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# A Guide to Estimating High Solids Silicone for Metal Roofs

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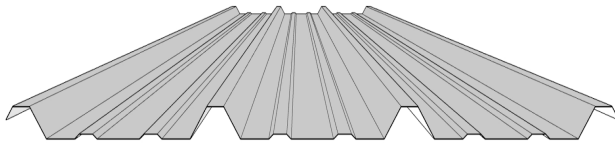
GUIDE

## A. ACTUAL SQUARE FOOTAGE OF METAL SURFACE AREA:

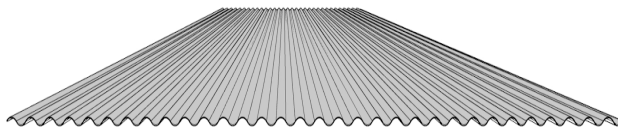
- a. Match the jobsite roof panel to the sample cross sections below to determine the multiplication factor needed for the actual surface area. To calculate the proper amount of coating to achieve the required film thickness, the panel configuration must always be taken into consideration.

### **MULTIPLICATION FACTOR**

#### **1.2 Multiplication Factor**

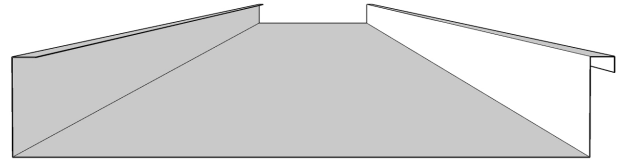


***R – Panel – 1.2 Multiplication Factor***

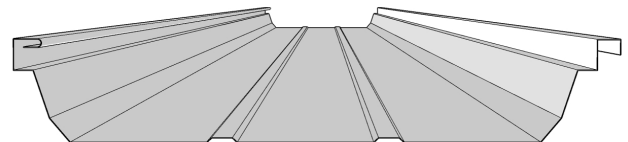


***Corrugated Panel – 1.2 Multiplication Factor***

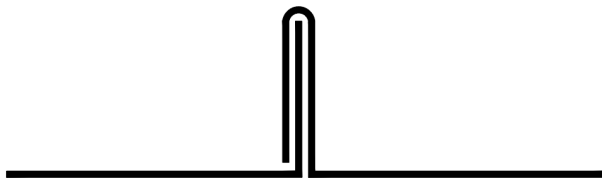
#### **1.3 Multiplication Factor**



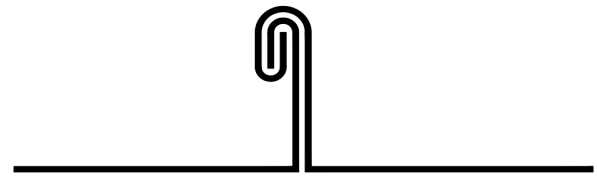
***Standing Seam Panel – 1.3 Multiplication Factor***



***Trapezoidal Seam Panel – 1.3 Multiplication Factor***



***Overlap Seam***



***Locked Seam (Single & Double)***

## B. FASTENERS:

- a. All fasteners must be encapsulated with **GAF Silicone Mastic** or sealed utilizing **Repair Caps**.
  - i. Estimate a 3.5 gallon (13.3 liter) pail to flash approximately 1,193 fasteners.
  - ii. Estimate 1 roll of **Repair Caps** per 1,476 fasteners. Common fastening patterns typically see around 60–80 fasteners per square.

## C. HORIZONTAL (END-LAP) SEAMS:

- a. All horizontal or end-lap seams must be reinforced with either **GAF Silicone Mastic** or **Repair Tape** (6" or 15.24 cm). Horizontal seams should not have a substantial gap when pressure is applied at the lower panel. Add stitch screws if the gap is more than  $\frac{1}{8}$ ". Determine lineal feet of horizontal seams by multiplying the building length by the multiplication factor of the panel, then multiplying the total by the number of horizontal seams. Application needs to be centered at the seam and tapered at each end to a smooth finish.
  - i. Estimate 175 lineal feet (53.3 m) per 3.5 gallon (13.3 liter) pail, of **GAF Silicone Mastic**, applied at 4 gal/sq and 6" (15.24 cm) width.

- ii. Note: In seams that are not tight or have a gap larger than  $\frac{1}{8}$ ", detail must be installed using a three course method utilizing **GAF Silicone Mastic** and **GAF Premium Fabric**. Flashing grade should extend 2" past the fabric edge.
- b. Estimate 1 roll of Repair Tape per 50 lineal feet (15.2 m) of seam. Repair tape needs to be coated over and should not be left exposed to the elements to where it can pick up moisture.

#### D. VERTICAL (SIDE-LAP) SEAMS:

- a. Overlap and vertical seams must be treated with flashing grade only. Other vertical seams may forgo treatment **IF** the seal/tape is intact in the seam or if the seam is double locked. Determine lineal feet of vertical seams by dividing the building length by the panel width, then multiplying by the vertical length from ridge cap to roof edge for each side of the roof to be coated. Estimate 525 lineal feet (160 m) per 3.5 gallon (13.3 liter) pail, of **GAF Silicone Mastic** applied at a total rate of 4 gal/sq (16.3 L/10 m<sup>2</sup>) at a 2" width (5.08 cm). Vertical seams can also be sealed using 2" (5 cm) **Repair Tape**.

#### E. PENETRATIONS:

- a. Determine the area to be detailed by estimating the surface area where flashing grade will be installed. The following is an estimation of a 4" diameter penetration.
  - i. Vertical surface area is  $2 \times \pi \times r \times h = 2 \times \pi \times 2\text{in} \times 6\text{in} = 75 \text{ sq. in.}$  Horizontal surface area is  $\pi \times w = (6\text{in} + 4\text{in} + 6\text{in}) \times (6\text{in} + 4\text{in} + 6\text{in}) = 256 \text{ in}^2$  Total area is  $331 \text{ in}^2$  or  $2.29 \text{ ft}^2$  Application rate of **GAF Silicone Mastic** is 4 gal/sq, therefore a 3.5 gallon pail will cover  $87 \text{ ft}^2$ . Number of 4" pipe penetration details per 3.5 gallon pail is  $87 / 2.29 = 38$ .
  - ii. Note: In penetrations that are not tight, detail must be installed using a three course method utilizing **GAF Silicone Mastic** and **GAF Premium Fabric**. Flashing grade should extend 2" past the fabric edge.

#### F. OTHER DETAILS:

- a. Take into consideration other details on each specific roof, which may require additional reinforcement or other attention.
  - i. Gaps at the ridge cap or at the overlap of dissimilar metal panels should be filled utilizing a portable urethane spray foam or closed-cell polyurethane backer rod. Estimate the approximate cubic feet of space that requires treatment and order the appropriate portable foam kit or closed-cell polyurethane backer rod. Order the backer rod slightly larger than the gap to be filled so that it compresses firmly into place.
  - ii. Where the metal roof panels join a dissimilar surface, the interface must be sealed with **GAF Silicone Mastic** and **Premium Fabric** (12" or 30.5 cm) at an estimated 131 lineal feet (39.9 m) per 3.5 gallon (13.3 liter) pail, of **GAF Silicone Mastic**, applied at 2.5 gal/sq and 12" (30.5 cm) width. Estimate 1 roll of 12" **Premium Fabric** per 300 lineal feet (91.4 m) of joint.

#### G. APPLICATION

- a. Refer to relevant Quick Spec published in GAF Liquid-Applied Roofing Manual for coating application rates.
- b. Multiply application rate (gallons per square) by the area of the roof (squares) to be coated to determine the amount of gallons of product needed.
- c. Multiply total gallons by the multiplication factor listed in section A of this Estimating Guide.
- d. Divide by gallons/unit to determine the total number of units that need to be ordered for the job.
- e. **Coating Estimation Example:** For a 40,000 ft<sup>2</sup> trapezoidal standing seam roof to receive a 15-year **GAF High Solids Silicone** system use the following calculations:
  - i. Total number of squares:  $40,000/100 = 400$  squares
  - ii. Total coating application (from Quick Spec): 2.00 gallons/square
  - iii. Total required gallons of **GAF High Solids Silicone**:  $400 \text{ squares} \times 2.00 \text{ gallons/square} = 800 \text{ gallons}$
  - iv. Adjustments for metal surface area (deck profile) from section A of this Estimating Guide:

- 1.3 x 800 gallons = 1,040 gallons
- v. Unit calculation: If using 5 gallon pails, total number of pails required: 1,040 gallons/5 gallons per pail = 208 pails of **GAF High Solids Silicone**.

#### **H. OTHER COST ESTIMATE CONSIDERATIONS:**

- a. Supplies
  - i. Replacement Panels (Metal / Skylight)
  - ii. Fasteners
  - iii. Flashing / Counter-Flashing
- b. Labor
  - i. Repair Work
  - ii. Power Washing / Cleaning
  - iii. Seam Treatment / Detail Work
  - iv. Primer Application
  - v. Coating Application
- c. Miscellaneous Costs
  - i. Equipment Rental
  - ii. Clean Up / Disposal Costs
  - iii. Travel / Lodging / Subsistence Expenses
  - iv. Warranty Fees (If Applicable)
  - v. Waste Factor

NOTE: This estimating guide is for informational purposes only. You should always confirm job site conditions, roof measurements, applicable code requirements and approximate quantities before ordering, and include a waste factor. GAF is not responsible for any shortage or surplus of ordered products.