

## PICED ROOF & ASPHALT SHINGLES

### GENERAL PARAMETERS

The roof under consideration for replacement must be measured for square footage requirements to solicit bids for material, metal edging, and ridge or turbine vent replacement.

The roof must be inspected for layers of shingles and condition of deck. If deck needs replacement because of deterioration, a tear off proposal should be used. If there are more than two layers of shingles, most local codes require tear off existing roof materials.

Overlay of the roof is possible on one layer of shingles and the total cost for replacement will be moderately less, but quality assurance of deck and roof condition must be evaluated before installation. Specifications elaborated pertain to tear-offs which is most of all replacement requirements. Bids should include all labor, materials, equipment, debris/trash removal, transportation, services, permits and taxes for completion of work outlined and shall be in accordance with local codes and ordinances.

All bids shall require labor and equipment and disposal of existing shingle roofing if required on tear-offs. The bids should also include replacement of fascia boards that have deteriorated prior to installing the new roof. All bids shall include workmen's compensation insurance coverage.

Per the enclosed specifications, the Contractor is to remove all existing roofs down to the deck, replace any damaged decking with material to match the existing according to the attached specifications.

### PRODUCT SPECIFICATIONS

The Contractor is to provide a cost per sheet for replacing decking in addition to his fixed price for the balance of the work. A representative of the owner must approve and keep a record of decking being replaced. The specifications are as follows:

- Class "A" heavyweight, three-tab fiberglass, mineral surface based asphalt shingles complying with ASTM D-3018 bearing all U.L. Class "A" external fire exposure label and not weighing less than 235 pounds per square. Colors should match existing roof unless specified by owner.
- Square butt three-tab style for new work, of uniform thickness, 12-1/4 inches by 36 inches.
- Self-sealing type, with factory applied adhesive.
- Meet Underwriters' Laboratories, Inc. requirements for Class "C" wind resistant shingles.
- Colors for new work to be selected from the manufacturer's collection.
- Acceptable manufacturers for shingles are as follows:
  - Certain-Teed Products Corp., Valley Forge, PA
  - Owens-Corning Fiberglass, Toledo, OH
  - Manville, Denver, Co
  - Jim Walter Corp./Celotex Corp., Tampa, FL
  - Tamko, Tuscaloosa, AL
  - GAF/Elk, Ennis, TX
  - Or Equal

## **ROOFING SPECIFICATIONS**

- Nails for applying shingles and asphalt saturated felt:
  - For shingles: Hot-dipped galvanized steel or aluminum, with flat heads 3/8 inch in diameter.
  - Steel nails shall have annular threads.
  - Aluminum nails shall have screw threads
- General
  - Protect all finish surfaces on the building against damage due to work of this section.
  - Proceed with roofing work only after related repair or replacement work (deck, fascia, nailers, flashings, etc.) has been accomplished.
  - Proceed with roofing and associated work only when existing and forecasted weather conditions will permit the work to be accomplished without interruption until completion.
- Wood Deck Repairs – Plywood Roof Sheathing:
  - Should fire treated (FRT) plywood exist, it should be immediately be brought to the attention of the Owner.
  - APA C-D Rated Sheathing, Exposure 1, Structural 1, 32/16, 15/32 inch thick, 4/5 ply, PS 1-93.
  - Remove deteriorated deck panels. Examine joists for rot. If unsound, contact Owner immediately and replace as instructed herein and record replacements as required herein.
  - Attach new decking six (6) inches o.c. at edges twelve (12) inches o.c. at intermediate supports. Fasten panels 15/32 to 1/2 inch thickness with 8d nails; panels 11/32 to 3/8 inch thickness with 8d nails. Provide 1/8 inch gap between panels at panel edges.
- Warranty for New Roofs
  - Furnish written Manufacturer's warranty for self-sealing shingles, to cover a period of twenty (20) years from date of completion of roof installation.
  - Contractor must furnish a written warranty on labor only for a period of five (5) years.

### **INSTALLATION PARAMETERS**

#### **PREPARATION OF SUBSTRATE**

- Installer of shingles must examine substrate and conditions under which shingling work is to be performed and must notify Owner of deficiencies. Correct deficiencies by nailing down loose members, and by removing and replacing rotted or otherwise defective framing and deck material. Do not proceed with shingling work until unsatisfactory conditions have been corrected in a manner acceptable to manufacturer's specifications.
- Clean substrate of any projections and substances detrimental to shingling work. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with roofing nails.

## **ROOFING SPECIFICATIONS**

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- Coordinate installation of shingles with flashing and turbine and/or ventilators to ensure proper sequencing. Do not install shingle roofing until all penetrations through roofing have been fastened against movement.
- Protect all building surfaces and materials against damage. Begin roofing only when existing and forecast weather conditions will permit the work to be completed without interruption. Immediately install temporary covering if bad weather occurs, to prevent damage to building.

### **BASE FELT**

- Install one layer of 1516, ASTM D2178 Type I base felt horizontally over entire roof area. Lay with minimum 2" head laps and 6" end laps. "Sprinkle" nails to hold in place. Two layers are required if slope is less than 4/12 pitch.

### **STARTER COURSE ON SHINGLES**

- Before applying the first course of shingles, a row of either asphalt shingles or a 9-inch (or wider) starter strip of mineral-surfaced asphalt roll roofing material should be applied along the eaves. The lower edge or edges of the material should be even with the edge of the eaves.

### **GENERAL**

- Securely fasten new shingles and flashing in place with concealed nailing, as recommended by the manufacturer of the shingles.
- Finished roof shall be free of scratches, splits, dents, cracks, broken shingles, and other defects, and shall be weather tight.

### **SHINGLES**

- Install starter strip at eaves, consisting of one layer of strip shingles laid with cutouts reversed.
- Project strip  $\frac{3}{4}$  inch beyond eave line to form a drip.
- Fasten with one row of nails 1-1/2 inches above lower edge at 3 inches center.
- Lay first course of shingles on starter strip, flush with drip edge. Align strip, center cutouts on starter strip tabs.
- Center tabs of succeeding courses on cutouts in previous course.
- Nail each shingle  $\frac{1}{2}$  inch to  $\frac{5}{8}$  inch above each cutout and  $\frac{1}{2}$  inch from edge of shingle, with nails as recommended by manufacturer of shingles.
- Provide 5 inch exposure and 2 inch headlamp.
- In addition to nailing, press each tab firmly in place into factory-applied sealant over its entire area.
- The material should be fastened with roofing nails along a line that is parallel to and 3 or 4 inches above the eaves edge. The nails should be placed in such a way that the nail heads will not be exposed either at cutouts or at spaces between shingle tabs in the first course.
- To apply the starter course of self-sealing shingles, the exposed (tab) portion of the shingle an 3 inches off the end of the shingle should be removed.

## **ROOFING SPECIFICATIONS**

### **NAILING**

- 3 Tab – up to 21 Inch Rise per Foot.

Each shingle requires four nails. Nails shall be placed on a line 5/8 inches above top cutouts and located one inch from each end and centered over each cutout.

- 3 Tab – Over 21 Inch Rise Per Foot

Each shingle requires six nails. Nails shall be placed on a line 5/8 inches above the top of the cutouts (one on each side) and one located one inch from each end. One spot of roofing cement (approximately the size of a quarter) shall be placed under each tap as they are being applied

- This job shall be applied by the 5" method

### **FIRST AND SUCCEEDING COURSES OF SHINGLES**

- The first course of shingles should be started with full shingles while succeeding courses should be started with cut shingles. The second course should be started with a shingle from which 6 inches have been cut. The third course should be started with a shingle from which the entire first tab has been cut. The fourth course should be started with a one-half shingle. This pattern allows the cutouts to be centered on the tabs of the shingles in the course following.
- Shingle covering shall provide double thickness at all points. Lay shingles to true horizontal and vertical lines with 2" head lap and 5" exposure. Number, spacing, and pattern of nails shall be as recommended by shingle manufacturer, but not less than four nails per strip. Provide job-fabricated hip and ridge shingles made from actual shingles used. Ridge shingles to have equal exposures not less than 5". Comply with installation details and recommendations of shingle manufacturer and NRCA Steep Roofing Manual.

### **CLOSED WOVEN VALLEYS**

- Provide closed woven valleys. First, over the full length of valley, lay a single layer lining of 55-pound, smooth surface, roll roofing 36" inches wide. Center lining in the valley and lay over underlayment. Lay valley shingles over lining by applying regular shingles on both roofs simultaneously and weave each course in turn over the valley.

### **HIPS AND RIDGES**

- Form hips and ridges with 12-1/4 inch by 12 inch shingles cut from strip shingles. Bend shingles lengthwise down the center with equal exposure on each side of hip or ridge. Lap shingles to provide not more than 5 inch exposure from butt, and nail in unexposed area 5 1/2 inches from the butt and one inch vertically from the edge.

### **CORNICE REMOVAL & FASCIA REPLACEMENT**

- Contractor is to remove existing rotten damaged cornice, fascia and install new treated wood to match existing. Wood should be primed on all sides prior to re-installation.

### **REPAIR OF DEFICIENCIES**

- Installations of details noted as deficient during final inspection must be repaired and corrected by applicator, and make ready for re-inspection, within five working days.

## **ROOFING SPECIFICATIONS**

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### **CLEAN UP**

- Immediately upon job completion, roof membrane and flashing surfaces shall be cleaned of debris. Keep gutters and downspouts clear of debris when roof work is being completed.

### **GENERAL CONDITIONS & TERMS**

- By executing the Contract, the Contractor represents that he has visited the site, familiarized himself with local conditions under which the work is to be performed, and correlated his observations with the requirements of the Contract Documents.
- Contractor shall be responsible for furnish and posting all licenses, permits, and inspections required by State or local laws. Owner shall be furnished with copy of same.
- Contractor shall furnish all material and labor necessary to accomplish the job in accordance with Specifications.
- Contractor shall be responsible for proper storage and security of all material and equipment to be used on the job.
- Contractor shall be responsible for providing proper removal of trash and debris from the property, as a result of the job – **DAILY**.
- Contractor is totally responsible for complete safety on the job and job site at all times. All precautions and measures shall be taken to insure the health, safety and well being of individual and property. All tools, material and equipment shall be secured at the end of each work day.

### **SHEET METAL**

In conjunction with the new shingle roofing and built-up roofing, the Contractor shall furnish and install new Galvanized Iron Edging and all outlets, etc. All other necessary roofing related sheet metal items, to include but not limited to, metal shingles edging, air vents (if existing and/or required), edgings (at building ends and elevation transitions), counter flashings, and new lead jacks at plumbing vents.

Prior to start of the work, the Contractor shall furnish to the Owner's Representatives shop drawing of each major sheet metal item indicating sized, dimensions, joint treatments, corners, miters, fastener types, frequency, and installation procedures, etc.

### **THE MATERIALS TO BE USED ARE AS FOLLOWS:**

- Galvanized Steel, ASTM-A-526, 24 Gauge
- Solder, ASTM-B-32, Alloy Grade 50A, 50/50 (50% block tin, 50% pig lead)
- Flux, raw muriatic acid, wash off thoroughly immediately after soldering.
- Sealant, FS TT-S-00230C, ASTM C-920
- Plastic Cement, ASTM C-928
- Coal Tar Cement, ASTM 4022
- Primer, ASTM-D-41
- Lead, ASTM-B-29, 2 1/2 Pounds per Square Foot

## **ROOFING SPECIFICATIONS**

THE INSTALLATION PROCEDURE SHALL BE AS FOLLOWS:

- Contractor shall verify conditions as satisfactory to receive work.
- Contractor shall install all sheet metal work in a water tight fashion without waves, warps, buckles, stresses at fastening points or distortions.
- Contractor shall install sheet metal in 8' or 10' lengths or less, with minimum 4" lapped joints. Each leg of inside and exterior corners shall be 18" minimum.
- All sheet metal edges shall have hems.
- Work shall be in accordance with Architectural Sheet Metal and Air Conditioning Contractors, National Association, Inc., (SMACNA).

### **INSPECTION PARAMETERS**

PRIOR INSPECTION:

- Each building should be inspected prior to roof installation for fascia replacement and rip edge requirements. Roof tear-off should have sheathing replacement authorized before roof material installation.

INTERIM AND FINAL INSPECTION:

- Proceed with shingle work only after substrate construction and penetrating work has been completed.
- The building should be inspected before completion to assure proper felt installation, nailing of shingles, roof vent ridge vent replacement, etc.
- Proceed with shingle work only when weather conditions are in compliance with manufacturer's recommendations and when substrate is completely dry.
- Specifications require contractor to haul away all debris from installation including shingle tear-off **DAILY**.
- As work is in progress note labeling on materials as to specifications required in the contract.
- Evaluate installation in comparison to requirement of the manufacturer and instructions within these specifications.
- Inspect all final work noting replacement of fascia board, metal edging, roofing materials, turbine and/or ridge vent flashing, if required.

### **PRICE RANGES**

**Volume and Competitive Bidding will influence unit costs. Below are estimates only**

Fascia Boards	Material & Labor	\$3 to \$4 per Linear Foot
Drip Edge	Material & Labor	\$3 to \$4 per Linear Foot
Aluminum Ridge Vents	Material & Labor	\$6 to \$7 per Linear Foot
Decking/Sheathing	Material & Labor	\$40 to \$45 per Sheet
Shingles-20 YR	Material & Labor	\$150 to \$160 Roofing Square (100 SF)
Shingles-20YR	Tear-Off Labor	\$35 to \$40 Roofing Square (100SF)