1: Insure panel tightness and replace any damaged panels.

2.2 Tighten/Replace Fasteners

Check all fasteners for tightness. If stripped, replace with next size larger fastener. If rubber washer is deteriorated, replace washer and fastener.



FIGURE 2.2: Tighten all fasteners. Replace missing, stripped or damaged fasteners.

2.3 Clean the Roof

All dust, dirt, pollutants, debris and/or surface contaminants which might inhibit proper bonding of repair materials **MUST** be removed. Power washing is the preferred method. Contact your local equipment rental company for information on this type of equipment.

Excessively dirty roofs should be washed with SWEPCO Zonex-K Industrial Cleaner. Rinse the roof thoroughly to remove all detergent residue and allow the roof to dry completely before proceeding with application. Remove flaking coatings, corrosion, salt crystals or loose rust by wire brushing, chipping, scraping or sandblasting. Wash all new galvanized metal with 5% muriatic acid solution to remove any "factory" oils.



FIGURE 2.3: Clean the roof surface thoroughly.

2.4 Prime Rusted Areas

Spot prime rusted areas with SWEPCO Anti-Rust Coating at a minimum coverage rate of 0.33 gal. per 100 sq. ft. (0.13 liter/m²). SWEPCO Anti-Rust Coating can be applied by brush, paint roller or low pressure spray equipment. Allow Anti-Rust Coating to dry a minimum of 24 hours before proceeding.



FIGURE 2.4: Prime rusted areas.

2.5 Seal Panel Overlaps & Flashing Joints

Seams at panel overlaps and flashing joints are a common source of leakage on metal roofs. **All seams and joints which do not incorporate some form of raised, interlocking design must be sealed. Common corrugated and ribbed panel roof seams and joints MUST BE SEALED because they provide only simple overlaps and do not incorporate an interlocking design. If not sealed, these types of seams and joints permit wind driven rain to enter the building and can also cause leakage by "wicking" action.** All seams must be securely fastened before sealing. Gaps should not exceed 1/16-inch (160 mm). See Section 2.1. Seams running perpendicular to roof slope should be sealed before those running parallel to slope. Regardless of the type of overlap or joint being sealed, the technique is as follows:

—Lightly prime a 4-inch (10.16 cm) wide strip centered along the overlap or joint with Guardian General Purpose Primer. Allow primer to dry until clear before proceeding with application of Metal Guard Seam Tape. The primer will retain some degree of tack even when dry. (If a seam has already been primed with Anti-Rust Coating, it is not necessary to prime again with Guardian General Purpose Primer. However, Anti-Rust Coating should be allowed to dry completely before application of Metal Guard Seam Tape.)

— Install Metal Guard Seam Tape centered over the joint. Install with fabric side up by peeling off the paper backing to reveal the self adhesive underside. Place and rub firmly to remove air pockets and fit tightly to the roof contour. On flat panel profiles, a hard rubber roller is excellent for this purpose. On curved or irregular profiles, hand rubbing is the best technique. End laps should be minimum 2-inches (5.08 cm) and should be shingled downhill.

— Finish by immediately priming the fabric surface of the Metal Guard Seam Tape with Guardian General Purpose Primer. Allow primer to dry until clear before proceeding with coating. The primer will retain some degree of tack even when dry.

Note: One roll of Metal Guard Seam Tape will seal 66.6 feet (20.30 meters) of seams. Each case contains nine rolls. One gallon (3.79 liters) of Guardian General Purpose Primer is enough primer for approximately 300 lineal feet (91 meters) of seam sealing (including both coats of primer).



FIGURE 2.5A: Lightly prime seams and joints with Guardian General Purpose Primer. Allow to dry until clear.



FIGURE 2.5B: Seal primed seams and joints with Metal Guard Seam Tape. Remove backing paper and center over primed seam or joint.



FIGURE 2.5C: Rub firmly to remove air pockets and insure complete contact with surface.

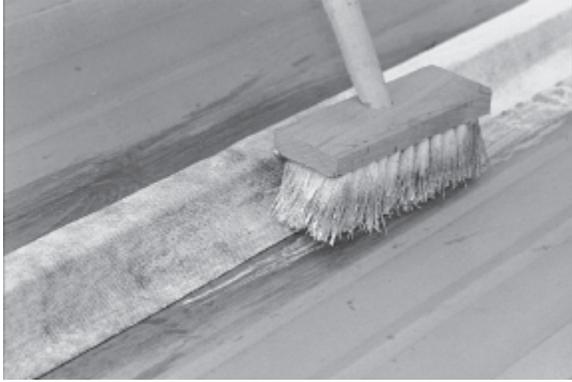


FIGURE 2.5D: After installation of the Metal Guard Seam Tape, lightly prime fabric surface of the tape with Guardian General Purpose Primer and allow to dry till clear before coating.

2.6 Seal Fasteners

Fasteners are the source of many metal roof leaks, so all fasteners not covered in conjunction with seam sealing should be sealed as follows:

— Lightly prime a 2-inch (5.08 cm) square centered on the fastener with Guardian General Purpose Primer. Allow to dry until clear before proceeding with application of Metal Guard Seam Tape. The primer will retain some degree of tack even when dry. (If a fastener has already been primed with Anti-Rust Coating, it is not necessary to prime again with Guardian General Purpose Primer. However, Anti-Rust Coating should be allowed to dry completely before application of Metal Guard Seam Tape.)

— Install a 2-inch (5.08 cm) square of Metal Guard Seam Tape centered over the fastener. A fast placement technique is to work with a continuous roll of seam tape which has been precut into two 2-inch (5.08 cm) wide rolls. Peel back the paper backing, press the end of the roll over the fastener and cut off a 2-inch (5.08 cm) piece with a utility knife. This method avoids the necessity of peeling the paper backing off of numerous separate small pieces of Seam Tape and greatly speeds application. After each piece of tape is initially placed, rub firmly to remove air pockets and fit tightly to the roof and fastener contour.

— Finish by immediately priming the fabric surface of the installed Metal Guard Seam Tape with Guardian General Purpose Primer. Allow to dry until clear before proceeding with coating. The primer will retain some degree of tack even when dry.

Note: One roll of Metal Guard Seam Tape which has been precut into two 2-inch wide (5.08 cm) rolls will seal approximately 800 fasteners. Each case contains nine rolls. One-gallon (3.79 liters) of Guardian General Purpose Primer is enough primer for approximately 3,600 fasteners (including both coats of primer).



FIGURE 2.6: Seal fasteners with Metal Guard Seam Tape and Guardian General Purpose Primer. Lightly prime fastener area before application of tape and then prime surface of tape after application.

2.7 Coat The Roof

Coat the entire surface with SWEPCO Aluminum Roof Coating.

SWEPCO Aluminum Roof Coating is applied straight from its container with soft bristled roofing brushes, short nap rollers or heavy duty airless spray equipment. Aluminum Roof Coating requires NO heating or thinning. The coating should be thoroughly stirred BEFORE and DURING application. This is best accomplished by mechanical mixing with a power drill and mixing attachment. If pails of Aluminum Roof Coating are stored for some time before application, periodically invert the pails. This will help eliminate "settling" of the aluminum pigment and will make mixing during application much easier. THE COATING MUST ALWAYS BE MIXED THOROUGHLY AND EVENLY SO THAT THE FINAL RESULT IS A SMOOTH, HOMOGENEOUS MATERIAL WHEN IT IS APPLIED.

Do not apply SWEPCO Aluminum Roof Coating over Anti-Rust Coating until it has been allowed to dry at least 24 hours. Otherwise, discoloration of the Aluminum Roof Coating can result.

SWEPCO Aluminum Roof Coating should be applied on a dry, sunny day. It should not be applied to wet or damp surfaces. Application in rainy, foggy, damp or heavily overcast weather with relative humidities of 80% or higher should be avoided. Application in temperatures of 60 degrees F. or lower should be avoided if possible. Application should be avoided if rain or any of the above mentioned conditions are expected within 24 hours of application. All of these conditions tend to dull the brilliance of Aluminum Roof Coating because they inhibit the rapid and complete leaching of the aluminum pigment.

For a more brilliant finish when applying by brush or roller, the coating should be applied with all strokes in one direction and with as few strokes of the brush or roller as possible. Avoid thick build-ups or puddles of the coating as this tends to retard brilliance and leads to shrinkage cracking.

Beginning at the highest elevated point of the roof, pour a bead of Aluminum Roof Coating onto the metal roof perpendicular to the corrugations or ribs and begin brushing downward in a direction that parallels the corrugations or ribs. Continue coating the roof in this manner at the rate of 1.0 gal. per 100 sq. ft. (0.41 liter/m²) of surface area until the entire surface is covered.

The rate at which SWEPCO Aluminum Roof Coating cures varies greatly upon temperature and humidity. However, it will usually support light foot traffic after 24 hours.

System Option: *SWEPCO White Acrylic Coating can be substituted for Aluminum Roof Coating if a white finish is desired. White Acrylic Coating can be applied by brush, roller or airless spray equipment. Apply in two coats. The first or priming coat should be applied at 0.5 gal. per 100 sq. ft. (0.20 liter/m²). Allow the surface to dry for 24 hours and then apply the second or finishing coat at 0.75 gal. per 100 sq. ft. (0.31 liter/m²). Install the second coat perpendicular to the first. Consult container label for other important application instructions and precautions.*

2.8 Post Installation Inspection & Clean Up

After installation of the system is completed and the coating has cured enough for light foot traffic, it is important to inspect around all flashings and panel overlaps for uncoated or unprotected areas. Reseal or recoat as needed.

Remove all debris and left over materials from the roof.

Aluminum Roof Coating can be removed from tools and other areas with kerosene or mineral spirits. Guardian General Purpose Primer and White Acrylic Coating can be removed with soap and water before it has cured. Cleaning of tools should not be performed on the roof.



FIGURE 2.7: Coat the sealed roof with SWEPCO Aluminum Roof Coating or White Acrylic Coating.

SECTION 3: CARING FOR YOUR NEW SWEPCO ROOF SYSTEM

Your roof is a valuable asset and as such should be properly maintained. All roofs require periodic maintenance to achieve maximum roof life. It is the responsibility of the owner to see that proper roof management and maintenance are provided for the new SWEPCO Roof System. This can be accomplished by implementing a basic roof management program. An effective roof management program can increase the useful life of the system beyond its original warranty and design life and mean a savings in costs. Your roof management plan should include the following components:

1. Inspect the roof at least twice yearly, in the spring and fall, and inspect all roofs after any severe storm. Make more frequent inspections on buildings that house manufacturing facilities that evacuate exhaust debris onto the roof. All inspections, plus work orders for repairs, should be recorded. Each inspection should be recorded on a Roof Inspection Form designed for that specific use. File all Roof Inspection Forms in a master file with all other building history records.

During the inspection, clean roof drains, gutters and downspouts of debris. Remove leaves, twigs, cans, balls, etc. which could inhibit proper drainage. Bag and remove all debris from the roof since debris on the roof surface will be quickly swept into drains by heavy rains, causing drainage problems.

2. Set up a maintenance schedule. Record maintenance procedures as they occur on a Roof History Form.

3. Keep a Roof Access Log. Allow no one on the roof without prior approval. Make sure anyone visiting or working on the roof is informed on what they can and cannot do. It is recommended the following rules be enforced:

- Log all access times and parties working on or visiting the roof in case damage should occur. This includes all general maintenance personnel, air conditioning repairmen, electricians, chimney sweeps, etc. Always inspect the roof before and after anyone gets on the roof.
- Do not allow tools to be thrown on or off the roof.
- When on the roof, wear shoes that will not cause damage to the roof.

4. Do not allow foot traffic on the roof in very cold or in very hot temperatures as damage can result. Walkways, roof pads or "protection courses" should be used in high traffic areas.

5. Do not allow installation of mechanical equipment without notifying Southwestern Petroleum and consulting with them about the details and methods for these installations.

6. If a leak is detected, notify Southwestern Petroleum immediately. If possible, note conditions resulting in leakage. Heavy or light rain, wind direction, temperature and the time of year that the leak occurs are all important clues to tracing roof leaks. Note whether the leak stops shortly after each rain or continues to drip until the roof is dry.

7. For roofs without a reflective coating, consider application of a SWEPCO Reflective Coating to extend your roof's life. SWEPCO Reflective Coatings protect asphalt roofs by

blocking out a large percentage of the sun's deteriorating ultra-violet radiation and can significantly reduce both maintenance and energy costs.

8. Except for emergencies, do not consider using maintenance coatings, resaturants, "sprays" or "miracle" products without consulting Southwestern Petroleum. In emergency situations, temporary repairs may be made. It is imperative these repairs comply with the specifications for your particular system. Immediately contact Southwestern Petroleum for guidance in such situations.

Copies of a suggested Roof Access Log, Roof History Form and Roof Inspection Form are available upon request from Southwestern Petroleum Corporation.

SECTION 4: STATEMENT OF RESPONSIBILITY

Southwestern Petroleum Corporation is a manufacturer of roofing materials. Southwestern Petroleum Corporation does not, either itself or through any of its representatives, practice architecture or engineering. Building and roof design and structural integrity are the direct responsibility of the project architect, engineer and owner. Southwestern Petroleum Corporation offers no opinion on, and expressly disclaims any responsibility for the structural soundness of any roof deck or roof surface on which its products may be applied. Opinions of qualified architects and/or structural engineers should be obtained by the property owner as to the structural soundness of the roof and its ability to properly support the SWEPCO Roof System contemplated. Southwestern Petroleum Corporation accepts no liability for any failure of the roof deck or any resultant damage to the waterproofing system, the structure and/or the contents of the building.

This brochure and the labels affixed to SWEPCO Product containers are intended to provide what we believe to be the best currently available guidance on the application of our products. The results obtained can be affected by numerous variables beyond our control, such as workmanship, weather, surface preparation, equipment used and quality of other materials involved. Changes from these specifications or uses of the products for different purposes should not be attempted without written advice from our Engineering Department. The statements contained in this brochure, labels, product bulletins or sales brochures or statements made by any of our representatives or salespeople concerning our materials are given for information only. They are believed to be true and accurate, but are not intended to and do not change or modify the terms and conditions of the SWEPCO Roof Products Limited Warranty, if one has been issued. On site inspections or visits or plan reviews should not be construed as approvals of design or installation techniques.

Failure to follow these specifications and additional instructions contained in SWEPCO Product container labels voids any guarantee to which these products and/or this system may be subject. Southwestern Petroleum Corporation reserves the right to alter, change or review these specifications at its discretion and without prior notice. The specifications and instructions provided herein supersede and replace all previous specifications and instructions.



PHONE: (817)332-2336 • FAX: (817)877-4047 • WEB: www.swepcousa.com
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