Vintners Homeowners Association
2012 Roofing Project
San Ramon, California 94568

Prepared for:
Vintners Homeowners Association
c/o Willis Management Group
7033 Village Parkway, Suite 212
Dublin, CA 94568

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BID FORM

Vintners Homeowners Association

2012 Roofing Project Building

San Ramon, California 94568

Company Name: _____

Address: _____

_____

_____

_____

Phone #: _____ **Fax #:** _____

Addendum's Noted: #_____ **Date:** _____

#_____ **Date:** _____

We the above present our bid for the work as per the plans and specifications Titled –Vintners Homeowners Association – 2012 Roofing Project Building – San Ramon, California; Bid Manual dated 12/2011. (See Section 01010 - Summary of Work for Package Description.) Additionally we state herein that we have visited the site and familiarized ourselves with site conditions and the work.

1. Base Roofing Repair Pricing

BASE BID 1: - Complete Roof Replacement $ _____

2. Unit Pricing

A. Replacement of single fireplace top & cap (Each) $_____

B. Replacement of double fireplace top & cap (Each) $ _____

C. Replacement of T1-11 plywood siding (32sq/ft) $ _____

3. Alternate Bids

ALTERNATE BID 1 – Siding Replacement Confined Rakes $ _____

ALTERNATE BID 2 – Siding Replacement Fireplaces $ _____

4. Labor Rates (per hour, fully loaded w/ OHP)

Roofer	$_____
Carpenter	$ _____
Sheet Metal Worker	$ _____

Total overhead and profit to be added to **additional** work. _____%
(*This shall include overhead and profit of any sub-contractors)*

Total overhead and profit to be deducted for work **deleted**. _____%

This bid shall expire **after 90 days from** submission. The Owner reserves the right to accept or reject any or all bids and/or add alternates.

Anticipated Start Date: _____

# of Calendar Days Required: _____

We/ I have thoroughly reviewed the plans and specifications and submit our bid as included herein.

_____ _____
Signature **Title**

_____ _____
Name (typed or printed) **Date**

Contractor's License#_____ **Classification(s**)_____

We have the HOA insurance requirements as specified in Section 00800 **Yes** _____
No _____

Section 00800
Supplementary Conditions

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Insurance Coverage

B. Emergency Contractor Access

C. Onsite Communications

1.02 COMMON TERMS AND ABBREVIATIONS

A. The following terms and abbreviations are used throughout the contract documents and shall mean the following:

1. **C.M. -** shall mean Construction Manager- Gerald Stater & Company, Inc.
2. **Owner -** shall mean Vintners Homeowners Association
3. **Tenant -** shall mean the person that is occupying the residence.
4. **Contractor -** shall mean roofing contractor
5. When there is not a title naming the specific party, which is responsible for a task or item named herein, it shall be deemed to be the responsibility of the Contractor.

1.03 INSURANCE REQUIREMENTS

A. Insurance- Contractor shall procure and maintain, at its own expense, insurance for the duration of the contract and until 1 year after notice of completion has been filed coverage against claims for injuries to persons or damages to properties which may arise from or in connection with the performance of work under this contract by the Contractor, its agents, representatives, employees or subcontractors.

B. These coverages shall be written on an occurrence form, and shall be maintained during the entire term of the contract. The products and Completed Operations Coverage shall be maintained for a minimum of 1 year following such completion of the work. The obligation to maintain and/or purchase insurance may include, but not be limited to, the purchase of “tail” coverage under any and/or all of the policies required by the Contract Documents, including but not limited to the Policy, for the period of time required by the Owner, which may include but not be limited to, ten years from the date of Contractor’s substantial completion of the project as defined by California Code of Civil Procedure section 337.15(g).

C. The Contractor shall maintain insurance coverage at least as broad as:

1. Commercial General Liability- ISO Occurrence Form CG 0001 (not on a “claims made” basis), including coverage for premises, operations, mobile equipment liability, products and completed operations, contractual liability (to the extent such coverage is provide ISO commercial general liability form CG0001 and such form of coverage will contain an additional specific endorsement for contractual liability) Owners and Contractors protective, per location aggregate limit, and with XCU exclusion deleted. The policy limits shall be not less than $1,000,000 per occurrence for bodily injury and property damage liability.

2. Automobile Liability- ISO form, CA 0001, covering "any auto" coverage code "1", or commercially reasonably equivalent, to insure owned, non-owned and hired automobiles, trucks, and other vehicles utilized by Contractor and Subcontractor in completion of the work. The policy limits shall be not less than $1,000,000 combined single limit per accident for bodily injury and property damage.
3. Workers Compensation and Employee's Liability- to comply with the statutory requirements of the state in which the work is completed. The policy shall include Employers' Liability for not less than $1,000,000 per accident.
4. Any deductibles or self-insured retention must be declared to and approved by the Association. The Association may require reduction or elimination of such deductibles or self-insured retention's as respects the Association, its officers, directors and employees or requires Contractor and Subcontractor to procure a bond guaranteeing payment of losses and related investigation, claims administration and defense expenses.
5. All policies required shall: 1) be written by insurance companies with a Best's Rating of no less than "A-: VII" 2) provide that coverage shall not be suspended, voided, cancelled, non-renewed, reduced in scope that limits except after 30 days' prior written notice by certified mail, return receipt requested, has been given to Association, and 3) provided for waiver of subrogation rights against Association as provided under this contract.
6. The required Commercial General Liability and Automobile Liability policies shall: 1) provide an endorsement naming the Association, it's officers, directors, employees, agents and property managers, members and their tenants, and Construction Manager (excluding claims for professional negligence) as respects: liability arising out of operations performed by or on behalf of the Contractor or Subcontractors of any tier: products and completed operations of Contractor or Subcontractors of any tier; premises or automobiles owned, leased, hired or used by Contractor or Subcontractors of any tier. This coverage shall contain no special limitations on the scope of protection afforded to Association: 2) be primary as respects the Association, it's officers, officials, employees and volunteers and non-contributory with any insurance carried by the Association; and 3) apply separately to each insured and additional insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability. The aforementioned endorsement shall be written on ISO Form 2010 (11/85) or its equivalent.
7. Association shall be provided (10) days prior to commencement of the work, certificates of insurance and original endorsements evidencing coverage's as required by this clause. A person authorized by that insurer to act on its behalf to bind insurance coverage shall sign these certificates and endorsements. Association reserves the right to require certified copies of any required insurance policies.
8. Contractor shall insure that all Subcontractors name Contractor, Association, its officers, directors, employees, agents and Property Manager, members and their tenants, and Construction Manager (excluding claims for professional negligence) as additional insured under its policies or shall furnish separate certificates and endorsements for each Subcontractor. Additional insured endorsements shall be on ISO Form 2010 (11/85). All coverage for Subcontractors shall be subject to all of the requirements stated herein.

D. The Owner must approve of all insurance policies presented by the Contractor.

1. Vintners Homeowners Association and its agents shall be named as Additional Insured.
2. Willis Management Group shall be named as Additional Insured.
3. Gerald Stater & Company shall be named as Additional Insured.

4. Certificates of Insurance shall be provided to the Owner 10 days prior to the start of work.
5. The Contractors subcontractors must also be named as Additional Insured, or otherwise provide separate Certificates of Insurance containing all of the same conditions as mentioned herein.

1.03 EMERGENCY CONTRACTOR ACCESS

A. The Contractor shall provide and maintain a method of emergency access and notification throughout the duration of the project.

1. This system must provide a minimum of telephone access to the Contractor 24 hours per day, 7 days per week.
2. In the event of an emergency at the site individual Owners and Property Managers must have a number to call and contact the Contractor to advise of the emergency and request action by the Contractor.
3. If the Contractor fails to be accessible, the emergency condition may be remedied by others and charged back to the Contractor at full value of that remedy, including Property and Construction Management expenses, assuming the emergency arose due to the operations of the Contractor.
4. If the Contractor is contacted about an emergency and responds to the same, yet it is found not to be due to the Contractors operations, the Contractor may be compensated for repairs.
5. In the event a dispute arises regarding the responsibility of the Contractor or others for the emergency condition, the Construction Manager shall decide the issue.

1.04 ONSITE COMMUNICATIONS

A. **There will be NO verbal Change Orders.**

B. The Contractor shall direct all tenants to contact the Construction Manager with any comments or problems. All Communication to tenants shall be through the Construction Manager.

C. The Contractor shall direct all residents to contact the Construction Manager with any comments or problems. All Communication to residents shall be through the Construction Manager.

D. The Contractor will accept and take action upon direction given by the Construction Manager only as it relates to this contract. The Contractor will not accept direction from others, such as, onsite owners, tenets, managers, board members, etc. and will professionally re-direct those parties to the Construction Manager.

E. Failure to comply with said organizational structure, which results in extra time/expense to the Construction Manager could result in those costs being passed on to the Contractor.

- END -

Section 01010
Summary of Work

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Project Information

B. Contractors Use of Premises

C. Owner Occupancy

D. Protection of Landscape and Existing Facilities

1.02 PROJECT INFORMATION

A. Project Name: Vintners Homeowners Association – 2012 Roof Repair Project

B. Project Description:

1. **Base Bid 1:** The Base Bid scope of work to include complete removal of existing roof shingles and associated metal flashings. Installation of new plywood sheeting, asphalt fiberglass shingles, metal flashing and components thereof, the extent of which is specified herein:

2. The Recreation Building shall include the flat roof area which is to be replaced with a modified Bitumen granular surface.

3. Base Bid includes all 23 residential buildings, all utility sheds, laundry rooms, recreation building and office annex.

4. Several buildings roof area as noted on the site plan are not included in this project.

5. Bid shall include the following work:
   a. Remove all existing roofing shingles (two layers), roof jacks from existing roof deck complete to existing space sheathing.
   b. Remove all base flashing, counter flashings, and like components necessary for application of new roof system.
   c. All perimeter eave and rake edge metal to be removed.
   d. Existing gutter and downspouts to be removed.
   e. Install new pre-painted gutters and downspouts.
   f. Install new Smart Vent at lower roof area to achieve 1/300th ventilation area.
   g. Install new ½” plywood sheeting over existing skip sheeting.
   h. Install new 2”x8” wood blocking at each wall stud at confined rake walls.
   i. Installation of new galvanized edge metal at all roof eaves and rake edges.
   j. Install new roof jacks for all penetrations.
   k. Install new chimney saddles top and bottom and step shingles.
   l. Install new 30# underlayment and fasten sufficiently to existing structure.
   m. Install new Landmark asphalt fiberglass shingles to existing sloped roof deck.
   n. Install hip ventilation to achieve 1/300th ventilation area.
   o. Install new 24” open valley at all roof valley intersections.
   p. Install new galvanized flashing and step shingles as necessary.
   q. Seal around all vent flashing and roof penetrations.

r. Removal of all work related debris and leave a clean job site after completion of work.

6. **Alternate 1:** This bid alternate scope of work shall include the replacement of all confined rake wall areas with Hardie panel siding and 2x fascia.
   a. Remove existing siding and fascia down to the nearest horizontal Z flashing.
   b. Install new building paper
   c. Install new Hardie panel Serra 8 siding as replacement for the existing siding.
   d. Install new Hardie trim and 1x8 fascia

7. **Alternate 2:** This bid alternate scope of work shall include the replacement of all siding and trim at the fireplaces.
   a. Remove existing siding, trim and fascia down to the nearest horizontal flashing.
   b. Install new building paper
   c. Install new Hardie panel Serra 8, Cedarmill as replacement for the existing siding.
   d. Install new Hardie trim and 1x8 fascia.

8. **Unit Pricing**
   a. Replacement of single fireplace top and cap.
   b. Replacement of double fireplace top and cap.

9. **Permits**: Permits to be obtained by the contractor and submitted to the Owner for payment. All Title 24 Documentation and Acceptance Forms shall be submitted by the Contractor.

1.03 CONTRACTOR USE OF PREMISES

A. Limit use of premises for work and for construction operations to allow for Owner occupancy and public access.

1. Obtain written permission from the Owner in advance of any of the Contractor's /Subcontractor's personnel working or having cause to be on the premises beyond normal working hours of 8:00 am to 5:00 PM. Monday through Friday.
2. Contractor shall respect the serenity of the site and limit any unnecessary noise, no radios will be allowed on site.

B. The Contractor shall provide timely notice to the Construction Manager of the planned use of the premises.

1. Provide timely notice to the Construction Manager of access requirements.
2. Provide written schedules and updates to facilitate the notification process.

C. Based on Contractor supplied and Owner approved schedules, the Construction Manager shall notify tenants as follows:

1. 7 days prior to scheduled work to start.
2. Provide notice 72 hours prior to any planned access.

F. Use only authorized access to existing building, do not block or interfere with the traffic or parking facilities, except as authorized in writing by the Owner.

G. Contractor shall be designated a staging area. Any other parking onsite shall be limited to vehicles required for construction operations and shall be required to be moved at

any time they obstruct the flow of traffic, block access to a unit or service area or otherwise assigned parking space. Assignees to parking spaces shall at all times retain those assigned parking privileges. The Contractor shall be solely responsible to coordinate movement of vehicles. All other construction personnel parking shall be on the street.

1.04 OWNER OCCUPANCY

A. Owners and Residents will occupy the premises during the entire period of construction.

B. The Contractor shall cooperate with the Owner to minimize conflict and to facilitate Tenant's operations.

C. The Contractor shall be **fully responsible** to secure all areas worked that day for the evening and weekend, which means removal of all construction tools, materials and equipment from the area. Broom clean all areas worked.

1.05 PROTECTION OF EXISTING FACILITIES AND LANDSCAPE

A. Protection of premises – work areas. Specific work areas shall be free from items that may obstruct work. However, contractor shall be working in and about occupied residences. Contractor shall install and remove appropriate protection to property each day.

B. The Contractor shall make every effort to protect all landscape and irrigation from foot traffic and ladders. The Contractor shall repair or replace all damage to irrigation systems directly from his operation if proper care is not maintained by the Contractor. No vehicular traffic will be allowed on the landscape or side walk areas.

-END-

Section 01019
Contract Considerations

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Schedule of Values

B. Application for Payment

C. Change Procedures

D. Measurement and Payment - Unit Prices

1.02 RELATED SECTIONS

A. Section 01300 - Submittals: Schedule of Values, Submittal Procedures

B. Section 01600 - Material and Equipment: Product Substitutions

1.03 SCHEDULE OF VALUES

A. Submit typed schedule on AIA form G703 - Application and Certificate for Payment Continuation Sheet.

1. Contractors standard form or computer printout may be considered for use if substantially similar to AIA G703, providing a breakdown by unit, by task with summary.

B. Submit Schedule of Values (4 copies) within 15 days after date of Owner -Contractor Agreement finalization.

C. Format

1. Use individual buildings with associated tasks.
2. Summarize all buildings on summary sheet.

D. Revise schedule to list approved Change Orders as separate line items, below all other in list, with each Application for Payment.

1.04 APPLICATIONS FOR PAYMENT

A. Submit 3 copies of each application on AIA form G702 - Application and Certificate for Payment.

B. Content and Format: Use Schedule of Values for listing items in Application for Payment.

C. Include additional forms if required by Owner.

1.05 CHANGE PROCEDURES

A. The Construction Manager will advise of minor changes in the work not involving an adjustment to the Contract Sum or Contract Time as authorized by AIA Article 7.

B. The Construction Manager may issue a Proposal Request which includes a detailed description of a proposed change with supplementary or revised drawings and specifications, and a change in the Contract Time for executing the change. Contractor will prepare and submit an estimate within 5 calendar days.

C. The Contractor may propose changes by submitting a request for change in writing, fully detailing the change and the effects of the change.

D. Change Orders may be issued based upon lump sum, unit price, and time and materials pricing.

E. Execution of Change Orders: The Construction Manager will issue Change Orders for the signatures of parties as provided in the Conditions of the Contract.

- END -

Section 01039
Coordination and Meetings

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Coordination

B. Preconstruction Conference

C. Progress Meetings

D. Pre-installation Conferences

1.02 RELATED SECTIONS

A. Section 01300 - Submittals: Progress Schedules, Shop Drawings, and Product Data and Samples

B. Section 01400 - Quality Control

C. Section 01700 - Contract Closeout: Project Record Drawings

1.03 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of specifications to assure an efficient and orderly sequence of installation of the interdependent construction elements.

B. Coordinate completion and clean up of the work in separate sections in preparation for substantial completion.

C. Coordinate access to the site for correction of defective work and work not in accordance with Contract Documents to minimize disruption of the Owner's activities.

D. Work Plan- Coordinate work plan on construction phasing for wall repair.

1.04 PRECONSTRUCTION CONFERENCE

A. The Construction Manager will schedule a conference after the Notice of Award.

B. Attendance Required; Contractor, Major Sub-contractors and Construction Manager

C. Agenda:

1. Designation of personnel representing parties of the Contract.
2. Procedures for processing Contract Documents, Change Orders
3. Scheduling and Notification
4. Use of the Premises, Security Housekeeping
5. Applications for Payment.

1.05 PROGRESS MEETINGS

A. The Construction Manager shall schedule and administer meetings throughout progress of the work at monthly intervals.

B. Meetings will be onsite or at the Construction Managers offices.

C. Attendance required; Contractors Project Manager, Job Superintendent, and Construction Manager(s) as appropriate to agenda topics.

D. Suggested Agenda
1. Review work progress
2. Field observations, problems and decisions
3. Review of submittals schedule and status of submittals
4. Review of off site fabrications and delivery schedules
5. Maintenance of progress schedules
6. Planned progress during succeeding work period
7. Maintenance of quality and work standards
8. Effect of proposed changes, progress coordination
9. Other business related to the work

-END -

Section 01090
Reference Standards

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Quality Assurance

B. Schedule of References

1.02 QUALITY ASSURANCE

A. For products or workmanship specified by association, trade, or Federal Standards comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents.

C. Obtain copies of standards when required by Contract Documents.

D. Maintain copies at job site during submittals, planning, and progress of the specific work, until substantial completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Construction Manager before proceeding.

F. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

G. This section is provided for the convenience of the Contractor, at all times it will be the Contractors responsibility to perform the work appropriately.

1.03 SCHEDULE OF REFERENCES

AA Aluminum Association
818 Connecticut Avenue, N.W.
Washington, DC 20006

AASHTO American Association of State Highway and Transportation Officials
444 North Capitol Street, N.W.
Washington, DC 20001

ACI American Concrete Institute
Box 19150
Reford Station
Detroit, MI 48219

AGCA Associated General Contractors of America
1957 E Street, N.W.
Washington, DC 20006

AI	Asphalt Institute Asphalt Institute Building College Park, NM 20740
AIA	American Institute of Architects 1735 New York Avenue, N.W. Washington, DC 20006
AISC	American Institute of Steel Construction 400 North Michigan Avenue Eighth Floor Chicago, IL 60611
AISI	American Iron and Steel Institute 1000 16th Street, N.W. Washington, DC 20036
AITC	American Institute of Timber Construction 333 W. Hampton Avenue Englewood, CO 80110
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
APA	American Plywood Association P.O. Box 11700 Tacoma, WA 98411
ARMA	Asphalt Roofing Manufacturers Association 6288 Montrose Road Rockville, NM 20852
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWS	American Welding Society 550 LeJeune Road, N.W. Miami, FL 33135
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Road Schaumburg, IL 60195
DH	Door and Hardware Institute 7711 Old Springhouse Road McLean, VA 22102

FGMA	Flat Glass Marketing Association 3310 Harrison White Lakes Professional Building Topeka, KS 66611
FM	Factory Mutual System II 51 Boston-Providence Turnpike P.O. Box 688 Norwood, MA 02062
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) Washington Navy Yard, Bldg. 197 Washington, DC 20407
GA	Gypsum Association 1603 Orrington Avenue Evanston, IL 60201
ICBO	International Conference of Building Official 5360 S. Workman Mill Road Whittier, CA 90601
NAAMM	National Association of Architectural Metal Manufacture 221 North LaSalle Street Chicago, IL 60601
NFPA	National Fire Protection Association Battery March Park Quincy, IL 02269
NFPA	National Forest Products Association 1619 Massachusetts Avenue, N.W. Washington, DC 20036
NWMA	National Woodwork Manufacturers Association 205 W. Touhy Avenue Park Ridge, IL 60068
PCA	Portland Cement Association5420 Old Orchard Road Skokie, IL 60077
PS	Product Standard U. S. Department of Commerce Washington, DC 20203
RCSHSB	Red Cedar Shingle and Hand split Shake 515 116th Avenue Belview, WA 98004
SDI	Steel Door Institute 712 Lakewood Center North 14600 Detroit Avenue Cleveland, OH 44107

SIGMA	Sealed Insulating Glass Manufacturers Association III East Wacker Drive Chicago, IL 60601
SMACNA	Sheet Metal and Air Conditioning Contractors National Association 8224 Old Court House Road Vienna, VA 22180
SSPC	Steel Structures Painting Council 4400 Fifth Avenue Pittsburgh, PA 15213
TCA	Tile Council of America, Inc. P.O. Box 326 Princeton, NJ 08540
UL	Underwriters' Laboratories, Inc. Pfingston Road Northbrook, IL 60062
WCLIB	West Coast Lumber Inspection Bureau 6980 S.W. Varnes Road Portland, OR 97223
WIC	Woodwork Institute of California 1833 Broadway Fresno, California 93773
WWPA	Western Wood Products Association 1500 Yeon Building Portland, OR 97204

- END -

Section 01300
Submittals

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Submittal Procedures

B. Construction Progress Schedules

C. Proposed Products List

D. Shop Drawings

E. Product Data

F. Samples

G. Manufacturers Instructions

H. Manufacturers Certifications

1.02 RELATED SECTIONS

A. Section 01019 - Contract Considerations

B. Section 01400 - Quality Control

C. Section 01700 - Contract Close out

1.03 SUBMITTAL PROCEDURES

A. Contractor to prepare a submittal list for all items planned to be submitted for approval to the Construction Manager within 10 days after execution of Owner/Contractor Agreement.

B. Deliver submittals to the Construction Manager at the address listed on the cover page. 4 COPIES OF EACH

C. Transmit each submittal with a Construction Manager accepted form sequentially numbered.

D. Identify project, installer, drawing/specification number as appropriate.

E. Indicate Contractors review; provide space for Construction Manager review stamps.

F. Provide schedule of submittals designed to expedite the project.

G. Identify variations, limitations and/or detrimental aspects of the item submitted.

H. Revise and re-submit submittal as required identifying all changes made since previous submittal.

1.04 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial progress schedule (4 copies) within 10 days after execution of the Owner / Contractor Agreement.

B. Revise and re-submit as required.

C. Submit revised schedules with each Application for Payment identifying changes since previous version.

D. Submit in horizontal bar chart format, or other format approved by the Construction Manager.

E. Show complete sequence of activity, identifying work of separate stages, units involved and other logically grouped activities to clearly convey planned/actual progress.

F. Maintain a daily work progress schedule in the job trailer, accessible to the Construction Manager at all times, updated daily by the Contractor, detailed so that progress of each trade/each unit can be tracked.

1.05 PRODUCTS

A. Submit Products list within 15 days of the Agreement.

1.06 SHOP DRAWINGS

A. Submit in the form of 1 reproducible transparency and 3 copies.

1.07 SAMPLES

A. Submit as required per specification section.

1.08 MANUFACTURERS INSTRUCTIONS / CERTIFICATES

A. Shall be submitted when applicable per specification section.

-END-

SECTION 01400 – QUALITY CONTROL

PART I - GENERAL

1.01 SECTION INCLUDES (Contractor to perform all work unless otherwise noted.)

A. Quality assurance and control of installation.

B. Inspection and testing laboratory services.

C. Manufacturers field services and reports.

1.02 RELATED SECTIONS

A. Section 01090 – Reference Standards

B. Section 01300 – Submittals: Submission of Manufacturers Instructions and Certificates.

C. Section 01600 – Material and Equipment: Requirements for material and product quality.

1.03 QUALITY ASSURANCE, AND CONTROL OF INSTALLATION

A. Within 7 days of award the contractor shall submit to the Construction Manager for approval a complete written quality control plan detailing the steps and procedures the Contractor will take to insure that all work is installed to meet all requirements of the agreement, applicable manufacturer and code requirements and conditions of the project. The plan should also name the contractors personnel or individuals responsible for carrying out these procedures.

B. Should the Contractor fail to provide and maintain a workable quality control plan, the Construction Manager may stop all work; appoint an independent quality control personnel and guidelines at the Contractors expense. In the event the Contractor is ultimately unable to meet the quality standards required, the Contractor may be terminated and all damages due the owner will be collected from the Contractor, including Construction Management costs.

C. Punch List

1. The Contractor is compelled to pre-punch all work previous to requesting acceptance. The Contractor shall advise the Construction Manager in writing when he feels all work is 100% complete and ready for final inspection. At that time the Construction Manager shall schedule a date and time to review the work with the Contractor, and create a punch list.

Please Note: Should the work not be complete the Construction Manager may not schedule review or terminate the process until the Contractor completes the work.

2. The Contractor shall diligently complete all punch list items and advise the Construction Manager in writing by item that each component has been completed. At that time the Construction Manager will make a final review and if complete, begin close out procedures.

3. Should the Contractor work remain incomplete or require additional inspections or create delays the contractor will be responsible for all costs associated including Construction Management costs. This includes failure to provide necessary protection of work from weather and hazards to inhabitants and visitors.

D. Call Backs
1. The contractor shall respond to all warranty calls quickly and reasonability to fit the situation.

E. Maintain quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

F. Comply fully with manufacturers' instructions, including each step in sequence.

G. Should manufacturers' instructions conflict with Contract Documents, request clarification from Construction Manager before proceeding.

H. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

I. Perform Work by persons qualified to produce workmanship of specified quality.

J. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

K. Should the Contractor fail to provide the necessary quality control, any cost to provide the necessary quality control shall beat an additional cost to be paid by the Contractor.

L. Initial inspections during the construction process by the Construction Manager inspections are included within the contract scope. Additional or repeat inspections shall be billed to the Contractor at current CM rates.

1.04 INSPECTION AND TESTING LABORATORY SERVICES

A. The Owner will employ and pay for services of an independent firm to perform inspection and testing, if and as required by individual specification sections.

B. The independent firm will perform inspections, tests and other services specified in individual specification sections as required by the Construction Manager.

C. Reports will be submitted by the independent firm to the Construction Manager indicating observations and results of tests, compliance or non- compliance with Contract Documents.

D. Cooperate with independent firm- furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
1. Notify Construction Manager and independent firm 48 hours prior to expected time for operations requiring inspection.
2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
3. The same independent firm on the instructions of the Construction Manager shall perform re-testing required because of non-conformance to specified requirements; payment for retesting will be charged to the Contractor by deducting inspection or testing charges from the Contract Sum.

1.05 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. When specified in individual specification Sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, as applicable, and to initiate instructions when necessary.

B. Require individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

C. Submit report within 15 days of observation to Construction Manager for review.

1.06 CLEANUP

A. Contractor is advised that site is occupied. Constant attention to cleanup is required to insure the safety and continued use and enjoyment of the premises by the homeowners.

B. Contractor is notified and hereby agrees that violations of Section A above shall result in a fine. Violations may be witnessed by Construction Manager or reported by homeowners.

C. The fine schedule shall be $250 for the first offense, $500 for the second, and $1,000 for the third. All fines shall be administered as a back-charge to Contractor and shall not unreasonably be imposed.

D. In the event of a fourth offense, Construction Manager shall have the option to impose another $1,000 fine, or, by written notice to Contractor, hire a janitorial service to perform clean up duties on the site. All costs of said service shall be paid by Contractor.

E. Construction Manager may, at its sole option, back-charge Contractor for reasonable administrative costs in connection with this Section.

- END -

Section 01500
Construction Facilities and Temporary Controls

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities: Electricity, and lighting, heat, and ventilation, telephone service, water, and sanitary facilities.

B. Temporary Controls: Security barriers, enclosures and fencing, and protection of the Work.

C. Construction Facilities: Parking, progress cleaning, project identification and temporary buildings.

1.02 RELATED SECTIONS

A. Section 01700 - Contract Closeout: Final cleaning

1.03 TEMPORARY ELECTRICITY

A. Contractor shall use house meters for electrical power if available on site if not Contractor shall provide its own generator. All electrical work required to provide power from house meters or generator to locations shall be by the Contractor.

B. Provide power outlets for construction operations, with branch wiring and distribution boxes as required.

C. Existing lighting may be utilized during construction. Maintain lighting and make routine repairs.

1.04 TEMPORARY VENTILATION

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.05 TELEPHONE SERVICE

A. Do not use private building phones.

1.06 TEMPORARY WATER SERVICE

A. Connect to existing hydrant with meter (by Contractor) for construction operations if water is needed other than from hose bibs.

B. Extend branch piping with outlets located so water is available by hoses with threaded connections.

1.07 TEMPORARY SANITARY FACILITIES

A. The Contractor will provide and maintain toilet facilities as necessary to support all work persons.

B. **Do not** use existing facilities in private units or Clubhouse.

C. Portable Toilets shall be kept in the **staging area only.**

1.08 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide protection for landscape irrigation system. Replace damaged landscape irrigation system.

1. Protect landscape irrigation system.
2. Notify Construction Manager of damage to irrigation system.

C. Protect stored materials, site and structures from damage.

1.09 EXTERIOR ENCLOSURES

A. Provide temporary weather-tight closure of exterior openings.

1. Close exterior openings where work is incomplete and cannot be completed the same day.
2. Materials: 4-mil polyethylene sheet, secured with wood battens, or as otherwise approved by Construction Manager.

1.10 PROTECTION OF EXISTING AND INSTALLED WORK

A. Protect existing and installed work and provide special protection where specified in individual specification Sections.

B. Provide temporary and removable protection for installed Products.

C. Control activity in immediate work area to minimize damage.

D. Prohibit traffic or storage upon waterproofed surfaces.

1. If traffic or activity is necessary, obtain recommendations for protection from waterproofing material manufacturer.

1.11 SECURITY

A. Coordinate with Owner's security program.

1.12 PARKING

A. See Section 01010 - Summary of work

1.13 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove waste materials, debris, and rubbish from site weekly and dispose off-site, in legal manner.

1.14 FIELD OFFICES AND SHEDS

A. Storage of Materials - The Contractor shall provide and install at the Contractors expense, storage facilities for all materials and equipment. All materials must be stored in a safe and orderly fashion per manufacturer's recommendations. Materials and equipment must be stored in a container designed for this purpose and / or in a fenced yard. Temporary construction fencing shall be 6 feet high wire mesh with redwood lath or equal, without damaging existing asphalt.

B. Staging area shall be at the location authorized by Owner.

1.15 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary equipment, facilities, and materials, prior to Substantial Completion Inspection.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing facilities used during construction to original or specified condition.

1.16 DEBRIS DUMPSTER

A. All debris removal will be provided by the Contractor.

END -

SECTION 01600 – MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Products

B. Transportation and Handling

C. Storage and Protection

D. Product Options

E. Substitutions

1.02 RELATED SECTIONS

A. Section 01400 - Quality Control: Product Quality Monitoring

1.03 PRODUCTS

A. Products: Means new material, components, fixtures, and systems forming the work.

B. Products may also include existing materials or components required for reuse.

C. Do not use materials and equipment removed from existing premises, except as specifically required or permitted by the Contract Documents.

D. Provide interchangeable components of the same manufacturer, for similar components.

1.04 TRANSPORTATION AND HANDLING

A. Transport and handle products in accordance with manufacturer's instructions.

B. Transport and handle products in a manner to prevent damage to products.

C. Deliver product in undamaged condition in manufacturers unopened containers or packaging, dry.

D. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods capable of preventing soiling, disfigurement, or damage.

1.05 STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible.

B. For exterior storage of fabricated products, place on sloped supports, above ground.

B. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.

C. Provide equipment and personnel to store, products by methods to prevent soiling, disfigurement, or damage.

D. Arrange storage of products to permit access for inspection.

E. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

-END -

SECTION 01700 – CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Closeout Procedures

B. Final Cleaning

C. Project Record Documents

D. Warranties

E. Maintenance Materials

1.02 RELATED SECTIONS

A. Section 01500 - Construction Facilities and Temporary Controls: Progress cleaning.

B. Section 01750 – Guarantees.

1.03 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Construction Manager's inspection.

B. Provide submittals and Installation Certificates to the City and Construction Manager that are required by governing or other authorities.

C. Submit final Application for Payment identifying total adjusted contract sum, previous payments, and sum remaining due.

1.04 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. Clean debris from drainage systems.

C. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.05 PROJECT RECORD DOCUMENTS (As-Built Drawings)

A. Maintain on site, one set of the following record documents; record actual revisions to the Work:

1. Contract Drawings
2. Specifications

3. Addenda
4. Change Orders and other Modifications to the Contract
5. Reviewed Shop Drawings, Product Data, and Samples

B. Store Record Documents separate from documents used for construction.

C. At contract closeout, submit documents with transmittal letter containing date, project title, contractor's name and address, list of documents, and signature of contractor.

1.06 WARRANTIES – REFER TO SECTION 1750

1.07 MAINTENANCE MATERIALS

A. Provide products, maintenance and extra materials in quantities specified in individual specification Sections.

B. Deliver to Project site and obtain receipt prior to final payment.

- END -

SECTION 01750 - GUARANTEES

PART 1 - GENERAL

1.01 CONTRACTOR GUARANTEE

A. The Contractor shall guarantee the installation of all materials and labor, for a period of five (5) years from the date of substantial completion of the project.

B. The manufactures shall guarantee the shingles for a 10 Year Full Labor warranty and 10 Year Full Material warranty and a prorated 40 Year Material warranty.

C. Contractor guarantees and manufacturer guarantees are of the essence of this contract. Failure of CONTRACTOR to provide any guarantee on a timely basis shall be considered a material breach of contract.

D. In addition to Contractor's phone number, a 24 hour (including weekends and holidays) emergency number must be provided by the Contractor.

Section 06100
Rough Carpentry

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: (Parts omitted)
1. Blocking: wood used for plates, furring, shimming, stripping, sleepers, grounds, curbing, cants, bracing, nailers, and filling in between framing members.
2. Plywood Sheathing: where required.
3. Framing: dimension lumber where required.
4. Gypsum Sheathing: where required.

B. Related Sections:
1. Section 06200-Finish Carpentry
.

1.2 SUBMITTALS

A. Product Data: Provide product data on wood treatment materials: include historical performance information.

B. Submit Following Informational Submittals:
1. Certifications specified in Quality Assurance article
2. Manufacturer's instructions for wood treatment materials

1.3 QUALITY ASSURANCE

A. Grade Marks:
1. Identify lumber and plywood by official grade mark.
2. Lumber: Include symbol of grading agency, mill name, grade, species, grading rules, and condition of seasoning at time of manufacturer.
3. Plywood: Include type, class identification index, and agency mark.
4. Pressure treatment: Include quality mark of grading agency which maintains continued supervision, testing, inspection, and re-examination service over product quality as described in AWPA standards.

1.4 DELIVERY, STORAGE AND HANDLING

A. Storage and Protection:
1. Store products above ground, on platforms or skids, and covered with waterproof coverings.
2. Store products with ventilation, drainage, and protection against damp or wet locations.
3. Support products to prevent warping and distortion.

PART 2 - PRODUCTS

2.1 SOLID SAWN LUMBER

A. Lumber Grading Agency: Certified by American Lumber Standards Committee or NLGA.

B. Grading rules of NLGA, SPIB, WCLIB, and WWPA apply to respective materials furnished

C. Comply with PS-20.

D. Dimensions: Lumber dimensions are nominal; actual dimensions conform to PS-20 and applicable rules writing agencies.

E. Maximum moisture content at time of dressing: 19 percent.

F. Surfacing: Surface four sides (S4S), unless noted otherwise.

G. Finger-jointed lumber is not permitted.

H. Size classification: 2 to 4 inches thick; 2 inches to 4 inches wide.

I. General Structural Framing: Stud grade, any species.

J. Blocking: Utility grade, any species.

2.2 PLYWOOD

A. Grading Rules:
1. PS-1 or APA PRP-108..
2. Plywood Grading Agency: Certified by APA.
3. Species Groups: 1 through 4, as required for span rating.

B. Uses, Grades, and Ratings:
1. Wall Sheathing:
a. Grade: C-D.
b. Span Rating: 16/0.

2.3 FASTENERS

A. Provide fasteners in sizes, spacing, and locations to suit applications.

B. Anchors:
1. Toggle bolt type for anchorage to hollow masonry.
2. Expansion shield and lag bolt type for anchorage to solid masonry or concrete.
3. Bolts or ballistic fasteners for anchorage to steel.

C. Bolts: ASTM A307 with nuts and washers.

D. Anchor Bolts: ASTM A307 with nuts and washers.

E. Lag Screws and Lag Bolts: ANSI B18.6.1.

F. Wood Screws: ANSI B18.2.1 with washers

G. Nails, Staples, and Spikes: FS FF-N-105

H. Structural Connectors:
1. Simpson Strong-Tie Co. Inc., or equal.
2. Simpson Hold Down to be HD5
3. Types as shown on the drawings or as required to replace existing as shown.
4. Galvanized finish.

2.4 WOOD TREATMENTS

A. Kiln dry pressure-treated products after treatment to following maximum moisture contents:
1. Lumber: 19-percent.

2. Plywood: 15-percent

B. Preservative Pressure Treatment::
1. Solid sawn lumber: Comply with AWPA C2.
2. Plywood: Comply with AWPA C9.
3. Use waterborne preservatives.
4. Do not incise surfaces of lumber at exposed to view locations.
5. Treat following items for above ground use:
a. Grounds in contact with concrete.
b. Wood used with flashing and waterproofing.

C. Preservative Cut Surface Treatment Applied at Site:
1. Description:
a. Comply with AWPA M4
b. Water repellent containing a 2-percent copper naphthenate solution.
c. Compatible with preservative pressure treatment.
d. Pigment: Colored.
2. Acceptable Products and Manufacturers:
a. Green EndCoat, Osmose Wood Preserving, Inc., Griffin, GA.

PART 3 – EXECUTION (Parts omitted)

3.1 EXAMINATION

A. Examine conditions and proceed with work.

B. Site Verification of Conditions:
1. Verify end supports are ready to receive framing.
2. Before installation, check members for damage and proper dimensions.

3.2 PREPARATION

A. Wood Treatment Applied to Cut Surfaces at Site:
1. Comply with AWPA M4.
2. Apply preservative treatment in accordance with manufacturer's instructions to:
a. Preservative pressure treated wood site-sawn ends.
b. Holes cut through preservative pressure treated wood.
3. Allow preservative to cure prior to erecting members.

3.3 CONSTRUCTION

A. General:
1. Construct plumb, level, true to line, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction.
2. Comply with AFPA NDS for attaching to substrates by anchoring and fastening to draw and securely hold members rigidly in place.
3. Install fasteners at spacing required by more stringent requirements of AFPA NDS or applicable building code.
4. Comply with APA E30 requirements for plywood.
5. Place horizontal and sloped members with crown edge up.
6. Place vertical members with crown edge facing in same direction.
7. Discard Material:
a. With defects which might impair quality of work.
b. Which are too small to fabricate work with minimum joints or optimum joint arrangement.
8. Scribe, cope, and construct members accurately cut and fitted.
9. Make tight connections between members to develop full member strength.

10. Locate members as indicated. Do not change size, spacing, or spans without Construction Manager's specific approval. Take care to place species and grades of members where indicated.
11. Do not splice framing members between support points.
12. Cut, notch, or bore members for passage of pipes and conduits in accordance with AFPA WCD. Reinforce members by use of formed sheet metal accessories.
13. Fasteners:
    a. Use washers under bolt heads and nuts.
    b. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials.
    c. Install fasteners without splitting wood; predrill as necessary.
14. Shimming:
    a. Concrete and masonry bearing: Use steel or slate shims.
    b. Metal and wood bearing: Do not use shims.

B. Wood Blocking:
1. Construct using maximum practical lengths.
2. Cut and form to shapes for true line and level of work to be attached.
3. Coordinate location with other work involved.
4. Secure to masonry with metal plugs, toggle bolts, or expansion bolts set in masonry.
5. Attach to substrates to support applied loading.
6. Countersink bolts and nuts flush with wood surfaces.
7. Size as necessary unless specific size is indicated.

C. Plywood Sheathing:
1. Install panels with joints between panels staggered over center of supports.
2. Install over two or more supports.
3. Install with end joints staggered.
4. Install with panel joints not more that 1/8-inch wide.

3.4 TOLERANCES

A. Match to existing framing, or ¼ inch in 8 feet maximum.

3.5 PROTECTION

A. Protect finished work from damage.

B. Protect products from moisture absorption and subsequent warping or deterioration until subsequent construction can proceed.

-END-

SECTION 07311 – MODIFIED BITUMEN SELF-AHERED ROOFING SYSTEM

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes
   1. Asphaltic Modified Bituminous Self-Adhered Roofing

B. Related Sections
   1. Section 06100: Rough Carpentry
   2. Section 07311: Asphalt Shingle Roofing System
   3. Section 07600: Sheet Metal Flashing and Trim

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM) - *Annual Book of ASTM Standards*
   1. ASTM D-4601 - Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing
   2. ASTM D-4897 - Standard Specification for Asphalt-Coated Glass-Fiber Venting Base Sheet Used in Roofing
   3. ASTM D-5147 - Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material
   4. ASTM D-3909 - Standard Specification for Asphalt Roll Roofing (Glass Felt) Surfaced With Mineral Granules
   5. ASTM D-6222 - Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements
   6. ASTM D-6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements
   7. ASTM D-6163 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements
   8. ASTM D-6298 - Standard Specification for Fiberglass Reinforced Styrene-Butadiene-Styrene (SBS) Modified Bituminous Sheets with a Factory Applied Metal Surface

B. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - *Architectural Sheet Metal Manual*

C. National Roofing Contractors Association (NRCA)

D. American Society of Civil Engineers (ASCE)

E. Factory Mutual (FM Global) - *Approval Guide*

F. Underwriters Laboratories (UL) - *Roofing Systems and Materials Guide*

1.03 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) *Roofing and Waterproofing Manual* for definitions of roofing terms related to this section.

1.04 SUBMITTALS

A. Product Data: Provide product data sheets for each type of product indicated in this section.

B. Shop Drawings: Provide manufacturers standard details and approved shop drawings for the roof system specified.

C. Samples: Provide samples of insulations, fasteners, membrane materials and accessories for verification of quality.

D. Certificates: Installer shall provide written documentation from the manufacturer of their authorization to install the roof system, and eligibility to obtain the warranty specified in this section.

1.05 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Certainteed shall provide a roofing system that meets or exceeds all criteria listed in this section.

B. Installer's Qualifications:
   1. Installer shall be an approved installer and certified by the roofing manufacturer.

C. Source Limitations: All components listed in this section shall be provided by a single manufacturer or approved by the primary roofing manufacturer.

1.06 PRE-INSTALLATION CONFERENCE

A. Prior to scheduled commencement of the roofing installation and associated work, conduct a meeting at the project site with the installer, architect, owner, manufacturer's representative and any other persons directly involved with the performance of the work. The installer shall record conference discussions to include decisions and agreements reached (or disagreements), and furnish copies of recorded discussions to each attending party. The main purpose of this meeting is to review foreseeable methods and procedures related to roofing work.

1.07 PERFORMANCE REQUIREMENTS

A. Provide an installed roofing membrane and base flashing system that does not permit the passage of water, and will withstand the design pressures calculated in accordance with the most current revision of ASCE 7.

B. Manufacturer shall provide all primary roofing materials that are physically and chemically compatible when installed in accordance with manufacturers current application requirements.

1.08 REGULATORY REQUIREMENTS

A. All work shall be performed in a safe, professional manner, conforming to all federal, state and local codes.

1.09 DELIVERY, STORAGE AND HANDLING

A. Deliver all roofing materials to the site in original containers, with factory seals intact.

B. Store roll goods on end on pallets in a clean, dry, protected area. Take care to prevent damage to roll ends or edges. Do not double stack modified bitumen products.

C. Materials shall be stored above 55°F (12.6°C) a minimum of 24 hours prior to application.

D. Store all pail goods in their original undamaged containers in a clean, dry location within their specified temperature range. Reference data sheets for product storage requirements.

E. Do not expose materials to moisture in any form before, during or after delivery to the site. Reject delivery of materials that show evidence of contact with moisture.

F. Remove manufacturer supplied plastic covers from materials provided with such. Use "breathable" type covers such as canvas tarpaulins to allow venting and protection from weather and moisture. Cover and protect materials at the end of each work day. Do not remove any protective tarpaulins until immediately before the material will be installed.

1.10 PROJECT CONDITIONS

A. Weather
   1. Proceed with roofing only when existing and forecasted weather conditions permit.
   2. Ambient temperatures must be above 45°F (7.2°C) when applying hot asphalt or water based adhesives.

1.11 WARRANTY/GUARANTEE

A. Provide Manufacturers standard prorated material warranty where the manufacturer agrees to repair or replace portion of the roofing materials that have resulted in a leak due to a manufacturing defect or defects caused by ordinary wear and tear
   1. Duration: Ten (12) years

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

A. GAF Materials Corporation

B. Certainteed

2.02 INSULATION ACCESSORIES

A. Cant Strip: Factory fabricated rigid perlite strip cut at angles to provide a true 45° Angle between horizontal and vertical surfaces.

B. Tapered Edge Strip: Factory fabricated rigid perlite strip cut at angles to provide a smooth transition between differences in elevation.

2.03 MEMBRANE MATERIALS

A. Ply Base Sheet: Durable, film surfaced asphalt modified bitumen membrane containing a core of non-woven polyester mat coated with flexible, SBS polymer-modified asphalt, and designed for direct mechanical attachment to a nailable base. Flintlastic SA NailBase

B. Ply Mid Sheet: Durable, film surfaced asphalt modified bitumen membrane containing a core of non-woven polyester mat coated with flexible, SBS polymer-modified asphalt, and a self adhering underside. Underside is protected with a silicone coated release film. Flintastic SA Mid Ply

C. Ply Cap Sheet: Premium, heavy-duty, fire-resistant, granule-surfaced asphalt modified bitumen membrane containing a core of non-woven polyester mat coated with flexible, SBS polymer-modified asphalt designed for heat weld application. Flintastic SA Cap FR CoolStar

2.04 BITUMEN / ADHESIVES

A. Asphalt Bitumen: ASTM D312 Type III or IV

B. SEBS Modified Asphalt: ASTM D312 Type III or IV

C. SBS Cement: ASTM D4586.

D. Roof Cement: ASTM D4586.

E. Asphalt Primer: ASTM D41.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that the surfaces and site conditions are ready to receive work.

B. Verify that the deck is supported and secured.

C. Verify that the deck is clean and smooth, free of depressions, waves, or projections, and properly sloped to drains, valleys, eaves, scuppers or gutters.

D. Verify that the deck surfaces are dry and free of ice or snow.

E. Verify that all roof openings or penetrations through the roof are solidly set, and that all flashings are tapered.

3.02 SUBSTRATE PREPARATION

A. Plywood Deck
   1. Plywood sheathing must be exterior grade, minimum 4 ply, and not less than 15/32" (12 mm) thick. Note: minimum 19/32" thick in Miami Dade county.
   2. Preservatives or fire retardants used to treat the decking must be compatible with roofing materials.
   3. The deck must be installed over joists that are spaced 24" (61 cm) o.c. or less.
   4. The deck must be installed so that all four sides of each panel bear on and are secured to joist and cross blocking. "H" clips are not acceptable.
   5. Panels must be installed with a 1/8" to 1/4" (3mm – 6mm) gap between panels and must match vertically at joints to within 1/8" (3mm).
   6. Decking should be kept dry and roofed promptly after installation.

3.03 INSTALLATION - GENERAL

A. Install Certainteed Flintlastic Self-Adhering SBS Modified Bitumen roofing system according to all current application requirements in addition to those listed in this section.

B. When the slope of the roof is ½" per foot or greater, install all plies parallel with the slope of the roof, and install intermediate wood nailers as required for the specific roof slope. Plies must extend over ridges and nailed on 6" centers.

C. Start the application of membrane plies at the low point of the roof or at the drains, so that the flow of water is over or parallel to, but never against the laps.

3.04 PLY/ BASE SHEET

A. Coiled rolls should be unrolled and allowed to relax prior to installation. Cut sheets into manageable lengths that will allow for a wrinkle and void free installation.

B. Starting at the low point of the roof, install one ply of Ply lapping 3" (7.6 cm) on sides and 6" (15.2 cm) on ends. Use standard nailing patterns and manufacturer approved fasteners for attachment to nailbable decks

3.05 PLY/ MID SHEET

A. Coiled rolls should be unrolled and allowed to relax prior to installation. Cut sheets into manageable lengths that will allow for a wrinkle and void free installation.

B. Prior to installation, clean the surface of the installed Base Sheet removing all debris, dirt, moisture and other contaminants. Repair any punctures, fishmouths, wrinkles, open seams and other defects prior to installation of succeeding courses.

C. Starting at the low point of the roof, install one ply of Ply lapping 3" (7.6 cm) on sides and 6" (15.2 cm) on ends. Fold the bottom half of the sheet back and remove the release film from this part of the roll. Working from the center of the sheet, carefully roll and hand press the sheet back into place over the base ply being careful to avoid wrinkles and trapped air while maintaining proper alignment. Fold the upper portion of the sheet back on itself to expose and remove the remaining release film and finish the roll. Install the upper portion of the roll working from the center of the sheet outward toward the ends. Firmly hand press the sheet to avoid wrinkles and trapped air and finish with a weighted roller over the entire sheet to insure full contact with the base sheet. All side and end laps must be staggered and offset from underlying courses a minimum of 6" (15.2 cm).

D. Interply End Lap Detail: End laps must be a minimum of 6" (15.2 cm) staggered and offset from adjacent courses a minimum of 3' (91.4 cm). On the overlapping sheet, cut the selvage edge at a 45º angle to provide a tapered transition at the "T" joints formed by succeeding courses. See "T"-Joint Selvage Cuts drawing in paragraph 8.01 N. in the GAFMC Application and Specifications Manual. Remove the release film from the underside of the overlapping sheet and form the lap without wrinkles or voids. Firmly press and roll this overlap seam with a weighted roller to complete.

E. Prior to installing succeeding coursed, apply a 3/8" bead of SBS Flashing Cement along the top edge of each course and along the 45º angle at all selvage edge "T" joint to minimize the potential for voids, blisters or open seams. Install subsequent courses as detailed above, carefully working each sheet into the laps without wrinkles or trapped air. Firmly hand press the sheet and complete the side lap by rolling with a weighted hand roller.

3.06 PLY / CAP SHEET

A. The surface over which the membrane is to be installed must be clean, smooth, and dry and prepared in accordance with article *3.02 "Substrate Preparation".* Do not apply membrane directly to a fresh asphalt glaze or flood coat, or over base plies with excessive asphalt mopping bleed out at laps.

B. For slopes 3/4 " per foot (6.2 cm per meter) and over, membrane must be run parallel to the roof slope and back nailed in accordance with GAFMC steep slope application requirements. On slopes less than 3/4" per foot (6.2 cm per meter), install cap sheet perpendicular to the slope.

C. Never apply membrane by any method except welding with a propane torch or other equipment specifically designed for application of torchable modified bitumen.

D. The coiled membrane must be unrolled approximately 10 ft. (3 meters), and aligned. The propane torch flame is then applied uniformly across the exposed back surface of the membrane and lap areas until the compound reaches the proper application temperature and exhibits a slight sheen. A complete burn-off of release films where present on the underside of the rolls, membrane selvage edges or both surfaces are necessary. Avoid overheating which may result in damage to or improper adhesion of the membrane. (The flame should be moved from side to side in the shape of an "L", applying about 75% of the heat to the membrane and 25% to the substrate or underlying plies including the lap area of the previously installed courses.) The membrane is slowly unrolled as heat is applied to ensure proper adhesion. When complete, re-roll the opposite end of the membrane and install in the same manner.

E. A minimum 3/8" (10 mm) bitumen flow-out must be obtained at all seam areas. Dry laps are not acceptable. To ensure the proper 3/8" (10mm) flow of bitumen at the seam areas, a roller may be used. Roller application should follow behind the torch no more than 4 ft. (1.2 m) or less than 3 ft. (0.91 m) to be sure that the membrane will be at the proper temperature to produce proper flow. Hand rollers or "walking-in the seam" methods are also acceptable. Check all seams for full and uniform adhesion. Un-adhered seams must be lifted with a heated trowel and resealed by lightly torching the seam area.

F. Matching granules to be broadcast into the modified bitumen bleed out at seams while hot to enhance the finished appearance of the membrane.

G. All end laps must be staggered a minimum of 18" (45.7 cm) so that no adjacent end laps coincide. If end laps fall in line or are not staggered the proper distance, a full width of membrane must be installed over the end laps. End laps, flashing sheets and other seams formed over granule surfaces require pre-heating of the top surface of the underlying granule surface membrane to a point where the granules just begin to sink into, and the modified bitumen compound comes up through the granules to ensure proper seam construction and adhesion.

H. All laps must be parallel or perpendicular to the slope of the roof such that the flow of water is never against the lap.

I. Membranes must not be applied during adverse weather or without precautionary measures in temperatures below 45ºF (7.2ºC).

3.07 ROOF PROTECTION

A. Protect all partially and fully completed roofing work from other trades until completion.

B. Whenever possible, stage materials in such a manner that foot traffic is minimized over completed roof areas.

C. When it is not possible to stage materials away from locations where partial or complete installation has taken place, temporary walkways and platforms shall be installed in order to protect all completed roof areas from traffic and point loading during the application process.

D. Temporary tie-ins shall be installed at the end of each workday and removed prior to commencement of work the following day.

3.08 CLEAN-UP

A. All work areas are to be kept clean, clear and free of debris at all times.

B. Do not allow trash, waste, or debris to collect on the roof. These items shall be removed from the roof on a daily basis.

C. All tools and unused materials must be collected at the end of each workday and stored properly off of the finished roof surface and protected from exposure to the elements.

D. Dispose of or recycle all trash and excess material in a manner conforming to current EPA regulations and local laws.

E. Properly clean the finished roof surface after completion, and make sure the drains and gutters are not clogged.

F. Clean and restore all damaged surfaces to their original condition.

3.09 MAINTENANCE

A. Inspections to the roof shall be performed annually by a GAFMC Master Select™ contractor.

B. An annual roofing system maintenance program shall be performed by a manufacturer's approved contractor in accordance with manufacturer's maintenance program provided.

END

SECTION 07330 - ASPHALT SHINGLE ROOFING SYSTEM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Granule surfaced asphalt shingle roofing.
2. Associated metal flashing

B. Related Sections:

1. Section 07600 – Flashing and Sheet Metal

1.22 REFERENCES

A. ASTM A 653/A 653M - Standard Specification for Steel Sheets, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

B. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

C. ASTM B 370 - Standard Specification for Copper Sheet and Strip for Building Construction.

D. ASTM D 225 - Standard Specification for Asphalt Shingles (Organic Felt) Surfaced with Mineral Granules.

E. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

F. ASTM D 1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

G. ASTM D 3018 - Standard Specification for Class A Shingles Surfaced with Mineral Granules.

H. ASTM D 3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method).

I. ASTM D 3462 - Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.

J. ASTM D 4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.

K. ASTM D 4869 - Standard Specification for Asphalt-Saturated Organic Felt Shingle Underlayment Used in Roofing.

L. ASTM D 6757 – Standard Specification for Inorganic Underlayment for Use with Steep Slope Roofing Products.

M. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings.

N. UL 2218 - Impact Resistance of Prepared Roofing Materials.

1.3.1 PREINSTALLATION MEETING

A. General: For all projects in excess of 250 squares of roofing, a pre-installation meeting is strongly recommended.

B. Timing: The meeting shall take place at the start of the roofing installation, no more than 2 weeks into the roofing project.

C. Attendees: Meeting to be called for by manufacturer's certified contractor. Meeting's mandatory attendees shall include the certified contractor and the manufacturer's representative. Non-mandatory attendees shall include the owner's representative, architect or engineer's representative, and the general contractor's representative.

D. Topics: Certified contractor and manufacturer's representative shall review all pertinent requirements for the project, including but not limited to, scheduling, weather considerations, project duration, and requirements for the specified warranty.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store all products in manufacturer's unopened, labeled packaging until they are ready for installation.

B. Store products in a covered, ventilated area, at temperature not more than 110 degrees F (43 degrees C); do not store near steam pipes, radiators, or in direct sunlight.

C. Store bundles on a flat surface. Maximum stacking height shall not exceed GAF's recommendations. Store all rolls on end.

D. Store and dispose of solvent-based materials in accordance with all federal, state and local regulations.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Provide manufacturer's printed product information indicating material characteristics, performance criteria, and product limitations.

C. Manufacturer's Installation Instructions: Provide published instructions that indicate preparation required and installation procedures.

1.6 QUALITY ASSURANCE

A. Maintain one copy of manufacturer's application instructions on project site.

B. Verify that manufacturer's label contains reference to specified ASTM standards.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Take special care when applying shingle underlayment and shingles when ambient or wind chill temperature is below 45 degrees F (7 degrees C). Tack underlayment in place if it does not adhere immediately to the deck.

1.8 WARRANTY

A. Manufacturer's Warranty: Furnish shingle manufacturer's warranty for product(s) of this section as follows:
CertainTeed Presidential Shake: 50-year limited warranty.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Provide products manufactured by CertainTeed Corporation, Architectural Support Group, P.O. Box 860, Valley Forge, PA 19482. Tel: (800) 233-8990, Fax: (610) 341-7940.

B. Substitutions: Not permitted.

2.2 ASPHALT FIBER GLASS SHINGLES

A. CertainTeed Landmark Conforming to ASTM D 3018 Type I - Self-Sealing; UL Certification of ASTM D 3462, ASTM D 3161 Class “F” (110-mph)/UL997 Wind Resistance, and UL Class A Fire Resistance; glass fiber mat base; ceramically colored/UV resistant mineral surface granules across entire face of shingle; three-layer laminated four-tab shingle.
1. Weight: 245 pounds per square (100 square feet)
2. Color: To be Determined.

2.3 ATTIC VENTILATION

A. Ridge Vents

1. Rigid plastic ridge ventilator designed to allow the passage of hot air out of attics. To be used in conjunction with eave/ soffit intake ventilation products.
a Provide 18.0 sq inches in NFVA per lineal foot. rigid plastic ridge ventilator designed to allow the passage of hot air from attics. Shingle Vent 2, Cora

Rigid Vent 2.

b Ridge vent material shall be enough length to achieve a ventilation area of 1/300th of the attic space.

B. Lower Roof Venting

1. Rigid plastic eave ventilator designed to allow the passage of intake air into attics Smart Vent.
2. Provide a NFVA of 9 square inches per vent.
3. Vents to provide enough ventilation to achieve a ventilation area of 1/300th of the attic space.

2.3 SHEET MATERIALS

A. Underlayment: CertainTeed "Roofers' Select", ASTM D 6757; asphalt-impregnated fiberglass-reinforced organic felt designed for use on roof decks as a water-resistant layer beneath roofing shingles.

2.4 FLASHING MATERIALS

A. Sheet Flashing: ASTM A 361/A 361M; 26 gage (0.45 mm) steel with minimum G115/Z350 galvanized coating.

B. All exposed flashing to be primed on all sides or bonderized.

2.5 ACCESSORIES

A. Nails: Standard round wire type roofing nails, corrosion resistant; hot dipped zinc coated steel, aluminum, or chromated steel; minimum 3/8 inch (9.5 mm) head diameter; minimum 11 or 12 gage (2.5 mm) shank diameter; shank to be of sufficient length to penetrate through roof sheathing or 3/4 inch (19 mm) into solid wood, plywood, or non-veneer wood decking.

B. Asphalt Roofing Cement: ASTM D 4586, Type I or II.

2.6 FLASHING FABRICATION

A. Form flashing to profiles indicated on Drawings, and to protect roofing materials from physical damage and shed water.

B. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions under provisions of Section 01700.

B. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surface.

C. Verify roof openings are correctly framed prior to installing work of this section.

D. Verify deck surfaces are dry and free of ridges, warps, or voids.

3.2 ROOF DECK PREPARATION

A. Follow shingle manufacturer's recommendations for acceptable roof deck materials.

B. Broom clean deck surfaces under eave protection and underlayment prior to their application.

3.3 INSTALLATION - PROTECTIVE UNDERLAYMENT

A. Install one layer asphalt felt shingle underlayment perpendicular to slope of roof and lap minimum 4 inches (100 mm) over eave protection.

B. Weather-lap and seal watertight with asphalt roofing cement items projecting through or mounted on roof.

3.4 INSTALLATION - VALLEY PROTECTION

A. Install metal valley flashing over one ply of WinterGuard before roof deck protection is installed. Secure flashing by nailing at 18 inches on center just beyond edge of flashing so that nail heads hold down the edge. Lap joints a minimum 6 inches (152 mm). Follow instructions of shingle and waterproofing membrane manufacturer.

3.5 INSTALLATION - METAL FLASHING

A. Weather-lap joints minimum 2 inches (50 mm).

B. Seal work projecting through or mounted on roofing with asphalt roofing cement and make weather-tight.

3.6 INSTALLATION - ASPHALT SHINGLES

A. Install shingles in accordance with manufacturer's instructions for product type and application specified.

3.7 FIELD QUALITY CONTROL

A. Field inspection will be performed under provisions of Section 01400.

B. Visual inspection of the Work will be provided by Owner. If conditions are unacceptable, Owner will notify the Architect.

3.8 PROTECTION OF FINISHED WORK

A. Protect finished work under provisions of Section 01700.

B. Do not permit traffic over finished roof surface.

END

Section 07460
Fiber-Cement Siding

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Fiber Cement Vertical Panels.

B. Related Sections include the following:
1. Section 06100 Rough Carpentry. Sheathing and moisture barrier.
2. Section 06200 Finish Carpentry. Exterior wood trim.
3. Section 07620 Flashing and Sheet Metal. Flashing, gutters, downspouts and other sheet metal work.
4. Section 07920 Joint Sealants. Field-applied sealants.

1.2 SUBMITTALS

A. Product Data: For each type of product specified. Include identification of materials; dimensions of individual components; installation instructions; profile, and texture as specified.

B. Samples for Initial Selection: Manufacturer's sample finishes showing the full range of profile and texture available as specified.

C. Samples for Verification: Full-size units of each type of siding and trim indicated; in sets for each texture and pattern specified.
1. 24-inch- wide-by-36-inch- high sample panels of lap siding and vertical panels assembled on plywood backing.

D. Submittals: Within (10) days of owner’s notice
1. Submit three 6 inch x 6 inch pieces of Hardipanel claddings in texture and widths shown and specified herein.
2. Submit three copies of specifications, installation data and other pertinent manufacture’s literature.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer who has completed siding installations similar in material, design, and extent to that indicated for Project that has resulted in construction with a record of successful in-service performance.

B. Source Limitations for Siding and Accessories: Obtain each texture, pattern, and type of siding and related accessories from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's unopened packages or bundles with labels intact.

B. Store materials in a dry, well-ventilated, weather tight place. Comply with manufacturers written instructions for storage, handling, and protection.

1.5 PROJECT CONDITIONS

A. Weather Limitations: Proceed with siding installation only if existing and forecasted weather conditions permit siding to be installed according to manufacturer's written instructions and if substrate is completely dry.

1.6 WARRANTY

A. Provide James Hardie's limited product warranty against manufacturing defects in Hardipanel vertical siding for 50 years and Harditrim for 10 years.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
   1. Furnish full lengths of siding and trim in a quantity equal to 2 percent of amount installed (include optional trim if used).
   2. Store where directed by Owner for future use.

PART 2 – PRODUCT

2.1 FIBER CEMENT SIDING

A. Manufacturers: Subject to compliance with requirements, provide products by James Hardie Building Products, Inc., or approved substitution. Siding to meet current building code requirements (BOCA,ICBO, SBCCI). Non-asbestos fiber cement siding to be non-combustible when tested
In accordance with ASTM test method E136 and comply with ASTM Standard Specification C1186 Grade II, Type A. Refer to drawings for locations of individual products.

B. Fiber Cement Panels:
   1. Product: James Hardie, Hardipanel, Cedarmill Vertical Siding Panel
   2. Sizes: 4' x 8 'x 5/16 " , 4'x 9' x 5 /16" , 4' x 10' x 5/16"
   3. Factory primed, field painted.

C. Fiber Cement Trims
   1. Product
      a. James Hardie, XLD Trim, smooth planks
      b. Size: 1" thick x size as required
      c. Finish: Factory primed, field painted.

D. Reference Section 01630: Product Substitution Procedures.

2.2 ACCESSORIES

A. Fasteners: Corrosion resistant fasteners, blind nailed, in sufficient length to penetrate a minimum of 1 1/4 inch into wood framing substrate.

B. Flashing: Coordinate with requirements of Division 7 Section 07620.

2.3 FINISH

A. Field paint as specified in Section 09900.

B. Finish Hardipanel sidings coated by Prime Plus TM system with minimum one coat High quality, with 100% acrylic or latex oil based exterior grade paint with 180 days of Installation. Follow paint manufacturer's written product recommendation and written product recommendation.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates for compliance with requirements for substrates, installation tolerances and other conditions affecting performance of siding. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

B. Coordinate installation with weather barrier, flashings and other adjoining construction.

3.3 INSTALLATION

A. Fiber Cement Panels: Comply with manufacturer's written installation instructions applicable to products and applications indicated. ***NOTE:*** Locate vertical joints behind batten trim.

B. Fiber Cement Trim: Comply with manufacturer's written installation instructions applicable to products and applications indicated.

C. Fiber Cement Corner Trim: Comply with the manufacturer's written installation instructions applicable to products and applications indicated.

D. Finish: Apply finish within manufacturer's recommended period of time after installation.

E. Set siding in continuous bead of sealant at vertical joints. Vertical joints shall be not greater than 1/16-inch wide.

F. Install flashing around all openings.

G. Pneumatic nailing for Hardie installation. Contractor responsible for nail pop repair.

H. Minor nail pop damage may occur during siding installation and the repair is the responsibility of the Contractor.

I. Fasten through trim into structural framing or code complying sheathing. Fasteners must penetrate minimum ¾ inch or full thickness of sheathing. Additional fasteners may be required to ensure adequate security as per the Manufactures specifications.

J. Maintain clearance between trim and adjacent finished grade.

K. Trim inside corner with single board.

L. Install single board of outside corner board then align second corner board to outside edge of first corner board. Do not fasten Harditrim board to Harditrim board.

M. Allow 1/8 inch gap between trim and siding.

N. Seal gap with high quality, paintable caulk.

O. Shim frieze board as required to align with corner trim.

P. Install Harditrim fascia over structural subfascia.

Q. Block framing studs where Hardipanel siding horizontal joint occur.

R. Place fasteners no closer than 3/8 inch from panel edges and 2 inches from panel corners.

S. Allow minimum 1- inch vertical clearance between roofing and bottom edge of siding.

-END

-SECTION 07620 – SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 REL.ATED DOCUMENTS

A. Drawing and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this section.

1.0 SUMMARY

A. This Section includes the following sheet metal flashing and trim.
   1. Manufactured reglets.
   2. Formed low-slope roof flashing and trim.
   3. Formed wall flashing and trim

B. Related Sections include the following:
   1. Section 07130 – Modified Bitumen Self-Adhered Roofing System
   2. Section 07330 – Asphalt Fiberglass Shingles

1.2 PERFORMANCE REQUIREMENTS

A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, over stressing of components, failure of joint sealants, failure of connections, and other detrimental effects.

C. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

1.3 SUMBITTALS

A. Product Data: For each type of product indicated, include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawing: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop and field assembled work. Include the following:
   1. Identify material, thickness, weight, and finish for each item and location in Project
   2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.

3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.
4. Details of expansion-joint covers, including showing direction of expansion and contraction.

C. Samples for initial Selection: for each type of sheet metal flashing and trim indicated with factory applied color finishes.
1. Include similar Samples of trim and accessories involving color selection.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
1. Sheet Metal Flashing: Two – 12 inches long, Include fasteners, cleats, clips, closures, and other attachments.
2. Trim: Two – 12 inches long. Include fasteners and other exposed accessories.
3. Accessories: full size Sample.

1.4 QUALITY ASSURANCE

A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual". Conform to dimensions and profiles shown unless more stringent requirements are indicated.

B. Coordinate work for this Section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.

B. Unload, store and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack materials on platforms or pallets, covered with suitable weather tight and ventilated covering. Do not shore sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

PART 2 – PRODUCTS

2.1 SHEET MATERIALS

A. Galvanized steel ASTM A526, G90, 26 ga. Min.

B. Lead: Sheet: ASTM B 749, Type L51121, copper-bearing lead sheet

2.2 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
   1. Exposed Fasteners: Heads matching color of sheet metal by means of plastic caps or factory-applied coatings.
   2. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.
   3. Blind Fasteners: High-strength aluminum or stainless-steel rivets.
   4. Spikes and Ferrules: Same material as gutter, with spike and ferrule matching internal gutter width.

C. Solder for Lead: ASTM B 32, Grade Sn50, 59 percent tin and 50 percent lead.

D. Elastomeric Sealant: ASTM C 920, elastomeric polysulfide or silicone polymer sealant, of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

E. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, heavy bodied for hooked-type expansion joints with limited movement.

F. Reglet Metal or plastic units of type and profile indicated, compatible with flashing indicated non-corrosive. Fry Reglet ST

G. Metal Accessories: Provide sheet metal clips, straps, anchoring device and similar devices and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size and gauge required for performance.

2.5 MANUFACTUARED SHEET METAL FLASHING AND TRIM

A. Reglet: Units of type, material and profile indicated, formed to provide secure interlocking of separate reglet and counter flashing pieces, and compatible with flashing indicated with factory-mitered and welded corners and junctions...

2.6 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Shop fabricated items where practicable. Obtain field measurements for accurate fit before shop fabrication.

B. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.

C. Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.

D. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.

E. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the work cannot be used, form expansion joints of inter-nesting hooked flanges, not less than 1 inch deep, filled with elastomeric sealant concealed within joints.

F. Conceal fasteners and expansion provisions where possible on exposed to view sheet metal flashing and trim, unless otherwise indicated.

G. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, non-corrosive metal.

2.7 ROOF DRAINAGE SHEET METAL FABRICATIONS

A. Gutters: Fabricate 5" fascia gutter as indicated, gutters complete with gutter and gutter straps.
   1. Material to be 26 ga.
   2. Material to be pre-painted with a standard color
   3. Gutter straps shall be located on 48" centers.

B. Downspouts: Fabricate rectangular, as indicated, downspouts complete with mitered elbows. Furnish with metal hangers, from same material as downspouts, and anchors.
   1. Material and Thickness: 1 ¾ x 2 ¾ , 26 ga.
   2. Material to be pre-painted with a standard color
   3. Manufactured Hanger Style: SMACNA Plate 35 Figure H.
   4. All miters shall be fabricated without any "diving board platform"

2.8 SLOPED ROOF SHEET METAL FABRICATIONS

A. Roof Edge Flashing (Gravel Stop) and Fascia Caps: Fabricate in minimum 96-inch long but not exceeding 10-foot long sections. Furnish with hem and kick on bottom edge.
   1. Joint Style: SMACNA Plate 42 Figure B.
   2. Material Type and Thickness: 24 ga.

B. Base Flashing: Fabricate from material and thickness as indicated.

C. Counter-Flashing: Fabricate from 26 ga. material and thickness as indicated.

D. Roof Penetration Flashing: Fabricate from 26 ga. material as indicated.

E. Roof Drain Flashing: Fabricate from 26 ga. material as indicated.

2.09 FINISHES

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective cover before shipping.

A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of the components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

9.1 EXAMINATION

A. Examine substrates, areas, and conditions to verify actual locations, dimensions and other conditions affecting performance of work.

9.2 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
   1. Torch cutting of sheet metal flashing and trim is not permitted.

B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.
   1. Coat side of sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
   2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene underlayment.
   3. Bed flanges in thick coat of asphalt roofing cement where required for waterproof performance.

C. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.

D. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and elastomeric sealant.

E. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
   1. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.

F. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 40 feet with no joints allowed within 24 inches of corner of intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with elastomeric sealant concealed within joints.

G. Fasteners: Use fasteners of sizes that will penetrate substrate not less than 1 ¼ inches for nails and not less than ¾ inch for wood screws.
   1. Galvanized or Pre-painted, Metallic-Coated Steel: Use stainless steel fasteners.
   2. Aluminum: Use aluminum or stainless steel fasteners.
   3. Stainless Steel: Use stainless steel fasteners.

H. Seal joints with elastomeric sealant as required for watertight construction.
   1 Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F, set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
   2 Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants.).

H. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1 ½ inches except where pre-tinned surface would show in finished Work.
   1. Do not solder pre-painted, metallic-coated steel and aluminum sheet.
   2. Pre-tinning is not required for lead.
   3. Stainless-Steel Soldering: Pretin edges of uncoated sheets to be soldered using solder recommended for stainless steel and phosphoric acid flux. Promptly wash off acid flux residue from metal after soldering.
   4. Do not use open-flame torches for soldering. Heat surfaces to receive solder and flow solder into joints. Fill joints completely. Completely remove flux and spatter from exposed surfaces.

I. Aluminum Flashing: Rivet or weld joints in uncoated aluminum where necessary for strength.

3.02 SHEET METAL

A. Fabricate and install all sheet metal materials as shown in applicable construction details. Refer to SMACNA (Sheet Metal and Air Conditioning Contractors National Association, Inc.) for guidance on sheet metal treatments not addressed in this specification.

B. Clean metal and apply asphalt primer to all sheet metal surfaces that will come into contact with asphalt or other bituminous materials; allow the primer adequate time to dry.

C. Use fastener types compatible with the sheet metal type.
   1. Lead and galvanized steel: use galvanized or cadmium-plated sheet fasteners.

D. Metal counter-flashing shall have a minimum 4" (10.2 cm) face with a drip lip. The bottom edge of the counter flashing shall cover the roofing membrane and/or base flashing by a minimum of 4" (10.2 cm). Metal counter flashing used for masonry walls, wooden walls, or through wall metal flashings should be a two piece design to allow for installation and later removal. Metal counter-flashings for stucco, EIFS, wood siding or similar materials should be designed appropriately, such as "Z" type flashing. End joints shall be lapped 3" (7.6 cm) or more. Adequate fasteners must be provided to secure against wind forces. Skirt fasteners shall be watertight.

E. Metal should not be used as a component of base flashing. Because of the high coefficient of expansion of sheet metals and the large temperature changes that can be experienced on a roof, sheet metal or exposed metal components must be isolated from the waterproofing components of the roofing and flashing system as efficiently as possible to prevent the metal from splitting the membranes.

3.3 ROOF DRAINAGE SYSTEM INSTALLATION

A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.

B. Downspouts: Join sections with 1 ½ inch telescoping joints. Provide fasteners designed to hold downspouts securely to the building. 20 foot downspouts shall have 3 straps and 10 foot downspouts to have 2 straps. Locate fasteners at top and bottom and at approximately 60 inches o.c. in between.

3.4 ROOF FLASHING INSTALLATION

A. General: Install sheet metal roof flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual". Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight.

B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated.

1. Interlock bottom edge of roof edge flashing with an overlap joint at each joint connection.

D. Counter Flashing: Coordinate installation of counter flashing with installation of base flashing. Insert counter flashing in reglets or receivers and fit tightly to base flashing. Extend counter flashing 4 inched over base flashing. Lap counter flashing joints a minimum of 4 inches and bed with elastomeric sealant.

1. Secure in a waterproof manner by means of snap-in installation and sealant of lead wedges and sealant, unless otherwise indicated.

D. Roof Penetration Flashing: Coordinate installation of roof penetration flashing with installation of roofing and other items penetrating roof. Install flashing as follows:

1. Turn lead flashing down inside vent piping, being careful not to block vent piping with flashing.
2. Seal with elastomeric sealant and clamp flashing to pipes penetrating roof except for lead flashing on vent piping.

3.5 WALL FLASHING INSTALLATION

A. Reglets: Installation of reglets as indicated and shown on the drawings.

B. Openings Flashing in Frame Construction: Install continuous head, sill and similar flashing to extend 6 inches beyond wall openings or as indicated on the drawings.

3.6 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder and sealants.

C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal fillings, pop rivets stems, and pieces of flashing. Maintain in a clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup of similar minor repair procedures.

- END –

SECTION 07550

Inclines: *Up to 6" in 12" (inclines 2" to 6" in 12"; See General Requirements/Nailing section).*

Roofing Membrane
The base ply is installed with approved mechanical fasteners in the side laps, 9" o.c., and two rows staggered in the center of the sheet, 12" from each edge and 18" o.c. Laps shall be a minimum of 3" on sides and 4" on ends. Over the base ply, the Flintlastic SA Mid Ply is positioned in place lapping 3" on sides and 6" on ends. The split release films are removed and the mid ply adhered. Install one ply of Flintlastic SA Cap FR, lapping 4" on sides and 6" on ends, positioning, removing release films and adhering to mid ply. Set end laps in a full ⅛" bed of FlintBond modified bitumen adhesive. All end laps shall be diagonally staggered and not less than 3' apart. All side and end laps of each ply shall be staggered and offset from preceding plies. Roofing system shall be applied in continuous application.

Material Handling
Work with manageable lengths. Material is positioned and aligned in place. Fold material lengthwise, first from the down slope side, to remove the lower split release film. Once pressed into place, repeat for up slope side. Selvage release is removed prior to adherence of following course. All end laps of both base and mid ply require end lap cuts (see Construction Details). All materials should be installed in a continuous application at 50 degrees or warmer. Stop work if poor adherence is observed. Do not expose unfinished assembly components overnight. Smooth and secure mid ply (when installed) and SA cap sheet with a heavy weighted roller after each is installed. The blue film on the upper surface of the SA NailBase, PlyBase and Mid Ply sheets is permanent and is not to be removed.

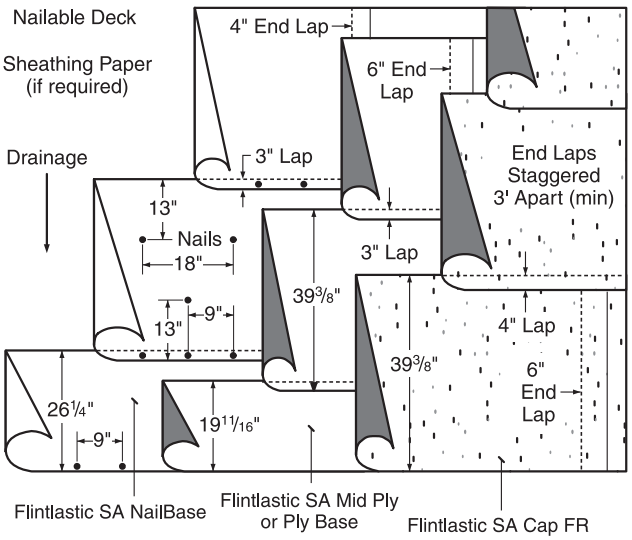
Base Flashing and Curbs
Over the membrane at vertical surfaces, install base flashing consisting of Flintlastic SA NailBase or Mid Ply plus Cap as detailed in the Construction Details section of the Commercial Systems Specifications Manual. Mechanically attach Flintlastic SA NailBase Sheet to nailable substrates and adhere Flintlastic SA Mid Ply and Cap to primed non nailable substrates. Adhere Flintlastic SA materials in FlintBond SBS modified bitumen adhesive when lapping or installing over granuled surfaces. Nail top edge of base flashing 9" o.c. through tin-discs. Sealing top of the base flashing prior to installation of counterflashing is recommended.

Final Surfacing
Refer to the General Requirements Section for information on reflective coatings and optional surfacing.

Refer to Commercial Roofing Systems General Require-ments Sections and to Flintlastic SA Commercial Roofing Systems for definitions. General Requirements shall be used in conjunction with Roof System Specification. Insulation and/or recover specifications require the integration of appropriate addenda into the main specification.

FLINTLASTIC SA NAILBASE SHEET, NAILED
FLINTLASTIC SA MID PLY, SELF-ADHERED
FLINTLASTIC SA CAP FR, SELF-ADHERED

FOR USE OVER NAILABLE DECKS



SA-FR-N-B3

2.01 ROOFING SYSTEM

Summary of Materials per 100 Square Feet

Flintlastic SA NailBase Sheet (1 ply)	42 lbs.
Flintlastic SA Mid Ply (1 ply)	68 lbs.
Flintlastic SA Cap FR (1 ply)	90 lbs.
Approximate Total Weight	200 lbs.

Note: Flintlastic SA Mid Ply (or FlintFlash SA), FlintBond Trowel Grade and FlintBond Caulk Grade are needed for flashing details and mineral surface membrane overlaps. FlintPrime SA is needed for surfaces that require priming.

Cants
In angles of roof deck and vertical surfaces, the roofing contractor shall furnish and install an approved cant strip with a minimum 3" face.

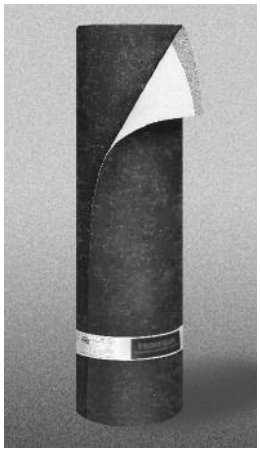
NOTES:
20 YR NDL requires the use of FLINTLASTIC SA Mid Ply as interply.

FLINTLASTIC® SA CAP FR SHEET COOLSTAR™

SELF-ADHERING SBS MODIFIED BITUMEN CAP SHEET FOR SA ROOF SYSTEMS WITH REFLECTANT COOLSTAR COATING

LEARN MORE AT energystar.gov

Product Information



Product Use: FLINTLASTIC SA CAP FR SHEET COOLSTAR roofing membrane is a premium, self-adhering SBS modified bitumen roll roofing material suitable for use in accordance with CertainTeed specifications for most low slope roof system applications. Refer to the CertainTeed Commercial Roof Systems Manual for complete self-adhered roof system specifications and application requirements.

The FLINTLASTIC SA line of products is more than a single membrane; it is a complete roof system designed for base and cap or base, mid-ply and cap roof system configurations. Use of FLINTLASTIC SA NailBase permits complete mechanical attachment to nailable substrates, preserving the integrity of the substrate for future tear-offs and adding additional waterproofing performance capabilities to the overall system. FLINTLASTIC SA PlyBase is designed for direct attachment to non-nailable substrates without fasteners. For larger industrial/institutional applications, FLINTLASTIC SA NailBase or PlyBase, Mid Ply and Cap in combination represent a premium roof system capable of meeting the performance criteria of a larger roof. Use of FLINTLASTIC SA NailBase also adds to the fire resistance of the roof system, enabling UL Listing of the roof system.

When using self-adhering roofing products, particular attention must be paid to storage and handling, deck preparation, slope and drainage, and application requirements to assure a successful installation and long-term performance.

Compliances

FLINTLASTIC SA roofing membranes are manufactured on state-of-the-art, dedicated roofing lines specifically designed for the production of modified bitumen roofing membrane. FLINTLASTIC SA CAP FR SHEET COOLSTAR meets or exceeds ASTM D6164, Grade G, Type I and is UL 2218, Class 4, impact resistant.

Refer to the current UL Roof Systems Directory, or UL's web site, www.ul.com for the most current information on UL listing for FLINTLASTIC SA Products.

Classified by Underwriters Laboratories, Inc. As to an External Fire Exposure Only 62P3

UL 2218 Class 4 Impact Resistance. For restrictions see UL Directory (TGFU).

Roll Dimensions:	39⅜" x 33'11"
Weight:	102 lbs. per roll
Coverage:	One square
Top Surface:	Mineral–variety of colors
Bottom Surface:	Removable release film
Reinforcement:	Polyester/fiber glass scrim combination mat
Packaging:	Individual cartons (20 rolls per pallet)

Applicable Standards: FLINTLASTIC SA CAP FR SHEET COOLSTAR is listed by Underwriters Laboratories for use in various Class A, B, and C roof assemblies, ICC (ESR-1388), Florida Building Code State-wide Approval (FL 2533), Texas Department of Insurance and Cool Roof Rating Council. FLINTLASTIC SA CAP FR SHEET COOLSTAR is an approved ENERGY STAR® product. Initial Solar Reflectance: 0.77; Aged Solar Reflectance: 0.63; Initial Thermal Emmittance: 0.92. Consult www.certainteed.com/lowslopetechinfo for details. Meets or exceeds ASTM D6164. Certain SA Systems are UL classified as to impact resistance as described in the UL *Roofing Materials & Systems Directory*.

CRRC COOL ROOF RATING COUNCIL®

	Initial	Weathered
Solar Reflectance	**0.77**	**0.64**
Thermal Emittance	**0.92**	**0.86**
Rated Product ID	0024	
Licensed Manufacturer ID	0668	
Classification	Production Line	

Cool Roof Rating Council ratings are determined for a fixed set of conditions, and may not be appropriate for determining seasonal energy performance. The actual effect of solar reflectance and thermal emittance on building performance may vary.

Manufacturer of product stipulates that these ratings were determined in accordance with the applicable Cool Roof Rating Council procedures.

Test Description	***Test Method***	***Results****
Solar Reflectance Index (SRI):	ASTM E1980	95.6
Thickness:	ASTM D5147	4.0 mm (160 mils)
Tensile Strength:	ASTM D5147 @73°F MD/XD	80/55 lbs./in.
Elongation:	ASTM D5147 @73°F MD/XD	50%/55%

***NOTE: Published results are nominal production values confirmed by independent laboratory testing.**

Installation

Refer to the CertainTeed Commercial Roof Systems Manual for complete product installation details and requirements. Below is a general guideline:

Deck Preparation: CertainTeed recommends the use of FLINTLASTIC SA NailBase in conjunction with all self-adhering membrane roof installations on nailable substrates. Non-nailable roof decks may receive direct application of FLINTLASTIC SA PlyBase or FLINTLASTIC SA Mid Ply followed by FLINTLASTIC SA CAP FR SHEET COOLSTAR provided the deck is thoroughly primed using FLINTLASTIC SA Primer. It should be noted that without the use of a nailable base sheet, the membrane may be difficult to remove if removal is ever warranted, and certain UL listings for the product may not apply.

Product Application

Apply to Flintlastic SA NailBase, PlyBase and/or FLINTLASTIC SA Mid Ply working with lengths of membrane appropriate for proper handling and the same installation procedure as described for FLINTLASTIC SA Mid Ply. Overlap sidelaps 4" and endlaps 6". Selvage edge with release strip is provided on FLINTLASTIC SA CAP FR SHEET COOLSTAR; position roll with selvage edge at the high side of the roof. Once the first cap sheet membrane length is in place remove the top, sidelap release film before overlapping the second length of FLINTLASTIC SA CAP FR SHEET COOLSTAR. Stagger sidelaps of FLINTLASTIC SA CAP FR SHEET COOLSTAR a minimum of 18" from those of the underlying FLINTLASTIC SA Mid Ply, and be certain endlaps are also staggered minimum 36". At endlaps (or any overlap onto mineral surface), use trowel grade FlintBond™ modified bitumen adhesive uniformly in a 1/16" to 1/8" layer wherever an overlap exists to ensure an adequate bond. Adhesive bleed out may be touched up with CoolStar Touch-Up Coating or other white elastomeric coatings. Cut opposing corners of endlaps diagonally to avoid "T" seam joints. Use a heavy, weighted roller to smooth and secure the membrane.

Precautions

Do not attempt application if ice, snow, moisture or dew are present. Surface to be bonded must be clean, dry and free from any dust or deterrent to adhesion. Ambient temperature must be 50ºF or above. Do not attempt installation on roofs without adequate slope and drainage.

Storage and Handling

SA rolls must be stored above ground, indoors, protected from the elements. Rolls that are improperly stored or have been on hand for prolonged periods of time may lose their tack. Do not attempt to install rolls that do not exhibit an adequate bond.

Warranties

CertainTeed offers a number of different types of roof membrane warranties designed to meet the building owner's specific requirements. Please contact your nearest CertainTeed office for additional information and requirements.

Technical Assistance

CertainTeed provides technical assistance in the design, selection, specification and application guidelines for FLINTLASTIC roof systems. Architectural and field representatives are available for consultation within each region.

For more information, contact CertainTeed's Customer Support at 800-233-8990.

CertainTeed Corporation
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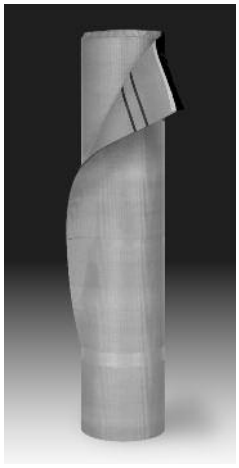
Professional: 800-233-8990
www.certainteed.com

Code No. COMM-188

FLINTLASTIC® SA MID PLY

SELF-ADHERING SBS MODIFIED BITUMEN MID PLY FOR SA ROOF SYSTEMS

Product Information



Product Uses: FLINTLASTIC SA MID PLY is designed for use as a mid ply in multi-ply self-adhered systems. It is suitable for use in the construction of various roof membrane assemblies over a variety of substrates. It is intended for use over FLINTLASTIC SA NailBase, FLINTLASTIC SA PlyBase or directly self-adhered to suitable substrates.

Precautions: FLINTLASTIC SA MID PLY must be applied as part of a self-adhered system. It is not intended for use with hot asphalt, cold adhesives or torch-down applications. Rolls should be stored upright, off ground, in their packaging cartons, completely protected from the weather. Rolls that have been improperly stored or have been on hand for prolonged periods of time may lose their tack. Do not attempt to install rolls that do not exhibit an adequate bond. Roof decks shall be structurally sound, dry and smooth, and meet or exceed minimum requirements of the deck manufacturer, local code and CertainTeed. Don't attempt application if ice, snow, moisture or dew are present. Surface to be bonded to must be clean, dry and free from any dust or deterrent to adhesion. Ambient temperature must be 50°F or above. Don't attempt installation on roofs without adequate slope and drainage. Additional specifications and precautions are contained in the CertainTeed Commercial Roof Systems Manual.

Product Composition and Features: FLINTLASTIC SA MID PLY is manufactured using a high performance, non-woven polyester/fiber glass scrim combination mat, impregnated and coated with a superior grade of modified bitumen compound. It is surfaced on the bottom with a removable release film and on the top with a permanent film. The combination mat provides excellent tear and puncture resistance.

Roll Dimensions:	39⅜" x 33'11"
Thickness:	Approx. 3.0 mm
Coverage:	One square
(*When applied according to CertainTeed's specification)	
Approximate Weight:	68 lbs.
Top Surface:	Permanent film
Back Surface:	Removable release film
Packaging:	Individual cartons (20 rolls per pallet)

Applicable Standards: FLINTLASTIC SA MID PLY is approved by Underwriters Laboratories for use in various Class A, B and C roof assemblies, ICC-ES (ESR-1388), Factory Mutual, Miami-Dade, Florida Building Code Statewide Approval (FL479), and Texas Department of Insurance (RC-47). Consult www.certainteed.com/lowslopetechinfo for details. Meets ASTM D6164, Grade S, Type I.

Technical Data

Modified Bitumen Coating: Non-oxidized (flux) asphalt, blended with elastomeric, styrene-butadiene-styrene (SBS) polymer.

Support Mat: A high performance, puncture and tear resistant, non-woven polyester and fiber glass scrim combination mat.

Test Description	***Test Method***	***Results****
Tensile Strength:	ASTM D5147	
	@ 73.4 +/- 3.6°F MD/XD	80/55 lbs./in.
	@ 0 +/- 3.6°F MD/XD	148/121 lbs./in.
Elongation:	ASTM D5147	
	@ 73.4 +/- 3.6°F MD/XD	70%/70%
	@ 0 +/- 3.6°F MD/XD	51%/64%
Dimensional Stability:	ASTM D5147	0.5%
Low Temperature Flex:	ASTM D5147	Pass @ 0°F
Thickness:	ASTM D5147	3.0mm (0.118 mils)
Tear Strength:	ASTM D5147	
	@ 73.4 +/- 3.6°F MD/XD	110/180 lbs.

***NOTE: Published results are nominal production values confirmed by independent laboratory testing.**

Product Application

Apply to FLINTLASTIC SA NailBase, PlyBase, or suitable primed substrate overlapping sidelaps 3" and endlaps 6". Work with lengths of FLINTLASTIC SA Mid Ply appropriate for proper handling. Position and align cut lengths of Mid Ply, staggering laps from the underlying base a minimum of 18" and offsetting endlaps 36". Once positioned, fold back the membrane halfway lengthwise and remove the release film, then ease back into place. Or, lift the end of the membrane and pull the split release film out as you walk the length of the membrane. Repeat release film removal procedure with other side of membrane. Cut opposing corners of endlaps diagonally to minimize "T" seam joints and seal using FlintBond™ SBS modified bitumen adhesive, trowel or caulk grade. Use a heavy, weighted roller to smooth and secure the membrane. Apply a bead of FlintBond adhesive to sidelaps and endlaps. Permanent top surface film is left in place.

Warranties

CertainTeed offers a limited material Roof Membrane Warranty on FLINTLASTIC SA roof membrane. Contact your nearest CertainTeed office for additional information and requirements.

Technical Assistance and Services

CertainTeed provides technical assistance in the design, selection, specification and application techniques for all CertainTeed Commercial Systems. Architectural and field representatives are available for consultation within each region.

For more information, contact CertainTeed's Customer Support at 800-233-8990.

CertainTeed Corporation
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Code No. COMM-168

FLINTLASTIC® SA NAILBASE

SBS MODIFIED BITUMEN NAILBASE SHEET FOR SA ROOF SYSTEMS.

Product Information

Product Use: FLINTLASTIC SA roofing membrane is a premium, self-adhering SBS modified bitumen roll roofing material suitable for use in accordance with CertainTeed specifications for most low slope roof system applications. Refer to the CertainTeed Commercial Roof Systems Manual for complete self-adhered roof system specifications and application requirements.

The FLINTLASTIC SA line of products is more than a single membrane, it is a complete roof system designed for base and cap or base, mid-ply and cap roof system configurations. Use of FLINTLASTIC SA NailBase permits complete mechanical attachment to nailable substrates, preserving the integrity of the substrate for future tear-offs and adding additional waterproofing performance capabilities to the overall system. FLINTLASTIC SA PlyBase is designed for direct attachment to non-nailable substrates without fasteners. For larger industrial/institutional applications, FLINTLASTIC SA NailBase or PlyBase, Mid Ply and Cap in combination represent a premium roof system capable of meeting the performance criteria of a larger roof. Use of FLINTLASTIC SA NailBase also adds to the fire resistance of the roof system, enabling UL Listing of the roof system.

When using self-adhering roofing products, particular attention must be paid to storage and handling, deck preparation, slope and drainage, and application requirements to assure a successful installation and long-term performance.

Compliances

FLINTLASTIC SA roofing membranes are manufactured on state of the art, dedicated roofing lines specifically designed for the production of modified bitumen roofing membrane. FLINTLASTIC SA NailBase meets or exceeds ASTM D4601, Type II Standard and is UL 2218 Class 4 impact resistant when used in UL listed systems.

Refer to the current UL Roof Systems Directory, or UL's web site, www.ul.com for the most current information on UL listing for FLINTLASTIC SA Products.

Classified by Underwriters Laboratories, Inc. As to an External Fire Exposure Only 62P3

Roll Dimensions:	39⅜" x 66'6"
Thickness:	1.5 mm
Weight:	84 lbs.
Coverage:	Two squares
Top Surface:	Permanent Film
Bottom Surface:	Sand
Reinforcement:	Fiberglass Mat
Tensile (lb/in):	65/40 (MD/CD)
Elongation (%):	6/5 (MD/CD)
Packaging:	Palletized, Bands (20 rolls per pallet)

Applicable Standards: FLINTLASTIC SA NailBase is approved by Underwriters Laboratories for use in various Class A, B, and C roof assemblies, ICC-ES (ESR-1388), Florida Building Code Statewide Approval (FL 479), and Texas Department of Insurance (RC-47). Consult www.certainteed.com/lowslopetechinfo for details. Meets ASTM D4601, Type II. Certain SA Systems are UL Classified as to impact resistance as described in the UL *Roofing Materials & Systems Directory* (TGFU).

Installation

Refer to the CertainTeed Commercial Roof Systems Manual for complete product installation details and requirements. Below is a general guideline:

Deck Preparation: CertainTeed recommends the use of FLINTLASTIC SA NailBase in conjunction with all self-adhering membrane roof installations on nailable substrates. Non-nailable roof decks may receive direct application of FLINTLASTIC SA PlyBase or FLINTLASTIC SA Mid Ply followed by FLINTLASTIC SA Cap provided the deck is thoroughly primed using FLINTLASTIC SA Primer. It should be noted without the use of a nailable base sheet the membrane may be difficult to remove if removal is ever warranted, and certain UL listings for the product may not apply.

Product Application

Nailable Substrates: Use standard nailing patterns and CertainTeed approved fasteners for attachment to nailable decks. Overlap sidelaps 3" and endlaps 4". Nail base sheet every 9" o.c. on side laps and every 18" on center in 2 staggered rows in from each edge. Permanent top surface film is left in place.

Warranties

CertainTeed offers a limited material Roof Membrane Warranty on FLINTLASTIC SA roof membrane. Contact your nearest CertainTeed office for additional information and requirements.

Technical Assistance

CertainTeed provides technical assistance in the design, selection, specification and application guidelines for all CertainTeed Commercial Systems. Architectural and field representatives are available for consultation within each region.

Precautions

Do not attempt application if ice, snow, moisture or dew are present. Surface to be bonded to must be clean, dry and free from any dust or deterrent to adhesion. Ambient temperature must be 50º F or above. Do not attempt installation on roofs without adequate slope and drainage.

Storage and Handling

SA rolls must be stored above ground, indoors, protected from the elements. Rolls that are improperly stored or have been on hand for prolonged periods of time may lose their tack. Do not attempt to install rolls that do not exhibit an adequate bond.

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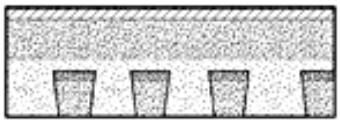
Code No. COMM-166

Technical Data Sheet

LANDMARK™ Premium Shingles
LANDMARK™ Plus Shingles
LANDMARK™ Shingles
LANDMARK Premium/Architect™ 80 Shingles (NW Region only)

PRODUCT INFORMATION



Landmark™ shingles reflect the same high manufacturing standards and superior warranty protection as the rest of CertainTeed's line of roofing products. Landmark Premium (and Algae Resistant-AR), Landmark Plus (and AR) and Landmark (and AR) are built with the industry's toughest fiber glass mat base, and their strict dimensional tolerance assures consistency. Complex granule color blends and subtle shadow lines produce a distinctive color selection. Landmark is produced with the unique NailTrak™ nailing feature. ***Please see the installation instruction section below for important information regarding NailTrak™.***

In the Northwest (NW) Region Landmark Premium (AR) is double-branded as Landmark Premium/Architect 80 (AR).

Landmark algae-resistant (AR) shingles have the additional attribute of resisting the growth of algae especially in damp regions. AR shingles are not available in all regions

Colors: Please refer to the product brochure or CertainTeed website for the colors available in your region.

Limitations: Use on roofs with slopes greater than 2" per foot. Low-slope applications (2" to 4" per foot) require additional underlayment. In areas where icing along eaves can cause the back-up of water, apply CertainTeed WinterGuard™ Waterproofing Shingle Underlayment, or its equivalent, according to application instructions provided with the product and on the shingle package.

Product Composition: Landmark series shingles are composed of a fiber glass mat base. Ceramic-coated mineral granules are tightly embedded in carefully refined, water-resistant asphalt. Two pieces of the shingle are firmly laminated together in a special tough asphaltic cement. All Landmark shingles have self-sealing adhesive strips.

Applicable Standards

ASTM D3018 Type I
ASTM D3462
ASTM E108 Fire Resistance: Class A
ASTM D3161 Class F Wind Resistance
ASTM D7158 Class H Wind Resistance
UL 2390/ASTM D6381 Class H Wind Resistance
UL 790 Fire Resistance: Class A
UL 997 Wind Resistance
ICC Evaluation Report ESR-1389
NYC-MEA-120-79-M (Regional)
CSA Standard A123.5-98 (& -05) (Regional)
Ontario BMEC Auth. 97-10-219 (Regional)
Miami-Dade Product Control Approved
Florida Product Approval # FL5444 (Regional)
TDI Windstorm Resistance (Regional)

Technical Data:	**Landmark (and AR)**	**Landmark Plus (and AR)**	**Landmark Premium* (and AR)**
Weight/Square (approx.)	235-245 lb	260-280 lb	300-330 lb
Dimensions (overall)	13 1/4" x 38 3/4"	13 1/4" x 38 3/4"	13 1/4" x 38 3/4"
Shingles/Square (approx.)	64	66	66
Weather Exposure	5 5/8"	5 5/8"	5 5/8"

*Includes “Landmark Premium AR/Architect 80”

INSTALLATION

Installation instructions, including diagrams, are supplied on each bundle of shingles, or separate application sheets may be obtained from CertainTeed. Following is a general summary of the installation methods. NOTE - Refer to application instructions supplied with the shingles for further information and procedures.

Roof Deck Requirements: Apply shingles to minimum 3/8" thick plywood, minimum 7/16" thick non-veneer (e.g. OSB), or minimum 1" thick (nominal) wood decks. The plywood or non-veneer decks must comply with the specifications of APA-The Engineered Wood Association.

Ventilation: Provisions for ventilation should meet or exceed current HUD Standards. To best insure adequate ventilation, use a combination of continuous ridge ventilation (using Ridge FilterVent or Ridge Filter ShingleVent II, manufactured by Air Vent Inc, or a comparable product with an external baffle) and balanced soffit venting.

Valleys: Valley liner must be applied before shingles. The Closed-Cut valley application method is recommended, using CertainTeed WinterGuard Waterproofing Shingle Underlayment or its equivalent to line the valley prior to being fully covered by the shingles.

Underlayment:
On slopes 4" per foot or greater, CertainTeed recommends one layer of DiamondDeck™ Synthetic Underlayment, or Roofers' Select™ High-Performance shingle underlayment, or shingle underlayment meeting ASTM D226, D4869 or ASTM D6757. Always ensure sufficient deck ventilation, and take particular care when DiamondDeck or other synthetic underlayment is installed. For UL fire rating, underlayment may be required. Corrosion-resistant drip edge is recommended and should be placed over the underlayment at the rake and beneath the underlayment at the eaves. Follow manufacturer's application instructions.

On low slopes (2" up to 4" per foot), one layer of CertainTeed's WinterGuard Waterproofing Shingle Underlayment (or equivalent meeting ASTM D1970) or two layers of 36" wide felt shingle underlayment (Roofers' Select High-Performance Underlayment or product meeting ASTM D226, D4869 or ASTM D6757) lapped 19" must be applied over the entire roof, ensure sufficient deck ventilation. When DiamondDeck or other synthetic underlayment is installed, weather-lap at least 20" and ensure sufficient deck ventilation. When WinterGuard is applied to the rake area, the drip edge may be installed under or over WinterGuard. At the eave, when WinterGuard does not overlap the gutter or fascia, the drip edge should be installed under WinterGuard. When WinterGuard overlaps the fascia or gutter, the drip edge or other metal must be installed over it. Follow manufacturer's application instructions.

Fastening (NailTrak™):

Low & Standard Slopes: On low and standard slopes, four nails are required per shingle. There are three nail lines on NailTrak shingles. Position nails vertically between the upper and lower nailing-guide lines. It is acceptable to nail between either the middle and lower lines or between the upper and middle lines. Nails must be of sufficient length to penetrate into the deck 3/4" or through the thickness of the decking, whichever is less. They are to be located 1" and 12" in from each side of the shingle (see instructions on product wraps.) Nails are to be 11 or 12 gauge, corrosion-resistant roofing nails with 3/8" heads.

Steep Slopes: On slopes greater than 21" per foot, fasten each shingle with six nails and four 1" diameter spots of asphalt roofing cement (ASTM D4586 Type II) placed under each shingle according to application instructions provided on the shingle package. Fasteners must penetrate the two-layer common bond area that is indicated by the middle and lower NailTrak lines, also illustrated on the shingle package.

Laminated Shingles

Landmark™ Series and Landmark™ TL

12

YOUR OBJECTIVE:
To learn the correct procedure for installing Laminated shingles.

LANDMARK™ SERIES AND LANDMARK™ TL

Landmark shingles have the installer-friendly **WideTrack QB™** feature, which provides **1½" wide nailing area** and specially formulated Quadra-Bond laminating adhesive *(See Figure 12-3)*.

Landmark Special is impact resistant and is specially manufactured with a reinforced fiberglass scrim to meet UL 2218 Class 4 impact resistance rating.

NOTE: Landmark Special must be installed over a clean deck (no roof-overs) to obtain the UL 2218 rating. It is strongly recommended that impact resistant cap shingles made from XT 30 IR shingles be installed on all hips and ridges. Some insurance carriers may not consider the roof system as compliant to UL 2218 Class 4 without impact resistant cap shingles.

Landmark TL is unique because its patented Tri-Laminate™ design combines three layers of material to provide a dramatically thick shingle with a wood shake style.

With the exception of Landmark TL, closed-cut valleys are preferred by CertainTeed when applying these shingles. **Open valleys are recommended when applying Landmark TL;** however closed-cut valleys are also acceptable. Woven valleys are not recommended for Landmark TL because the tri-laminated shingle can buckle and become damaged when shaped into the valley. **Nails are required as fasteners for Landmark TL,** staples are not allowed.

STANDARD OR STEEP SLOPE UNDERLAYMENT: Shingle underlayment* meeting ASTM D 4869 Type I standards is suggested. CertainTeed's Roofers' Select™, ShingleFelt™, or RoofWrap™ is preferred.

LOW SLOPE UNDERLAYMENT: One layer of WinterGuard™ or its equivalent*, or two layers of 36" (915 mm) wide felt shingle underlayment lapped 19" (485 mm) must be applied over the entire roof.

IMPORTANT: When installing LandMark TL on low slopes, one layer of WinterGuard or an equivalent waterproofing shingle underlayment must be applied over the entire roof. **Applying two layers of felt shingle underlayment is not an acceptable alternative to WinterGuard.** One layer of shingle underlayment meeting ASTM D4869 applied over the required WinterGuard is also recommended.

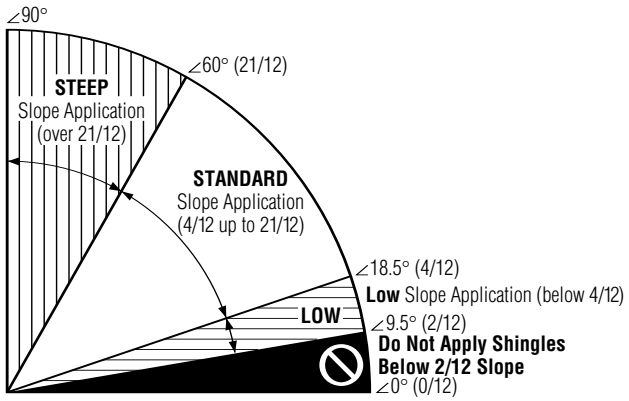


Figure 12-1: Slope definitions.

THE ROOF DECK* MUST BE AT LEAST: 3/8" (9.5 mm) thick plywood, **or** 7/16" (11 mm) thick non-veneer, **or** nominal 1" (25 mm) thick wood deck.

COLD WEATHER CLIMATES (ALL SLOPES): Applying WinterGuard or its equivalent* is strongly recommended wherever there is a possibility of ice build-up.

FLASHING: Corrosion-resistant flashing must be used to help prevent leaks where a roof meets a wall, another roof, a chimney or other objects that penetrate a roof.

SEALING: Shingle sealing may be delayed if shingles are applied in cool weather and may be further delayed by airborne dust accumulation. If any shingles have not sealed after a reasonable time period, hand sealing may be necessary.

CAUTION: To prevent cracking, shingles must be sufficiently warm to allow proper forming for hips, ridges and valleys.

WARRANTY: These shingles are warranted against manufacturing defects and are covered by SureStart™ protection. See the warranty itself for specific details and limitations.

*

For technical questions, information on acceptable alternative application methods and materials, or a copy of the product warranty, contact the sources listed below:		Warranty	Alternate Instructions	Technical Questions
Your supplier or roofing applicator		✔		
CertainTeed Home Institute	**800-782-8777**	✔	✔	
CertainTeed-RPG Technical Services	**800-345-1145**	✔	✔	✔

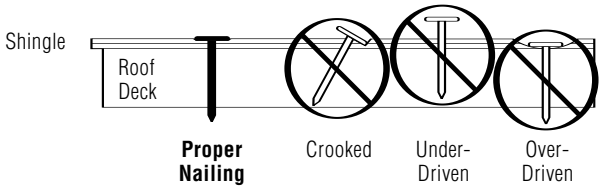


Figure 12-2: Proper and improper nailing.

IMPORTANT: For decks 3/4" (19 mm) thick or thicker, nails must go at least 3/4" (19 mm) into the deck. On thinner decks, nails must go at least 1/8" (3.2 mm) through the deck.

Nails must be 11- or 12-gauge roofing nails, corrosion-resistant, with at least 3/8" (9.5 mm) heads, and at least 1" (25 mm) long. **LandMark TL requires nails at least 1 1/4" long.**

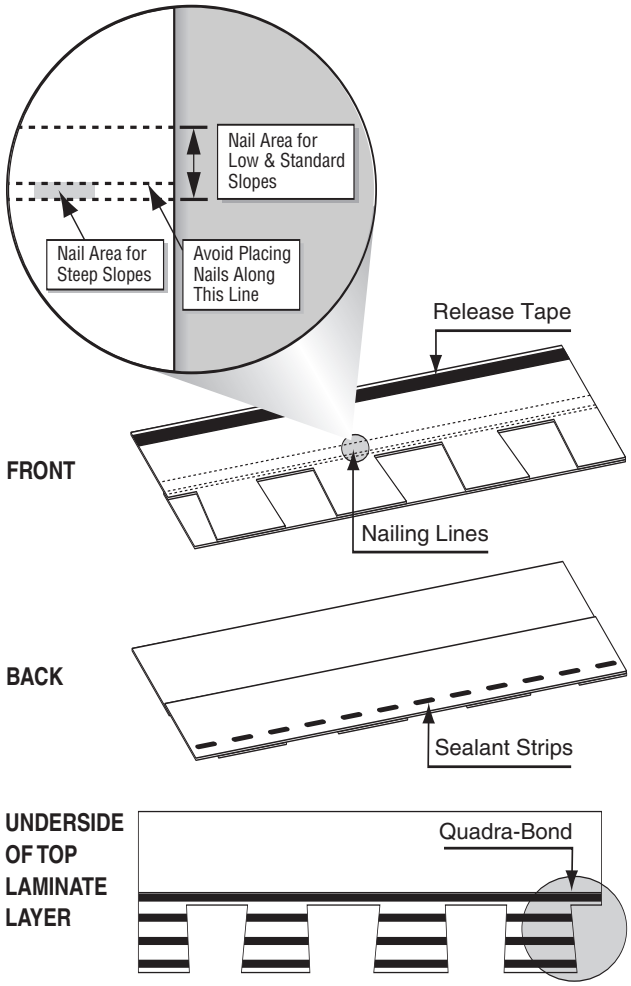
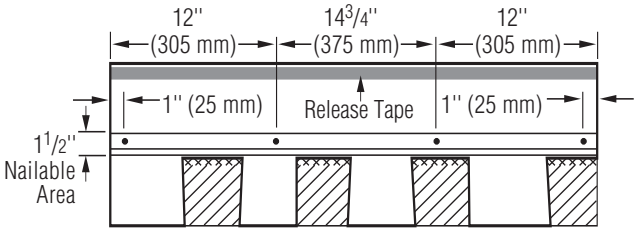


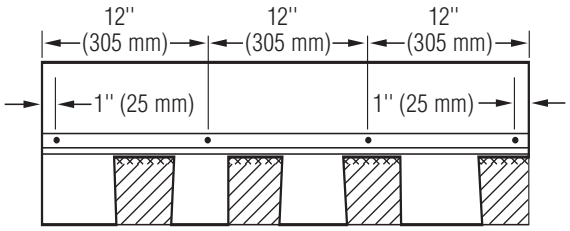
Figure 12-3: WideTrack QB™ features a wider nail area and extra-strong Quadra-Bond construction .

LOW AND STANDARD SLOPE

WIDETRACK QB METRIC DIMENSIONS



WIDETRACK QB ENGLISH DIMENSIONS



LANDMARK TL

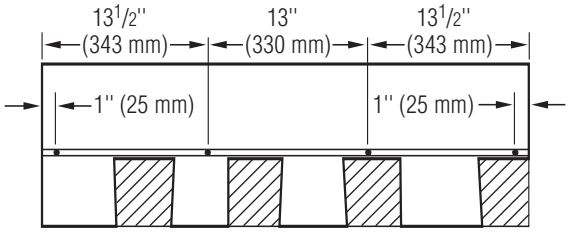
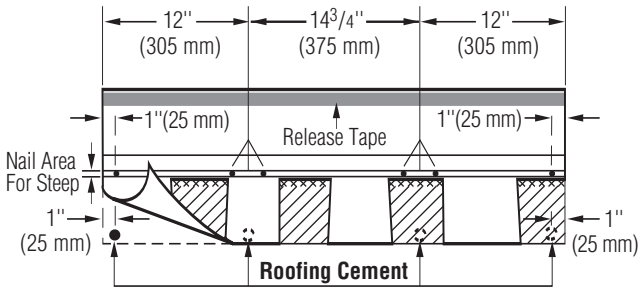


Figure 12-4: Use four nails for every full shingle.

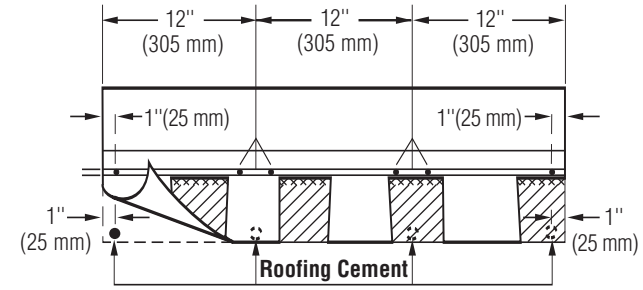
STEEP SLOPE

Use six nails and four spots of asphalt roofing cement for every full laminated shingle. See below. Asphalt roofing cement should meet ASTM D 4586 Type II. Apply 1" spots of asphalt roofing cement under each corner and at about 12" to 13" in from each edge.

WIDETRACK QB METRIC DIMENSIONS



WIDETRACK QB ENGLISH DIMENSIONS



LANDMARK TL

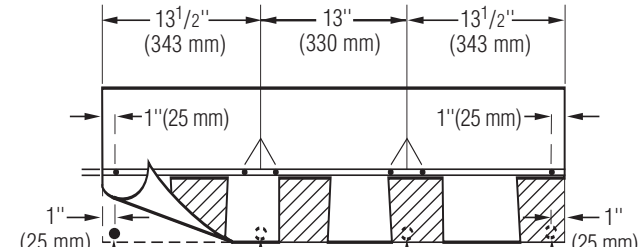


Figure 12-5: Use six nails and four spots of asphalt roofing cement on steep slopes.

CAUTION: Excessive use of roofing cement can cause shingles to blister.

ONE CLEAN-DECK APPLICATION METHOD FOR ENGLISH DIMENSION SHINGLES

FIVE-COURSE DIAGONAL METHOD ("SEVENS AND FOURTEENS")

PREPARING THE DECK:

- Apply underlayment as required. CertainTeed suggests that a layer of shingle underlayment be applied. For UL fire rating, underlayment is generally required. Apply flat and unwrinkled.
- Snap horizontal and vertical chalklines to assure shingles will be correctly aligned. Expose all shingles 5" (125 mm).

CAUTION: Use of other installation methods may result in an objectionable pattern.

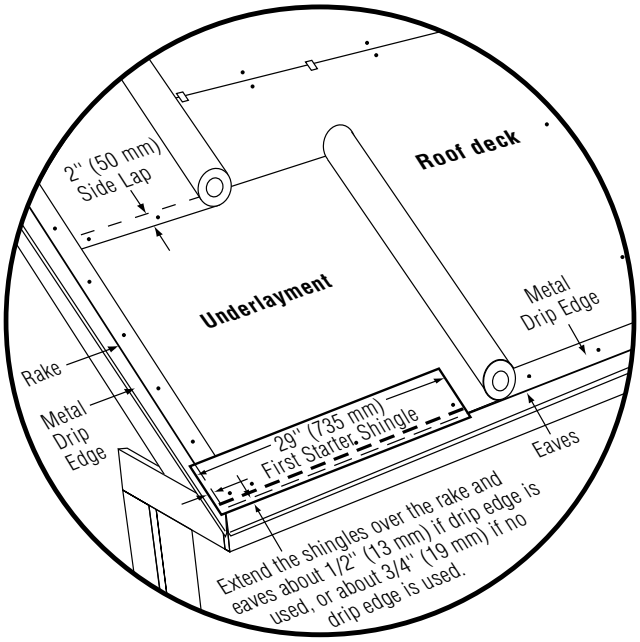


Figure 12-6: Standard slope underlayment and starter drip edge details.

STARTER COURSE:

1. Use CertainTeed Swiftstart or Universal Starter, or use standard three-tab self-sealing shingles with the lower 5" tab portions removed to provide starter shingles that are 7" in height *(Figure 12-7)*.

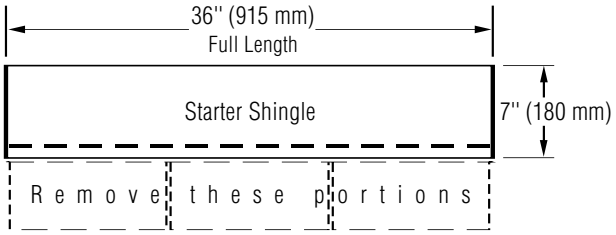


Figure 12-7: Make starter shingles by removing the lower 5" tabs.

2. For the first starter, cut 7" from one side of the starter shingles.
3. Apply the 29" piece to the lower left corner of the roof. Make sure there is ½" overhanging the rakes and eaves if drip edge is being used. If you are not using drip edge, make the overhang ¾".
4. Use full 36" long, 7" wide starter shingles for the rest of the course.

1ST COURSE: Apply a full shingle at the lower left corner of the roof. Make the lower edge and left edge lie flush with the edges of the starter course *(Figure 12-8)*.

2ND THROUGH 5TH COURSES:

CAUTION! Failure to follow instruction steps 1-5 below will bring joints too close together and may cause unattractive patterns!

1. Cut 7" off the left end of the first shingle and save this piece for later use. Apply the 29" long piece over and above the first-course shingle. Leave the bottom 5" tab portion of the first-course shingle exposed *(Figure 12-8)*.
2. Cut 14" off the first shingle of the third course and save this for later. Install the 22" long piece over and above the second-course shingle.
3. Apply the previously removed 14" long piece over and above the third-course shingle.
4. Apply the previously removed 7" long piece from the second course over and above the fourth-course shingle.
5. Install a full shingle against the right edge of each shingle in courses one through five.

CONTINUING UP THE ROOF:

1. Beginning again with a full shingle, repeat the five-course pattern up the left rake *(Figure 12-10 – see **B**)*.
2. Fill-in courses across the roof in a stepped diagonal fashion using full shingles *(Figure 12-10 – see **A** and **B**)*. Do **not** run courses straight across.

IMPORTANT: Do not align joints of shingles closer than 3½" from one another.

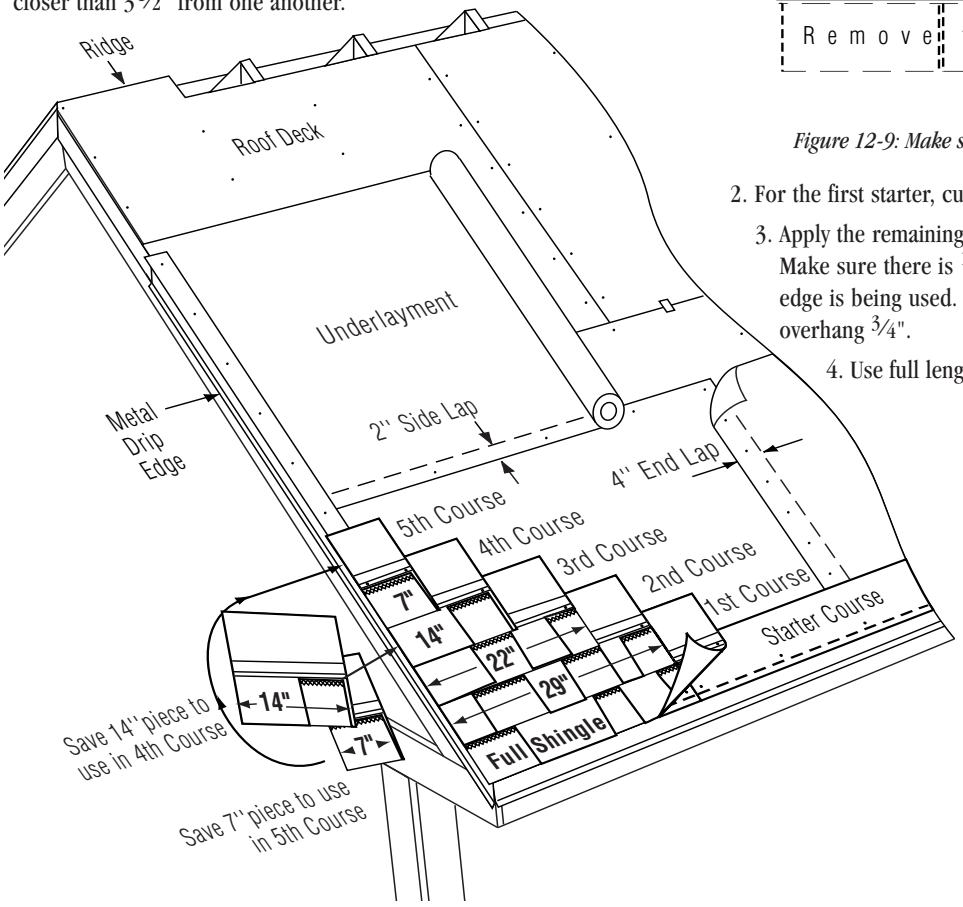


Figure 12-8: Applying the first 5 courses on a standard slope.

TWO CLEAN-DECK APPLICATION METHODS FOR METRIC DIMENSION AND LANDMARK TL SHINGLES

★ FIVE-COURSE DIAGONAL METHOD (6" AND 11") FIVE-COURSE DIAGONAL METHOD (5⅝" AND 11¼")

NOTE: The 6" and 11" method is shown below. The 5⅝" and 11¼" method follows the same application instructions as the 6" and 11" method except the dimensions of the shingle cut-offs in the second and third courses are 5⅝" and 11¼" respectively.

CAUTION: Use of other installation methods may result in an objectionable pattern.

PREPARING THE DECK:

- Apply underlayment as required. CertainTeed suggests that a layer of shingle underlayment be applied. For UL fire rating, underlayment is generally required. Apply flat and unwrinkled.
- Snap chalklines to assure shingles will be correctly aligned. Expose all shingles 5⅝" (143 mm).

STARTER COURSE:

1. Use CertainTeed Swiftstart Starter, or three-tab self-sealing shingles with the lower tab portions removed. Be sure that the starter shingles are at least 7⅝" in height.*(Figure 12-9)*.

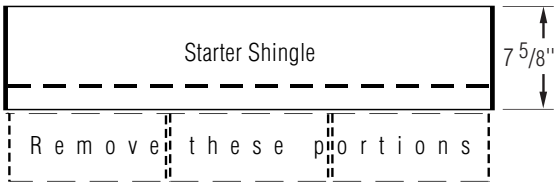
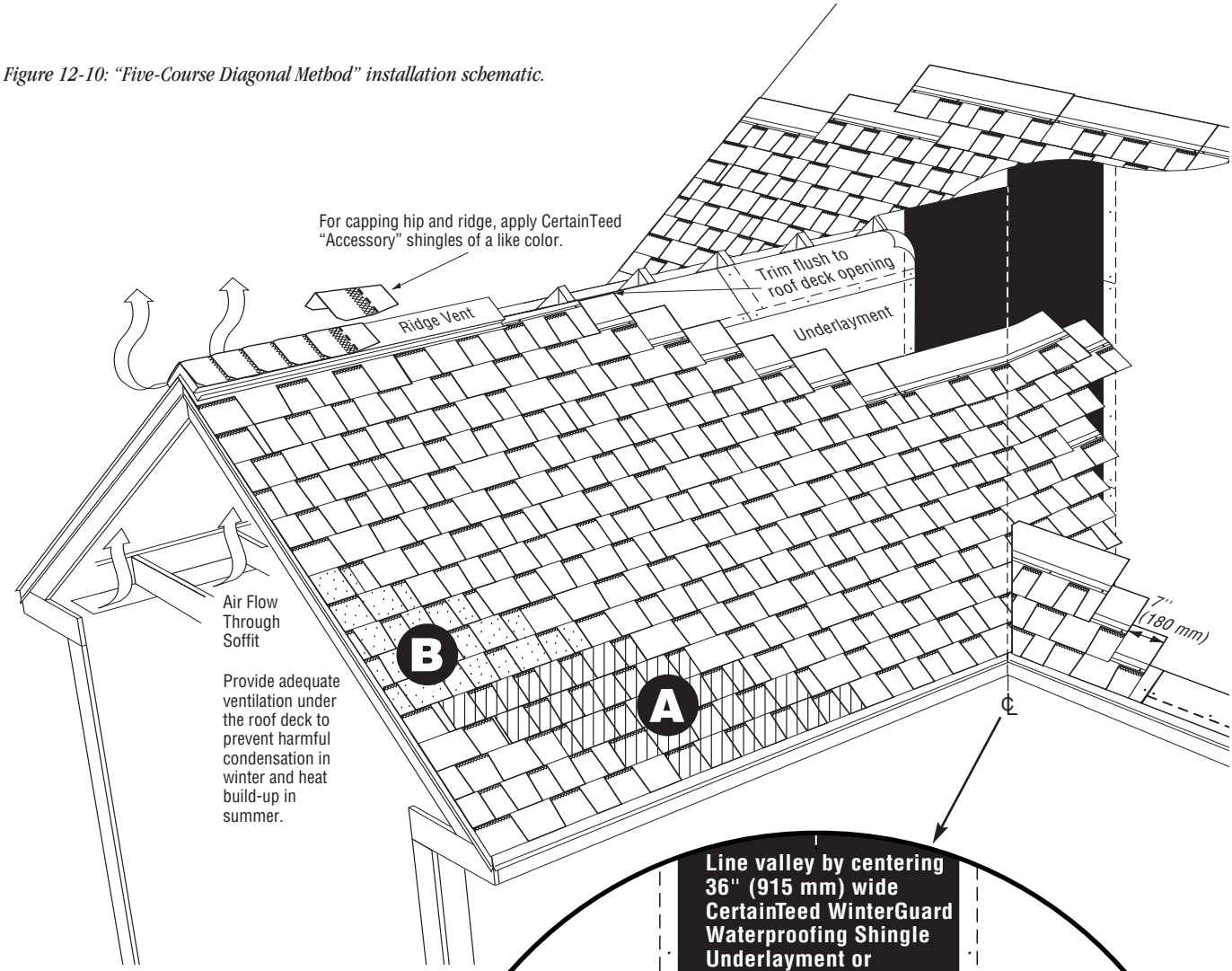


Figure 12-9: Make starter shingles that are 7⅝" in height.

2. For the first starter, cut 6" from one side of the starter shingle.
3. Apply the remaining piece to the lower left corner of the roof. Make sure there is ½" overhanging the rakes and eaves if drip edge is being used. If you are not using drip edge, make the overhang ¾".
4. Use full length starter shingles for the rest of the course.

Figure 12-10: "Five-Course Diagonal Method" installation schematic.



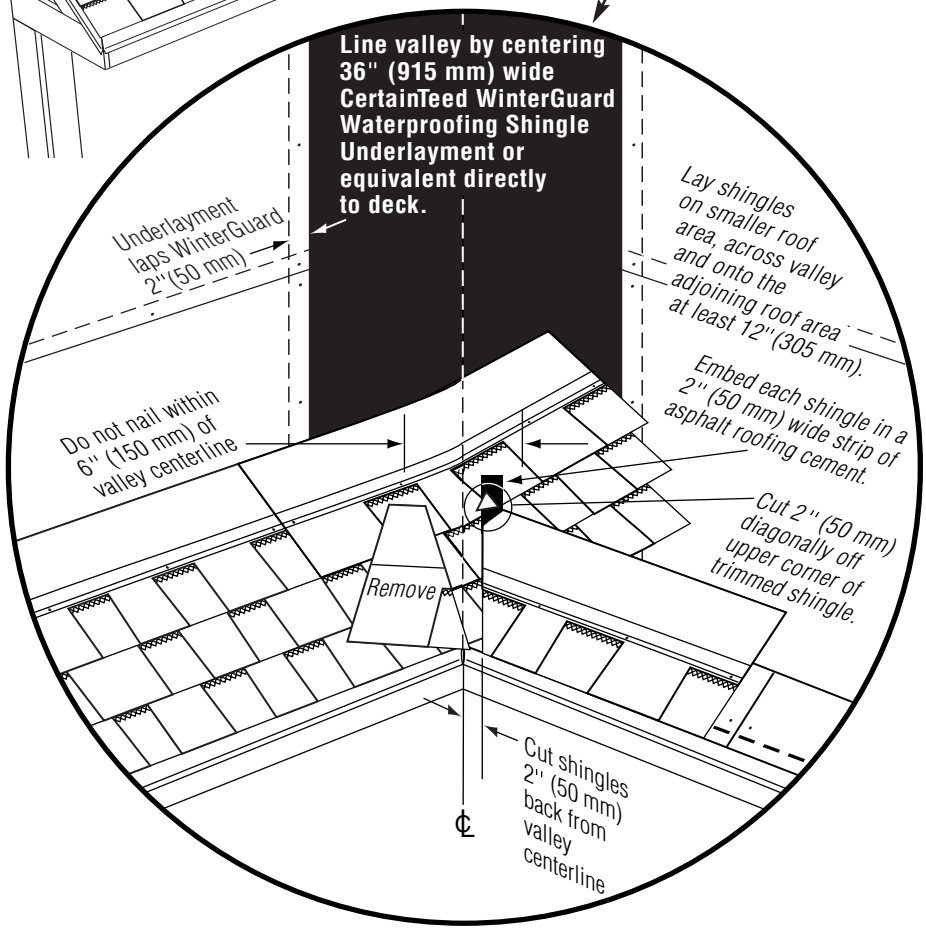


Figure 12-11: Highlight of closed-cut valley details.

1ST COURSE: Apply a full shingle at the lower left corner of the roof. Make the lower edge and left edge lie flush with the edges of the starter course *(Figure 12-12)*.

2ND THROUGH 5TH COURSES:

CAUTION! Failure to follow instruction steps 1-5 below will bring joints too close together and may cause unattractive patterns!

1. Cut 6" off the left end of the first shingle and save this piece for later use. Apply the 32¾" (34" for Landmark TL) long piece over and above the first-course shingle. Leave the bottom 5⅝" tab portion of the first-course shingle exposed *(Figure 12-12)*.
2. Cut 11" off the first shingle of the third course and save this for later. Install the 27¾" (29" for Landmark TL) long piece over and above the second-course shingle.
3. Apply the previously removed 11" long piece over and above the third-course shingle.
4. Apply the previously removed 6" long piece from the second course over and above the fourth-course shingle.
5. Install a full shingle against the right edge of each shingle in courses one through five.

CONTINUING UP THE ROOF:

1. Beginning again with a full shingle, repeat the five-course pattern up the left rake.
2. Fill-in courses across the roof in a stepped diagonal fashion using full shingles. Do **not** run courses straight across.

IMPORTANT: Do not align joints of shingles closer than 3½" from one another.

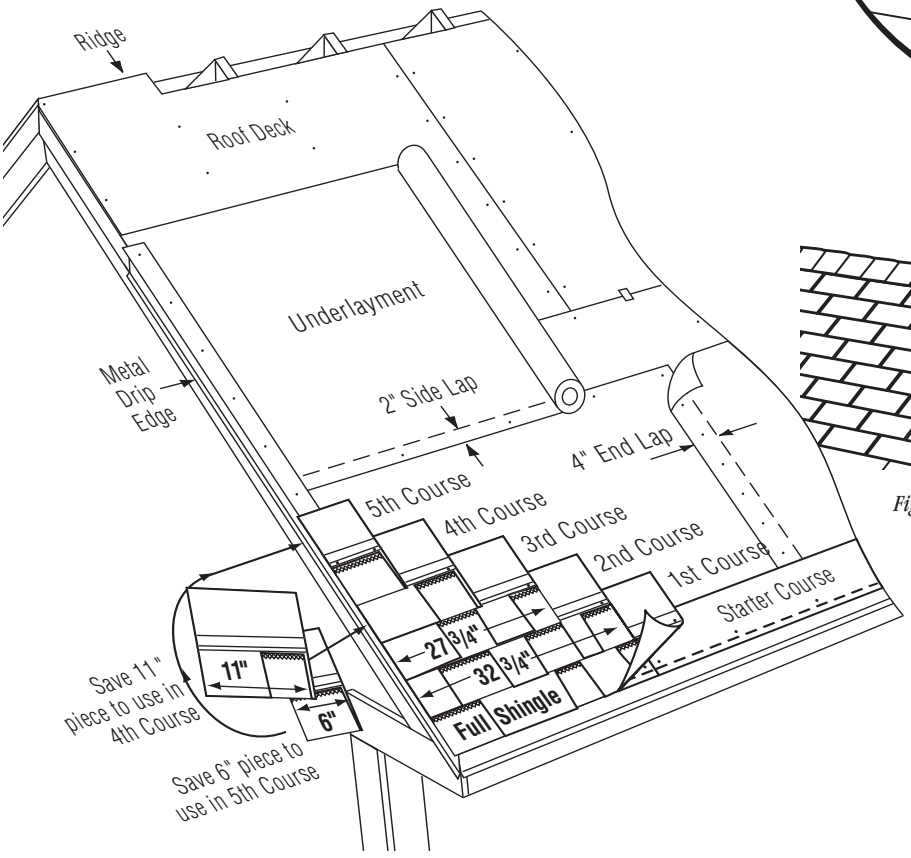


*Figure 12-12: Applying the first 5 courses of **Metric** dimension.*
Note: The LandMark TL dimensions differ.

CHIMNEY FLASHING

Metal Step Flashing

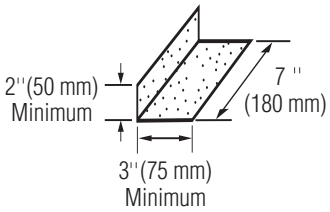


Figure 12-13: Step flashing minimum dimensions.
__NOTE__: Use 7⅝" or more for Metric dimension and LandMark TL shingles.

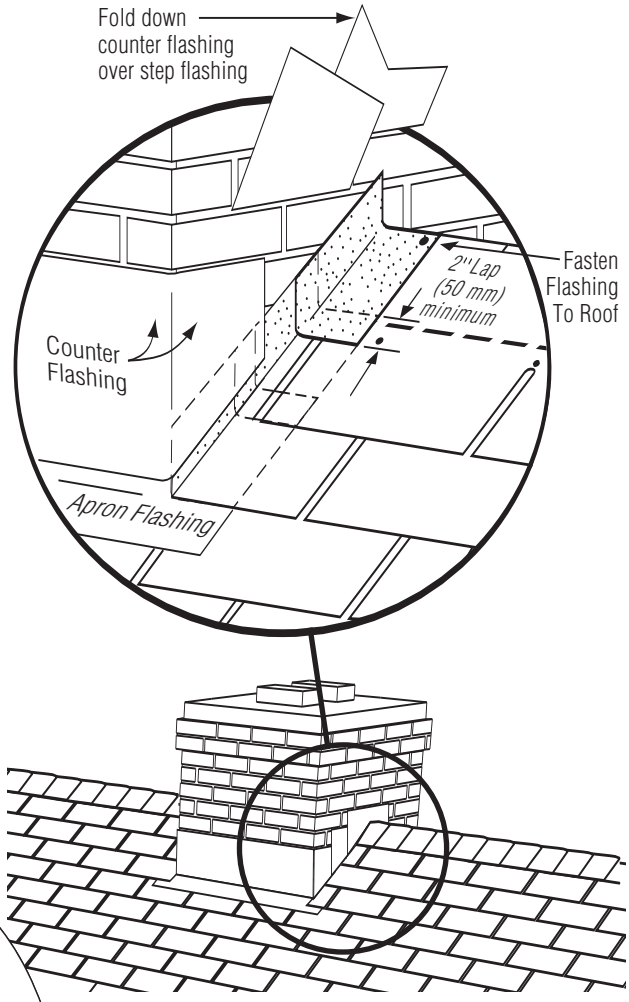


Figure 12-14: Flashing around a chimney.

ONE ROOF-OVER METHOD FOR ENGLISH DIMENSION SHINGLES

PREPARING THE ROOF SURFACE FOR REROOFING

- Make the surface of the old roof as smooth as possible by replacing missing shingles. Split and nail flat all buckled, raised tabs and curling shingles.
- It's a good idea to cut old shingles back flush to the rakes and eaves.
- We suggest that you apply corrosion-resistant drip edge along the rakes and eaves, covering the edges of the old shingles. This will provide a uniform and straight edge that will help prevent water from seeping under the shingle edges.

"NESTING" COMBINED WITH THE FIVE-COURSE DIAGONAL METHOD ("SEVENS AND FOURTEENS")

NOTE: Nesting is preferred over "bridging" methods when reroofing because nesting sheds water best and looks better. Nesting, as described below, is an easy application over square-tab asphalt strip shingles with a 5" exposure. If you are covering a different type or size shingle, you may need to cut back the tabs so that nesting is possible. To do this, simply cut off the leading edge of all old shingles when they are lapped less than 2½" by the new shingles. This permits a flat nested application that avoids lifted edges and slumps.

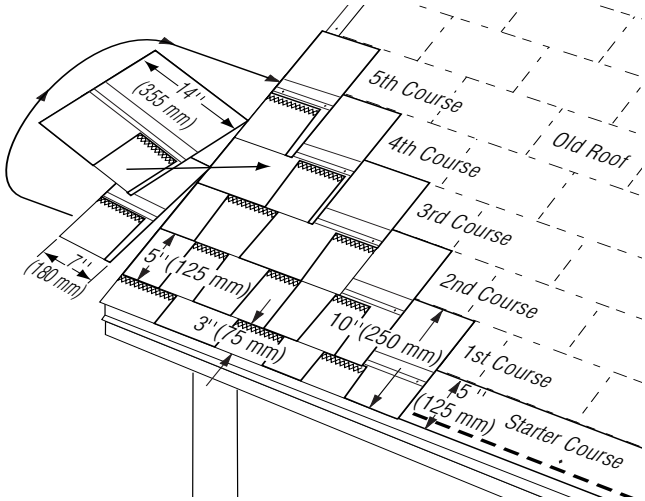


Figure 12-15: Five-Course Diagonal, Nested.

STARTER COURSE:

1. Remove the tabs and the top 2" from standard self-sealing shingles, leaving 5" by 36" strips.
2. Cut 7" off the length of the first strip, apply the 29" remaining piece over the old first course at the lower left corner, overhanging the rakes and eaves ½" if drip edge is used, or ¾" if no drip edge is used.
3. Continue with full-length starter shingles along the eaves

1ST COURSE:

1. The first-course shingles are made of full LandMark shingles with 2" cut off the bottom of the tabs.
2. Align the first-course strips with the left and lower edges flush with the starter course.

2ND THROUGH 5TH COURSES:

CAUTION! Failure to follow instruction steps 1-5 below will bring joints too close together and may cause unattractive patterns!

1. Cut 7" off the left end of the first shingle and save this piece for later use. Apply the 29" long piece over and above the first-course shingle. For this and all succeeding courses, align the top edge of the shingle to be applied with the bottom edge of old shingles in the next course. Exposure of first course only is reduced to 3".
2. Cut 14" off the first shingle of the third course and save this for later. Install the 22" long piece over and above the second-course shingle.
3. Apply the previously removed 14" long piece over and above the third-course shingle.
4. Apply the previously removed 7" long piece from the second course over and above the fourth-course shingle.
5. Install a full shingle against the right edge of each shingle in courses one through five. Remember that course one shingles are only 10" wide.

CONTINUING UP THE ROOF:

1. Beginning again with a full shingle, repeat the five-course pattern up the left rake.
2. Fill-in courses across the roof in a stepped diagonal fashion using full shingles. Do **not** run courses straight across.

IMPORTANT: Do not align joints of shingles closer than 3½" from one another.

TWO ROOF-OVER METHODS FOR METRIC DIMENSION AND LANDMARK TL SHINGLES

The same methods used for clean-deck application of these shingles are used for roof-overs. Application of these shingles ***over*** English dimension shingles is not recommended — due to the high cost of workmanship and greater risk of worker error.

HIPS AND RIDGES

SHADOW RIDGE™ ACCESSORY SHINGLES FOR HIPS AND RIDGES

Shadow Ridge shingles have an accented shadow line that is designed to complement these shingles. Simply fold along the pre-cut lines and detach individual cap pieces. Save valuable installation time compared to cutting 3-tab shingles.

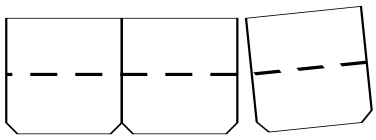


Figure 12-16: Shadow Ridge accessory shingles detach easily from three-piece units to make 72 individual cap pieces.

There are 24 three-piece units in each Shadow Ridge bundle, providing 72 individual caps that will cover 30 linear feet (33¾ linear feet, Metric) of a hip or ridge. Each English dimension cap piece is 12" by 12" (Metric caps are 13¼" by 9⅞") and features clipped corners on the bottom edge of the exposed portion.

APPLICATION IS AS FOLLOWS:

1. Apply shingles up to the hip or ridge on both sides, then trim flush.

   NOTE: The last course of shingles should have an exposure of 5" (5⅝" for metric) or less when the shingle cap or ridge vent is fastened in place. Otherwise, a potential water leak could occur at exposed shingle end joints. The figures used in this section illustrate the application of accessory shingles over a ridge vent; application directly to the roof deck is very similar.

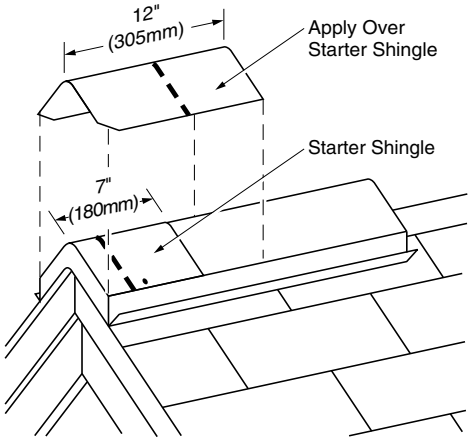


Figure 12-17: Apply a full cap shingle over the starter piece, flush with the bottom and side edges of the starter.

2. Install caps beginning at the bottom of a hip or at either end of a ridge. Apply a starter piece that has the bottom 5" (5⅝" for metric) removed *(Figure 12-18)*. Fasten the starter with two nails located about 3" from the rake edge, and 1" in from each side edge. Make sure fasteners used to apply caps penetrate at least ¾" into or through the decking.

   NOTE: To assist in proper alignment when ridge vent is not used, snap a chalk line parallel to the hip or ridge along the line where the side edges of the cap shingles should be.

3. Apply a full cap shingle over the starter (*Figure 12-18*), and place fasteners at 5⅝" (6¼" for metric) up from the exposed bottom edge and 1" in from each side. Nails must not be exposed on the finished roof. All nail heads must be driven straight and must not cut into the shingle surface.

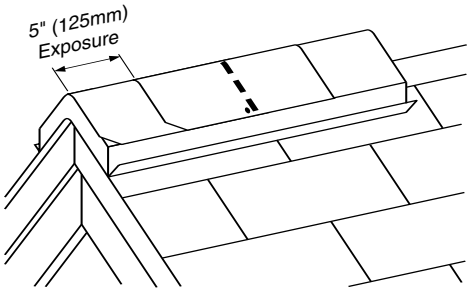


Figure 12-18: Install cap shingles at their correct exposure and cover all fasteners.

NOTE: Each cap has a laying/alignment notch at the top edge to center the piece on the ridge line, and two notches on each side to indicate the correct exposure and shadow-line placement (*Figure 12-19*). The side notches of the cap being applied should be aligned with the top edge of the previously applied cap.

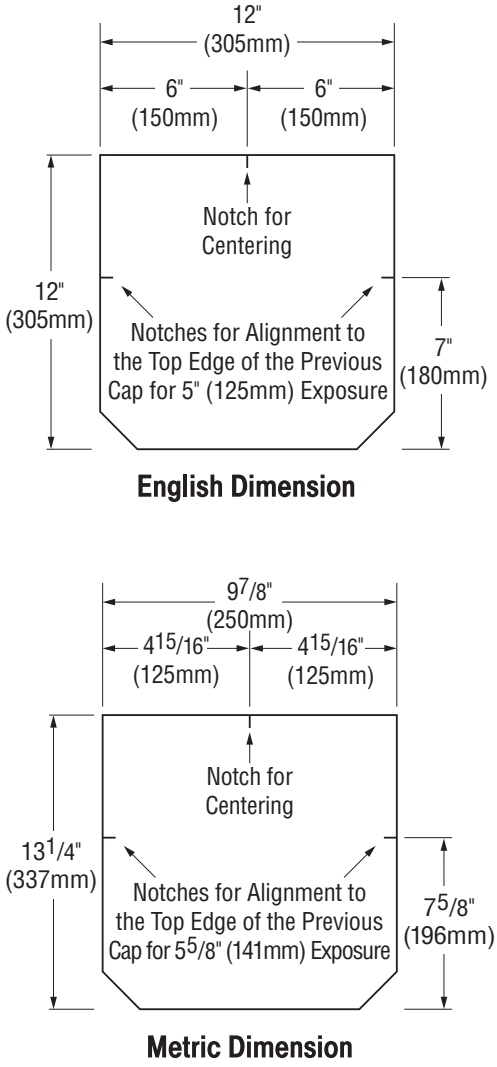


Figure 12-19 : Each Shadow Ridge shingle has a centering notch and two side-alignment notches to help ensure proper placement

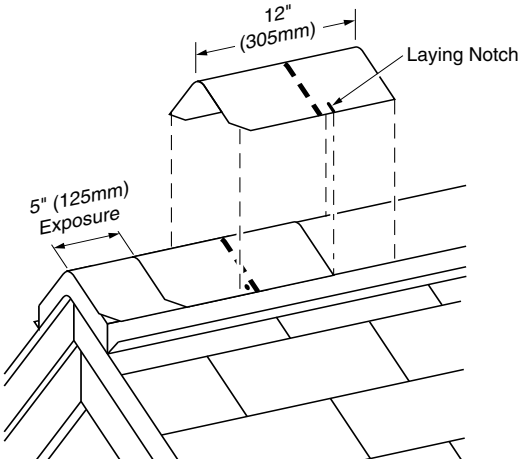


Figure 12-20: Use laying notches to center shingles on hips and ridges, and to locate the correct exposure.

MOUNTAIN RIDGE HIGH-PROFILE HIP AND RIDGE ACCESSORY

Use Mountain Ridge accessory shingles to cover hips, ridges or rake edges. One box will cover 20 linear feet. To prevent damage to shingles during application, they must be sufficiently warm to allow proper forming.

FASTENING

IMPORTANT: Use two nails to fasten each shingle. Nails must be **minimum 1¾" (45 mm) long.** For the 4" (100 mm) starter shingle, place fastener 1" (25 mm) in from each side edge and about 2" (50 mm) from the rake (or eave) edge, making sure the fastener goes ¾" into the deck or all the way through. For each full Mountain Ridge shingle, place fasteners 8⅝" (219 mm) up from its exposed butt edge and 1" (25 mm) in from each side edge.

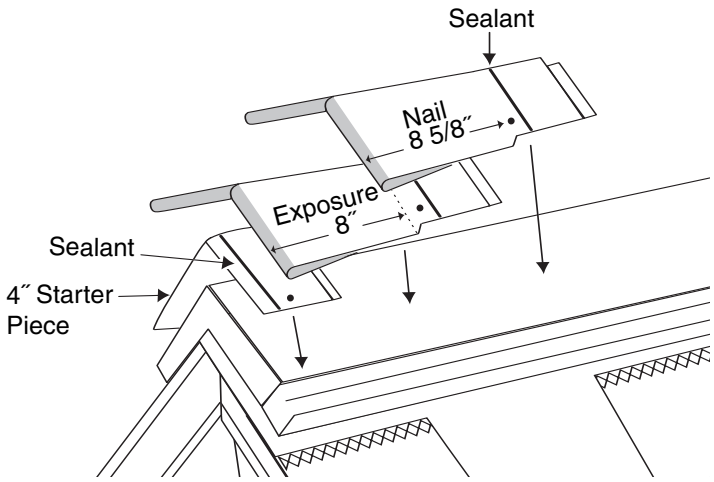


Figure 12-21: Hip and ridge application.

HIP, RIDGE AND RAKE SHINGLE APPLICATION

Apply the primary field roofing up to the hip or ridge from both sides of the roof and trim flush or lap over one side, not more than half the width of a Mountain Ridge shingle.

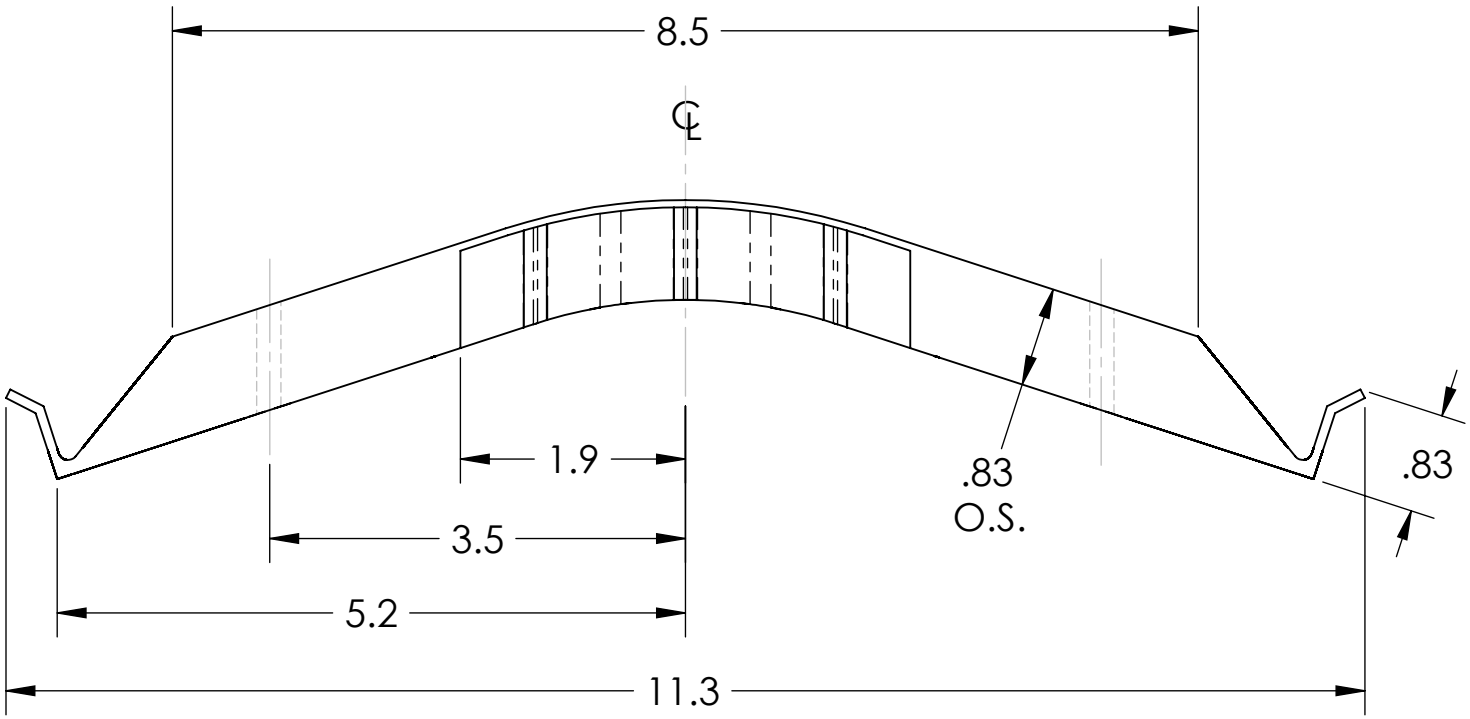
Assure that the installed Mountain Ridge shingles properly cover hip and ridge field shingles on both sides and the field shingles applied along rake edges. For a rake edge installation, cut the field shingles flush to the rake edge. Apply Mountain Ridge shingles ensuring they fit securely against the rake board. **To assist in proper alignment, snap a chalk line parallel to the hip, ridge or rake along the line where the side edges of the Mountain Ridge shingles should fall.**

Prepare a 4" **Starter shingle** by cutting off the lower 8" color granule butt portion of one Mountain Ridge shingle. Apply the 4" starter piece (with sealant nearest the outer edge) over the bottom corner of the hip or rake, or on either end of the ridge, overhanging the corner or end by approximately ½" and bending the starter shingle along its centerline to form into place (see figures below.) Install a nail on each side about 2" up from the starter shingle's exposed butt edge and 1" in from each side edge of the shingle. The 8" piece that was cut off may be used to finish the opposite end of hip, ridge or rake.

Next, apply a full Mountain Ridge shingle over the installed starter shingle, bending it along its centerline and forming into place over the hip, ridge or rake, flush with the bottom and side edges of the starter shingle. Install a nail on each side of the shingle 8⅝" up from the bottom edge and 1" in from each side edge.

Continue application of the Mountain Ridge shingles along the hip, ridge or rake as shown. Expose Mountain Ridge shingles 8", covering all fasteners.

Here's a Tip... *In the winter put hip and ridge cap shingles in your truck with the heater blasting for 20 minutes so the caps don't crack when formed. (Thanks to Mark Dulz, Richmond, MI.)*



NOTES:

1. ATTACH WITH NAILS OF SUFFICIENT LENGTH TO FULLY PENETRATE ROOF DECK
2. PROVIDES 16 SQ. IN. NFA PER LINEAR FT.
3. 3/12 TO 12/12 ROOF PITCH
4. INTEGRAL ENDPLUG AND WEATHER FILTER
5. AVAILABLE IN 4 FT. LENGTHS
6. MATERIAL: FLAME RETARDANT POLYPROPYLENE

AIR VENT INC. DALLAS, TEXAS

DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING

DRAWING NUMBER: C-CLASH9CC

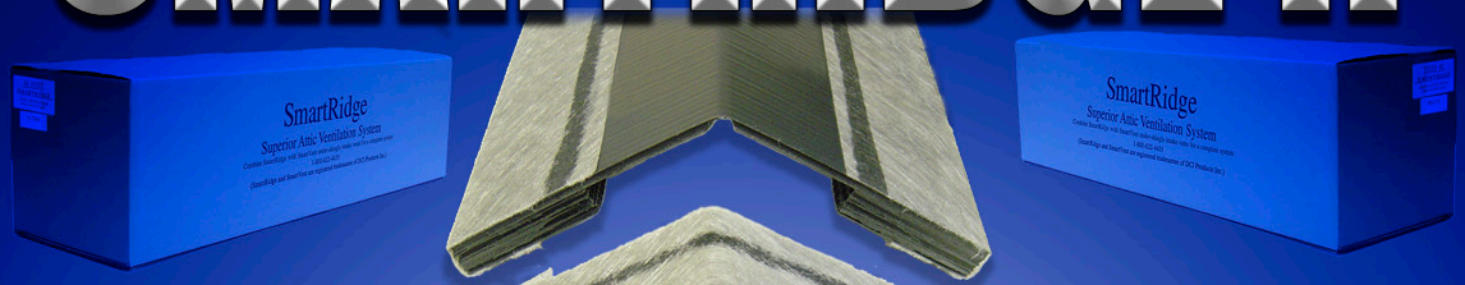
PREP: A. Lindahl
DATE: 5-28-2010

THIRD ANGLE PROJECTION

DESCRIPTION: SHINGLE VENT II - 9A - CHARCOAL

MODEL NUMBER: CLASH9CC

SMARTRIDGE II



ALLOWS AIR TO FLOW FREELY

HURRICANE PROOF!!

PREVENTS ICE, SNOW & WATER FROM PENETRATING THE ATTIC

for Hip and Ridge Ventilation

DCi PRODUCTS®

SmartRidge II
The Contractors' #1 Choice in Ridge Vents

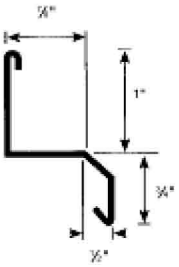
- **Helps eliminate *mold* and *moisture* issues that may occur due to inadequate roof ventilation**
- **Lightweight, easy to handle with a LIFETIME LIMITED WARRANTY**
- **The 1st rigid, corrugated ridge vent with an exterior weather guard.**
- **Allows air to flow through, but not rain, sleet, or snow.**
- **18 NFA per lineal Foot**

SPECIFICATIONS:

MODEL NUMBER:	**SmartRidge II**
PRODUCT DIMENSIONS:	**10 ½" Wide x 36" Long x ¾" High (Shingle Length)**
MINIMUM ORDER:	**1 Pallet (9 Boxes)**
TERMS:	**Net 30**
TOTAL BOX FOOTAGE:	**36 feet per box or 12 Pieces**
TOTAL BOX WEIGHT:	**25 lbs per box**
INDIVIDUAL BOX DIMENSIONS:	**11" High x 11" Wide x 38" Long**
PALLET SIZE:	**33" High x 33" Wide x 38" Long – 9 Boxes/Pallet (Does not include Skid)**
PALLET WEIGHT:	**225 lbs (Plus Skid) or 250 lbs Total**
ACTUAL SKID SIZE & WEIGHT:	**39" Length x 39" Width x 5" High / 25 lbs**
INCLUDED ITEMS:	**Installation Instructions, 4 Pieces of End Fabric**
RETURN POLICY:	**30 DAYS UNCONDITIONAL MONEY BACK GUARANTEE. Unopened products to be returned to stock. That which cannot be restocked is to be returned to DCI Products with invoice and reason for return. Upon receipt of those items DCI may replace the returned quantity to replenish stock after DCI approval.**

DCI Products Inc.
100 Mill Street
Clifton Heights, PA 19018
Phone: 1-800-622-4455
Fax: 1-888-356-3291
www.dciproducts.com

PRODUCT DETAIL



USAGE

Made especially for stucco applications, the reglet is put in place over 3Ú4" baseboard prior to lathing, and the Springlok flashing is locked into place after the roofing paper is applied. Then stucco is applied over the top.

This system requires a backing (nailer) with sufficient depth to support the reglet and provide tension to create the proper fit.

MATERIALS & FINISHES

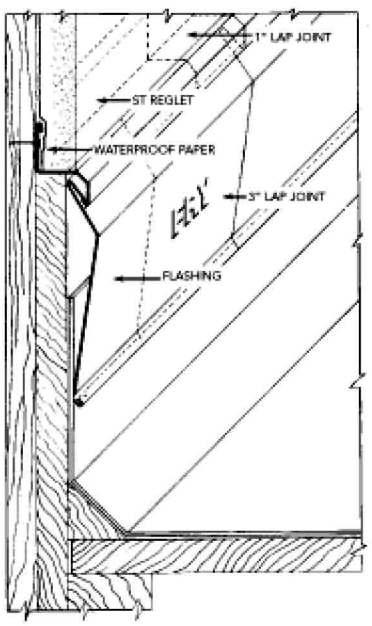
MATERIAL & THICKNESS

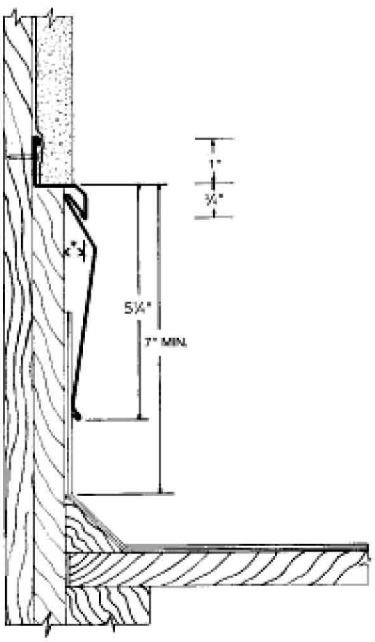
- Galvanized steel Ð 24 ga.
- Copper Ð 16 oz.
- Aluminum Ð 0.025"
- Stainless steel, Type 304 Ð 0.020"

FINISH & COLOR

- Galvanized steel Ð Standard zinc finish
- Galvanized steel Ð Factory applied Kynar 500/Hylar 500 finish
- Copper Ð Standard uncoated finish
- Aluminum Ð Gray polyester coating
- Stainless steel, Type 304 Ð Standard uncoated finish

INSTALLATION DETAIL

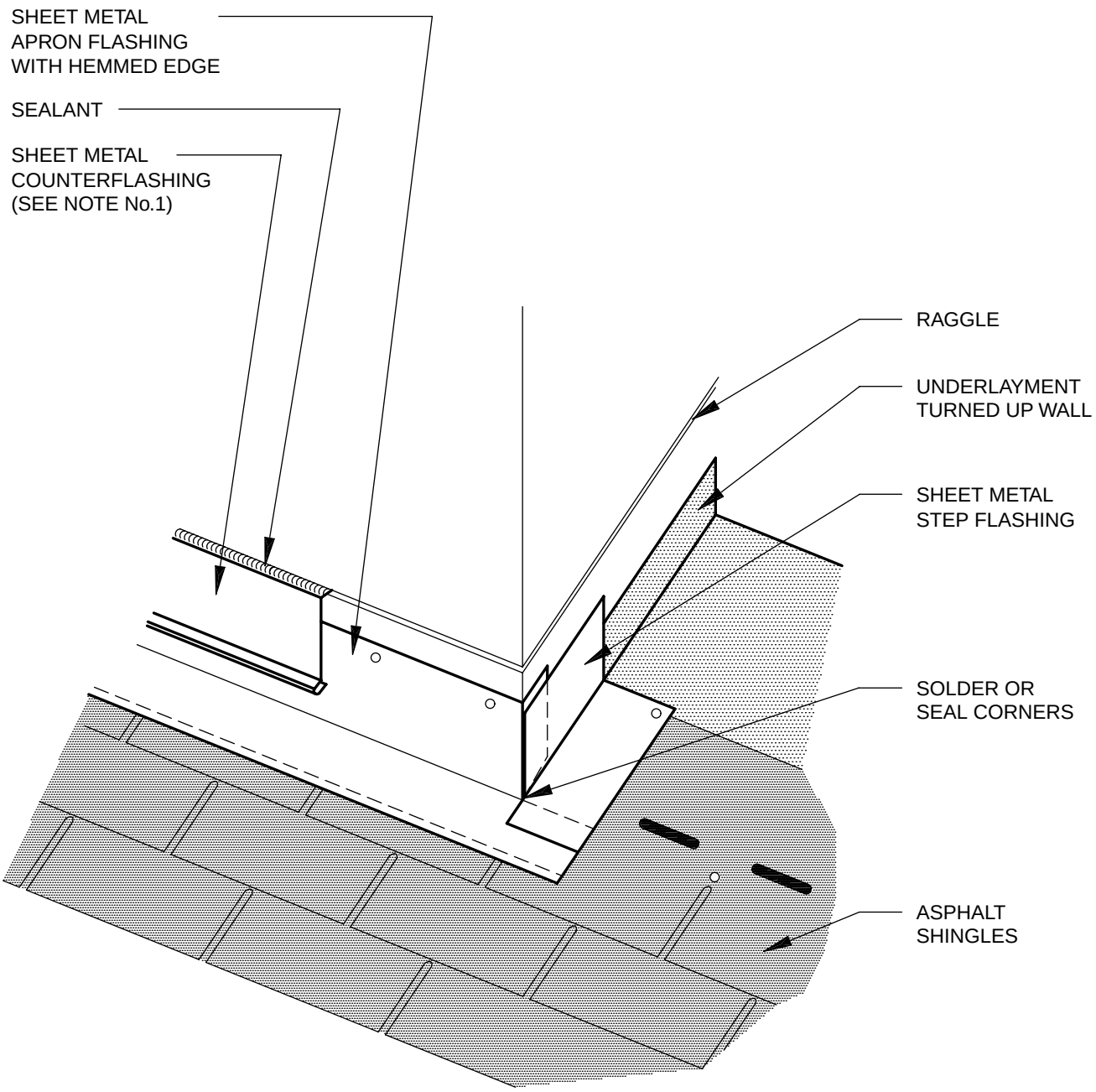




* Actual dimension between wall and the inside flange of reglet is 3/8".

See separate sheet for product installation instructions. Drawings are not to scale.

MF-2



NOTES：

1. ALTERNATE COUNTERFLASHING PROFILES CAN BE USED.
2. REFER TO THE SHEET METAL SECTION OF THE METAL ROOFING MANUAL FOR SECUREMENT AND JOINERY OPTIONS FOR SHEET METAL.

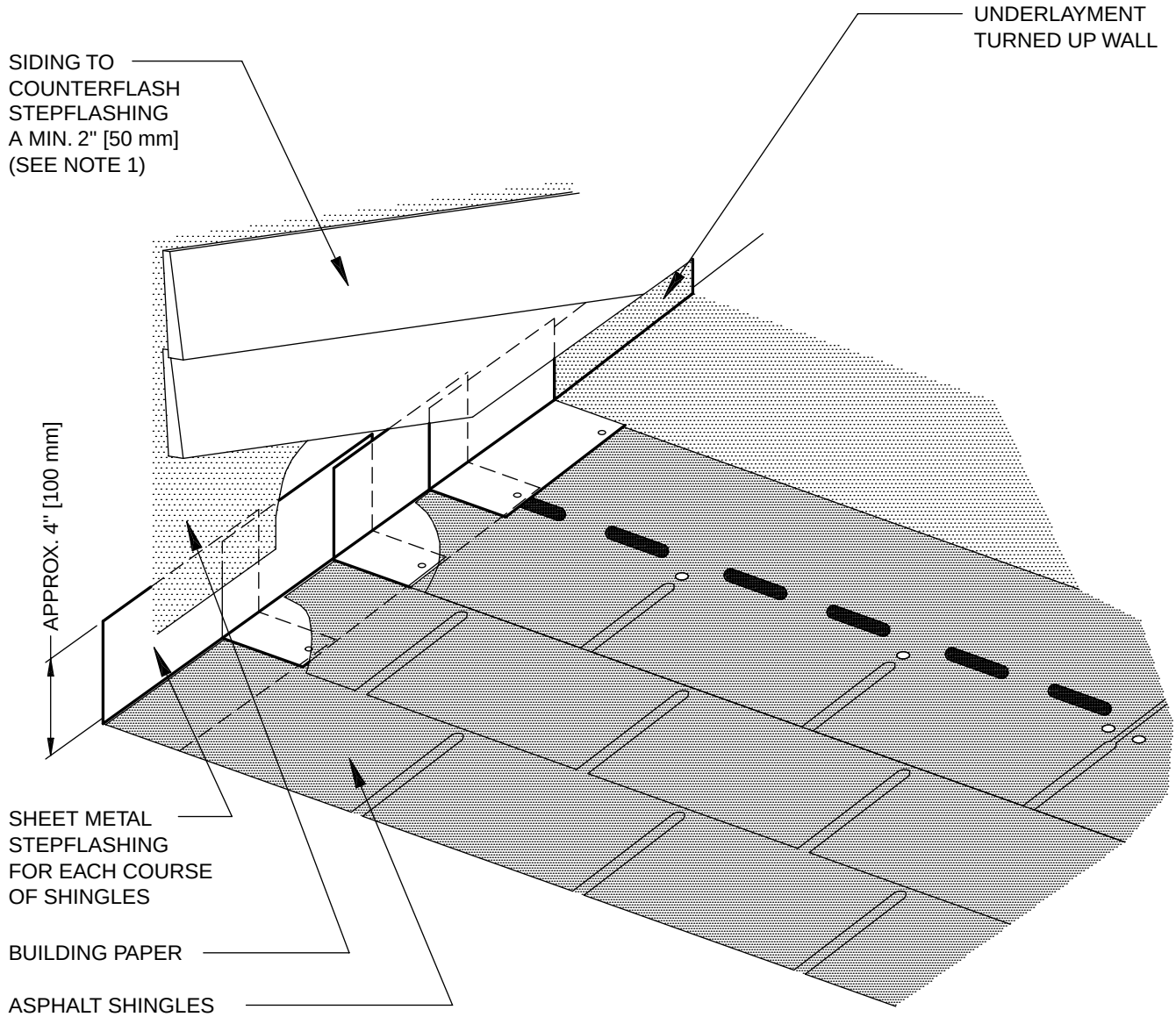
NATIONAL ROOFING CONTRACTORS ASSOCIATION

APRON FLASHING

2001

NOT DRAWN TO SCALE

ASPH-1



NOTES :

1. ALTERNATE COUNTERFLASHING PROFILES CAN BE USED.

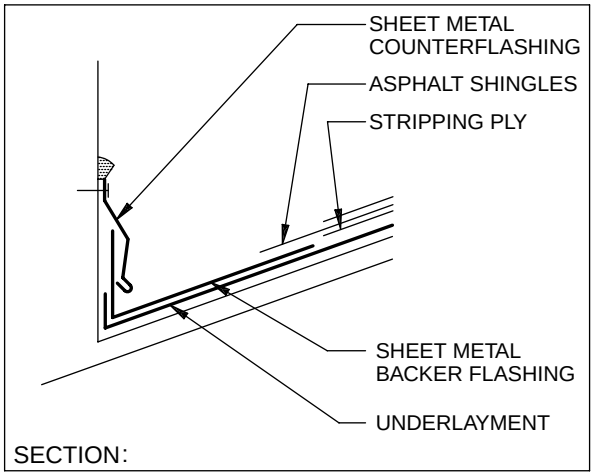
NATIONAL ROOFING CONTRACTORS ASSOCIATION

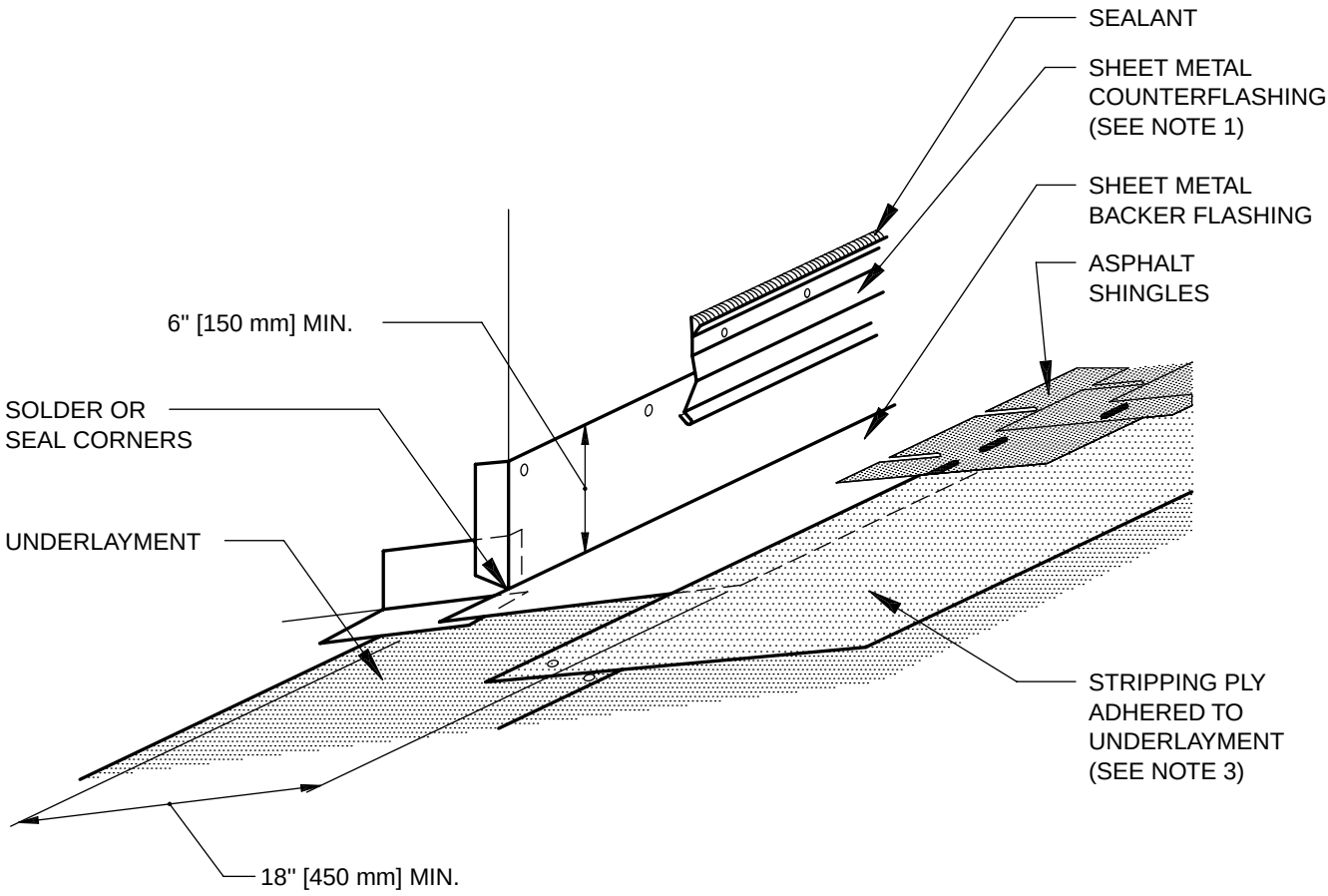
SIDEWALL FLASHING

2001

NOT DRAWN TO SCALE

ASPH-2





NOTES:

1. ALTERNATE COUNTERFLASHING PROFILES CAN BE USED.
2. IF STRIPPING PLY IS NOT USED, UNDERLAYMENT MUST BE EXTENDED OVER BACKER FLASHING.
3. CRICKETS SHOULD BE CONSIDERED IN LIEU OF BACKER FLASHINGS DEPENDING UPON WIDTH, SLOPE AND CLIMATIC CONDITIONS.

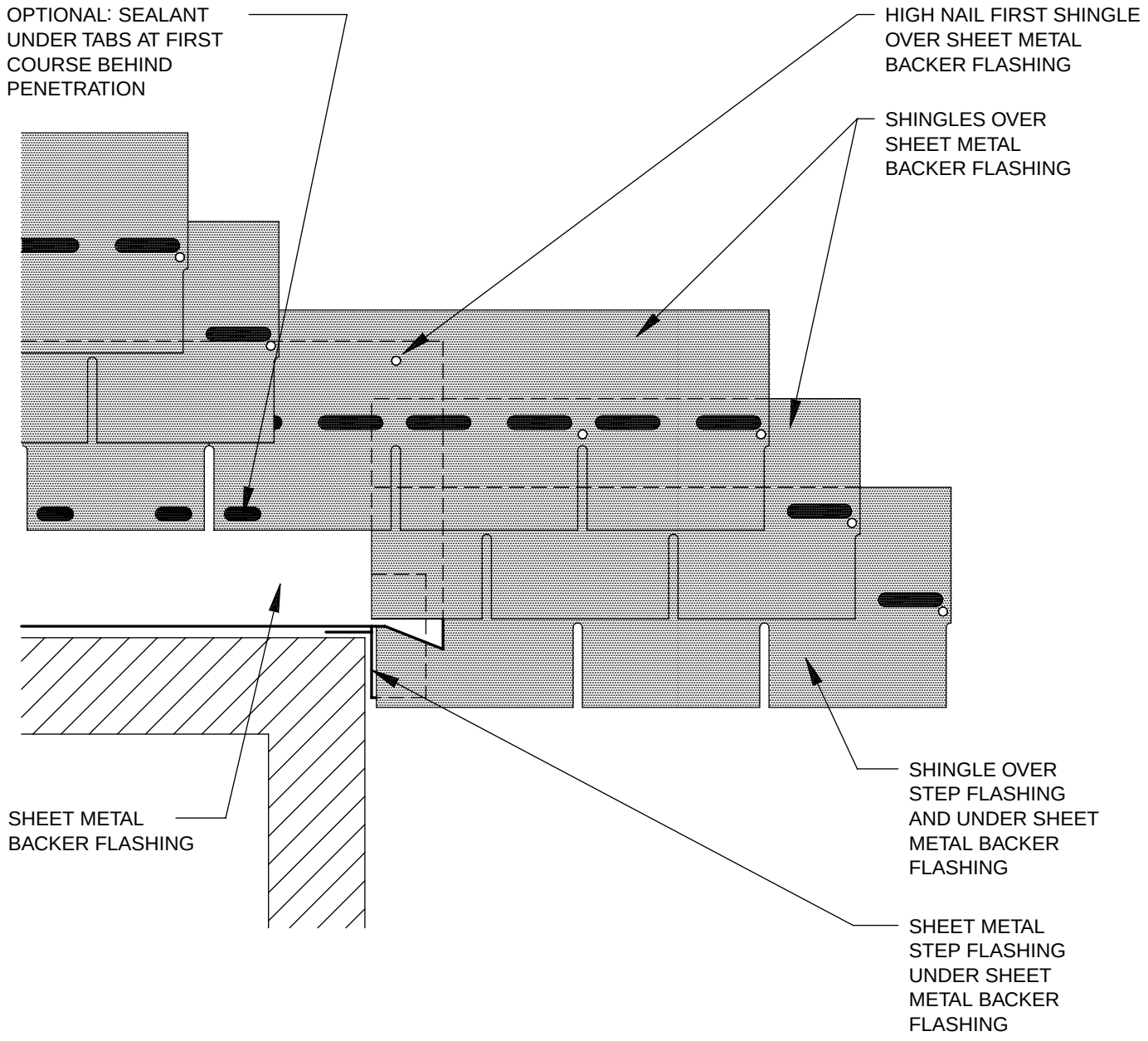
NATIONAL ROOFING CONTRACTORS ASSOCIATION

BACKER FLASHING

2001

NOT DRAWN TO SCALE

ASPH-3



NOTES:

1. UNDERLAYMENT AND COUNTERFLASHING NOT SHOWN FOR CLARITY.
2. CRICKETS SHOULD BE CONSIDERED IN LIEU OF BACKER FLASHINGS DEPENDING UPON WIDTH, SLOPE AND CLIMATIC CONDITIONS.

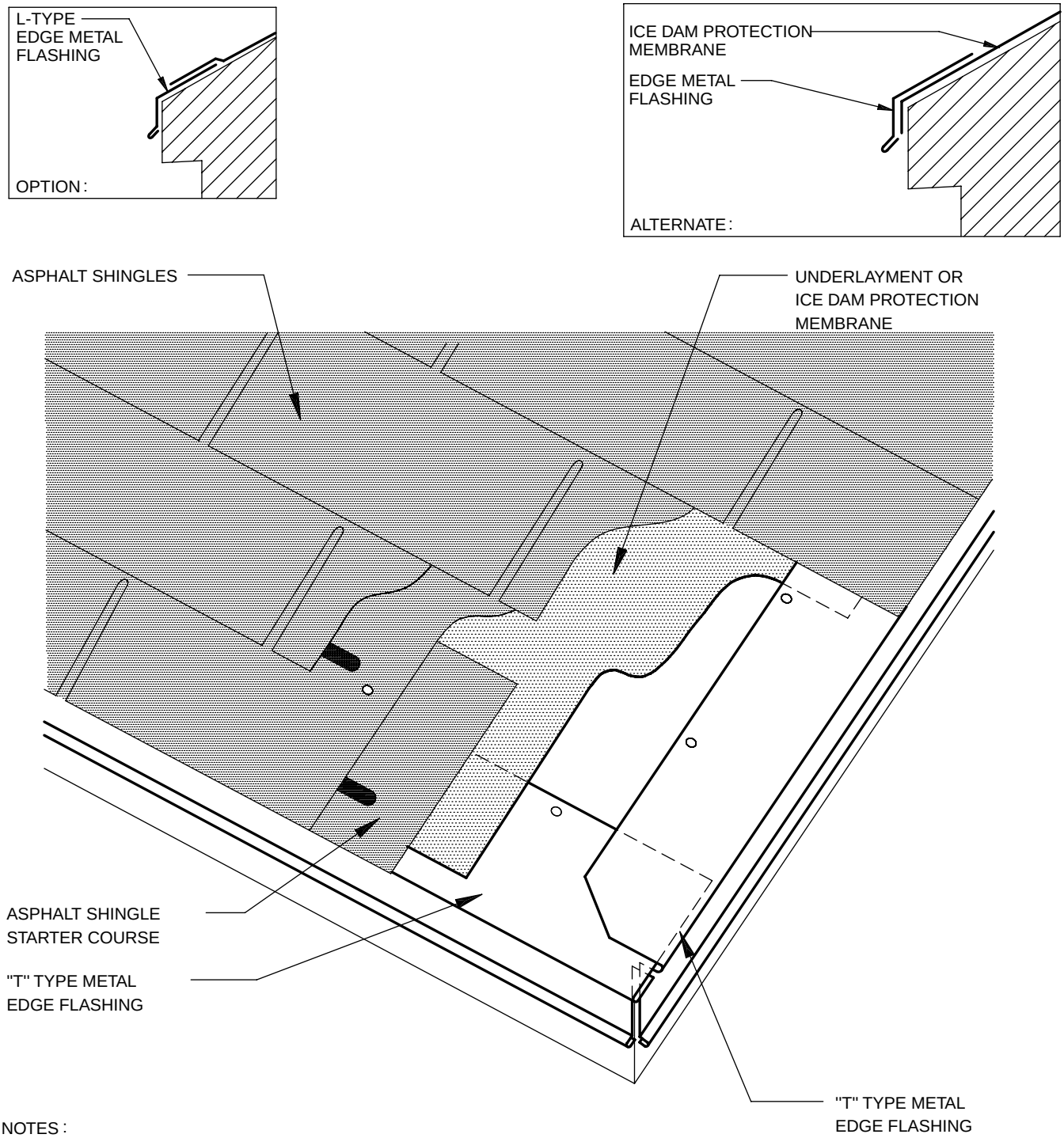
NATIONAL ROOFING CONTRACTORS ASSOCIATION

BACKER FLASHING

2001

NOT DRAWN TO SCALE

ASPH-3A



NOTES:

1. NOT ALL SHINGLES ARE SHOWN FOR CLARITY.
2. UNDERLAYMENT TYPE AND NECESSITY MAY VARY DEPENDING ON CLIMATIC CONDITIONS.

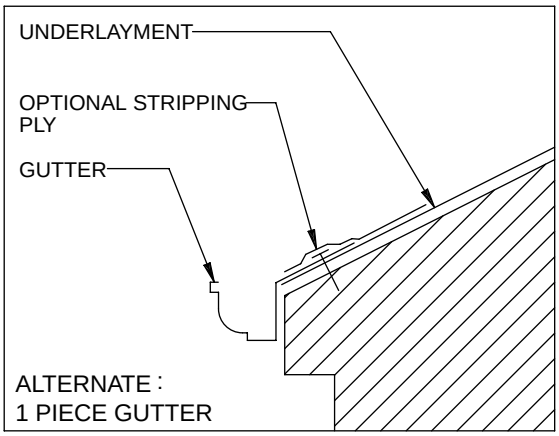
NATIONAL ROOFING CONTRACTORS ASSOCIATION

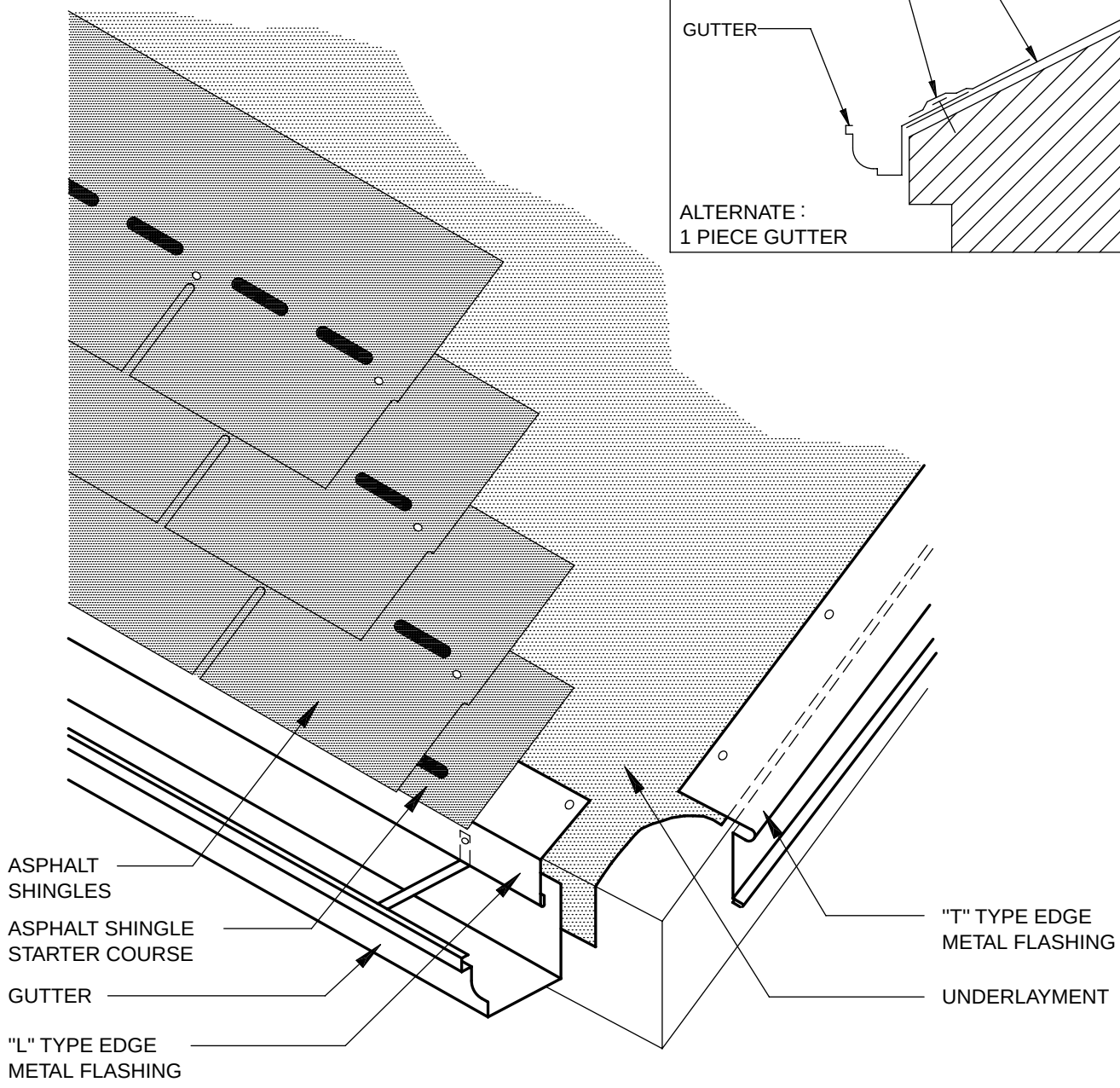
EAVE AND RAKE FLASHING

2001

NOT DRAWN TO SCALE

ASPH-4





NOTES :

1. UNDERLAYMENT CAN BE INSTALLED ON TOP OF OR UNDER THE EAVE EDGE METAL FLASHING DEPENDING ON CLIMATIC CONDITIONS.
2. UNDERLAYMENT TYPE AND NECESSITY MAY VARY DAPENDING ON CLIMATIC CONDITIONS.
3. THIS DETAIL SHOWS ONE TYPE OF GUTTER SUPPORT. GUTTER SECUREMENT AND SUPPORT OPTIONS VARY ACCORDING TO REGIONAL PRACTICES AND MANUFACTURERS SPECIFICATIONS.

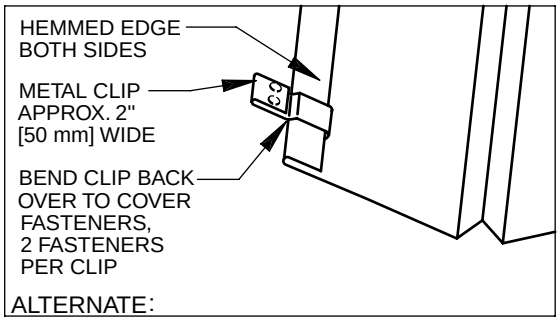
NATIONAL ROOFING CONTRACTORS ASSOCIATION

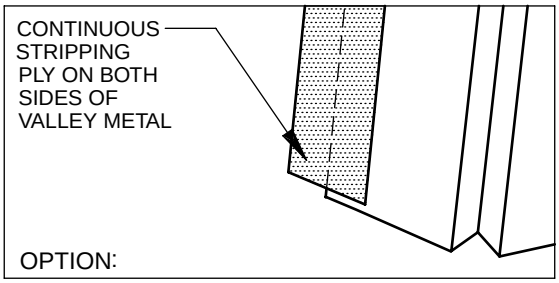
EAVE AND RAKE FLASHING WITH GUTTER

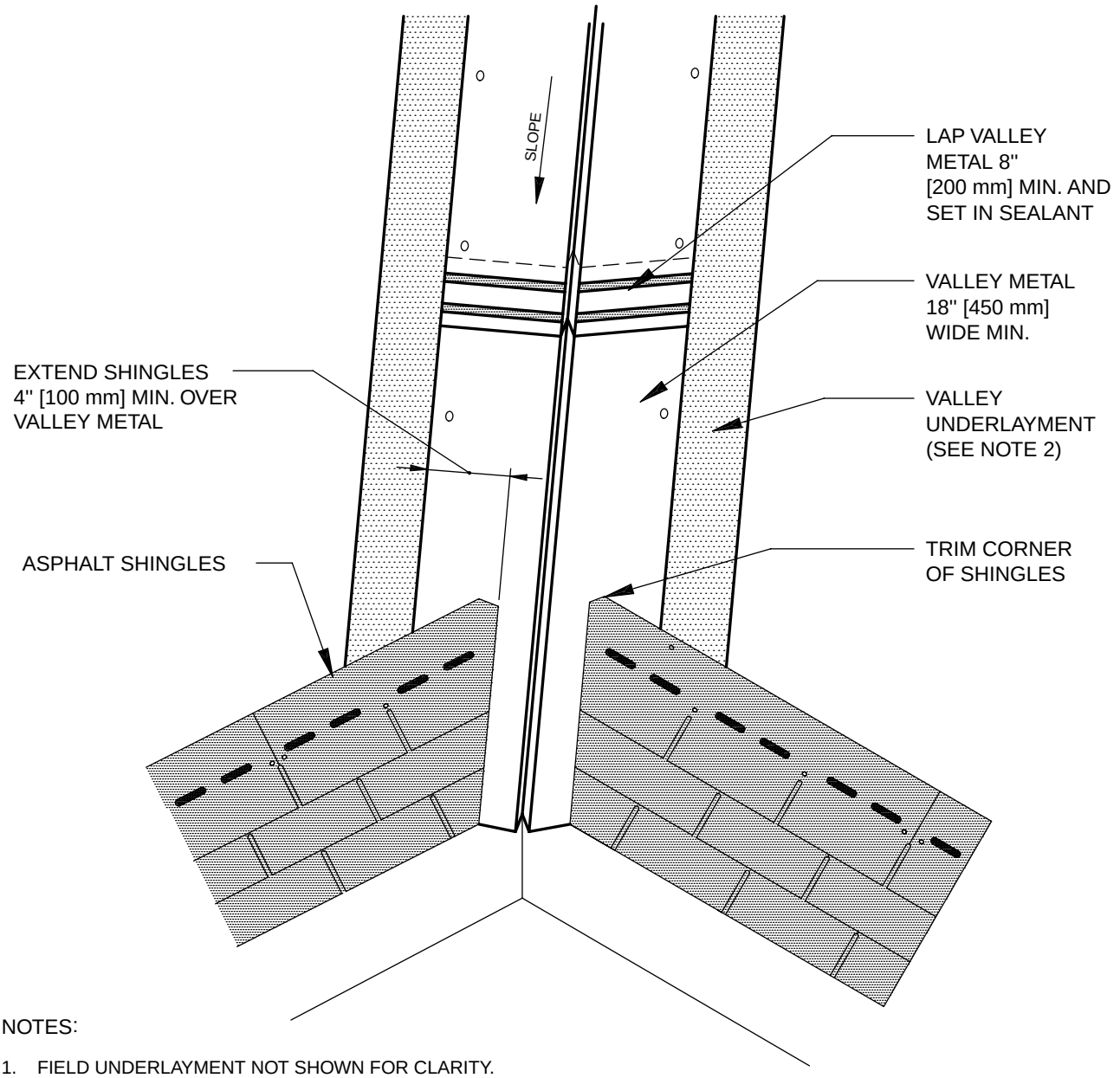
2001

NOT DRAWN TO SCALE

ASPH-5







NOTES:

1. FIELD UNDERLAYMENT NOT SHOWN FOR CLARITY.
2. VALLEY UNDERLAYMENT TYPE AND NECESSITY MAY VARY DEPENDING ON CLIMATIC CONDITIONS.
3. SHINGLES SHOULD NOT BE FASTENED THROUGH METAL VALLEY.
4. FOR CLIPPED VALLEY DETAIL ("ALTERNATE"), HEAVIER WEIGHT SHINGLES MUST BE USED.

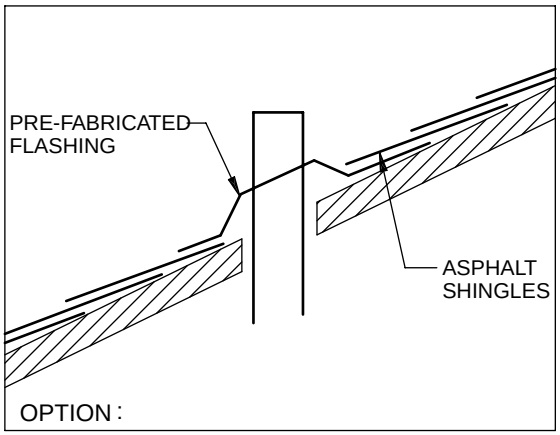
NATIONAL ROOFING CONTRACTORS ASSOCIATION

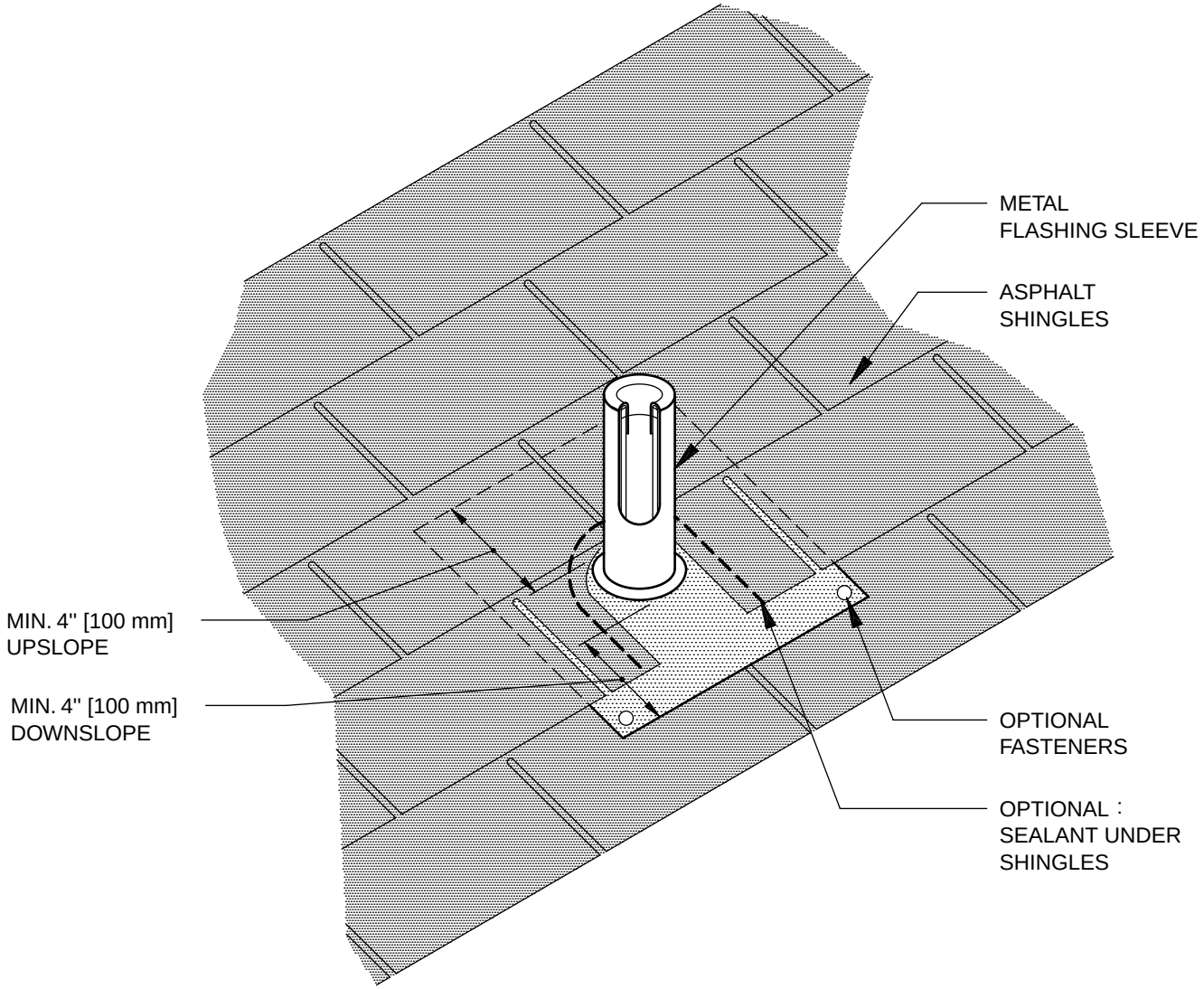
OPEN VALLEY

2001

NOT DRAWN TO SCALE

ASPH-6





NATIONAL ROOFING CONTRACTORS ASSOCIATION

PIPE PENETRATION

2001

NOT DRAWN TO SCALE

ASPH-8

Application: The recommended application method is the 'Five-Course, Diagonal Method' found on each bundle of shingles. In this method, shingle course offsets are 6" and 11". Instructions also may be obtained from CertainTeed. These shingles may be used for new construction or for reroofing over existing Metric-sized shingles.

Flashing: Use corrosion-resistant metal flashing.

Hips and Ridges: For capping hip and ridge apply CertainTeed Shadow Ridge™, Cedar Crest™ or Mountain Ridge™ shingles of a like color.

MAINTENANCE

These shingles do not require maintenance when installed according to manufacturer's application instructions. However, to protect the investment, any roof should be routinely inspected at least once a year. Older roofs should be looked at more frequently.

WARRANTY

Landmark Premium (and AR), Landmark Premium/Architect 80, Landmark Plus (and AR), and Landmark (and AR) shingles carry a lifetime limited, transferable warranty to the consumer against manufacturing defects. In addition, Landmark Premium (and AR), Landmark Premium/Architect 80, Landmark Plus (and AR), and Landmark (and AR) carry 10-years of SureStart™ Protection. For specific warranty details and limitations, refer to the warranty itself (available from the local supplier, roofing contractor or on-line at www.certainteed.com).

FOR MORE INFORMATION

Sales Support Group: 800-233-8990
Web site: www.certainteed.com
See us at our on-line specification writing tool, CertaSpec, at www.certainteed.com/certaspec.

CertainTeed Roofing
P.O. Box 860
Valley Forge, PA 19482

SD1

December 8, 2011

AREAS NOT INCLUDED IN THE ROOFING SCOPE

SD2

December 8, 2011