

**TOWN OF TRUMBULL, CONNECTICUT
BOARD OF EDUCATION**

REQUEST FOR QUOTATION

REPLACEMENT OF SHINGLE ROOF AREAS AT DANIELS FARM SCHOOL

RFQ: 6071

DUE: JULY 10, 2014 AT 2:00PM

The Town of Trumbull, Connecticut (hereinafter referred to as Town), through the Office of the Purchasing Agent, will accept sealed bids for the replacement of the shingle roof areas at Daniels Farm Elementary School, 710 Daniels Farm, Rd., Trumbull, CT 06611. Trumbull Board of Education in accordance with the enclosed specifications.

1. PREPARATION OF PROPOSALS

Bids shall be submitted by using the enclosed BID PROPOSAL FORM that accompanies this request. Submit one (1) ORIGINAL and one (1) EXACT COPY. Bidders should submit bids in a clear, concise and legible manner to permit proper evaluation of responsive bids.

Bidders may also submit, under separate cover with their proposal, any samples of reports and documents that are necessary to meet the requirements of this bid request.

2. BID SUBMISSION

a) Bids are to be submitted in DUPLICATE and sealed in an envelope clearly marked and addressed as follows:

Purchasing Agent - JULY 10, 2014 at 2:00PM
Town of Trumbull
5866 Main Street
Trumbull, CT 06611

b) Please be advised that the person signing the formal proposal must be authorized by your organization to contractually bind your firm with regard to prices and related contractual obligations for the delivery period requested.

c) No oral, telephonic, or faxed proposals will be considered. Corrections, deletions, or additions to the bids may be made by wire, provided such wires are received in correct and comprehensive form prior to the opening time of bids, and confirmed by letter. No telephone corrections, deletions, or additions will be accepted. The Town reserves the right to reject any or all bids, and to waive any or all formalities in connection therewith.

3. BID TIME

a) Bids shall be received at the office of the Purchasing Agent, Town Hall, prior to the advertised hour of opening, at which time all proposals will be publicly opened and read aloud.

b) A bidder may withdraw a proposal at any time prior to the above scheduled date and time. Any bid received after the above scheduled date and time shall not be considered or opened.

4. TOWN OPTIONS

a) The Town reserves the right to reject any or all bids and to waive any requirements, irregularities, technical defects or service therein when it is deemed to be in the best interest of the Town.

b) If your proposal does not meet or better the required specifications on all points, which must be outlined in a letter, otherwise it will be presumed that a proposal is in accordance with the required specifications.

c) The Town of Trumbull-Board of Education reserves the exclusive right to determine whether or not a proposal meets or exceeds the stated specifications.

5. TAXES

All purchases made by the Town, and associated with the award of this requirement shall be tax exempt. Any taxes must not be included in bid prices. A Town Tax Exemption Certificate shall be furnished upon request.

6. INQUIRIES

a) All inquiries regarding this request shall be answered up to close of business on July 7, 2014 after which time no additional questions will be accepted. To ensure consistent interpretation of certain items, answers to questions

the Town deems to be in the interest of all bidders will be made available in writing or by Fax as appropriate to all bidders. Inquiries of a technical nature may be directed to Stephen Kennedy (203-452-4306) Plant Operations, Trumbull Board of Education KennedyS@trumbullps.org.

- b) Additionally, after proposals are received, the Town reserves the right to communicate with any or all of the bidders to clarify the provisions of Proposals. The Town further reserves the right to request additional information from any bidder at any time after proposals are opened.
- c) It is the sole responsibility of the responding firm to verify any addendums that may have been issued relating to this request prior to submission of a proposal. Failure to submit a bid or proposal that does not address any changes or addendums may result in a disqualification of a bid submission.

7. **AWARD AND AUTHORITY**

The Town Purchasing Agent or Board of Education will issue notification of award in writing.

8. **PRICING**

All prices quoted are to be firm for a period of ninety (90) days following bid opening. **Special Consideration will be given to responses that can expedite the work.** The Town is always interested in any and all cost reduction opportunities.

9. **ASSIGNMENT OF RIGHTS, TITLES, AND INTERESTS**

Any assignment or subcontracting by a bidder, vendor, or contractor for work to be performed, or goods and/or services to be provided, in whole or in part, and any other interest in conjunction with Town procurement shall not be permitted without the express written consent of the Town of Trumbull.

10. **HOLD HARMLESS CLAUSE**

Bidder agrees to indemnify, hold harmless and defend the Town from and against any and all liability for loss, damage or expense which the Town may suffer or for which the Town may be held liable by reason of injury, including death, to any person or damage to any property arising out of or in any manner connected with the operations to be performed under an agreement with the Town, whether or not due in whole or in part of any act, omission or negligence of the Town or any of his representatives or employees.

11. **WORK REGULATIONS AND STANDARDS**

All work activities performed in association with this request must be performed and completed for the Town in accordance with current Federal State and Local regulations. All services performed shall also conform to the latest OSHA standards and/or regulations. Additional regulations and/or standards as listed in the specifications shall apply.

12. **WARRANTIES**

A copy of all applicable warranties must be submitted in full detail.

13. **CONFLICT OF INTEREST**

No purchase shall be made from nor shall services (other than services as an officer, agent, or employee of the Town) be secured from any officer or employee of the Town, or from any partnership or corporation in which such officer or employee is a partner or officer, or holds a substantial interest, unless such relationship and the fact that such purchase is contemplated shall be made known in writing to the agency making such purchase, and notice thereof posted, for at least five (5) days before such purchase be made, in the office of the agency making such purchase and in a public place in the Trumbull Town Hall.

14. **DELIVERY**

Installation shall be scheduled with the BOE Plant Operations Department. All work must be done in a manner that will not interfere with student work or the safety of the building occupants. All bidders should include the cost of any work that may be disruptive to the school and may need to be performed off-hours (weekends, evening).

15. **INSURANCE**

The successful bidder shall provide the Town Purchasing Agent with a Certificate of Insurance before work commences. The Town shall be named as an additional insured with an Insurance Company licensed to write such insurance in Connecticut, against the following risks and in not less than the following amounts:

- Worker's Compensation
- Contractor's Public Liability and Property Damage
- Automobile Insurance

General Liability	Each Person	Each Occurrence	Aggregate
Bodily Injury Liability	\$1,000,000	\$1,000,000	\$1,000,000
Property Damage Liability	\$1,000,000	\$1,000,000	\$1,000,000
Personal Injury Liability	\$1,000,000	\$1,000,000	\$1,000,000
Comprehensive Automobile Liability			
Bodily Injury	\$1,000,000	\$1,000,000	\$1,000,000
Property Damage		\$1,000,000	\$1,000,000

The insurance policy must contain the additional provision wherein the company agrees that fifteen (15) days prior to termination, expiration, cancellation or reduction of the insurance afforded by this policy with respect to the contract involved, written notice will be served by registered mail to the Town.

In the event of cancellation, the contractor will cease all operations on or before the effective date of said cancellation and shall not commence work again until he has obtained replacement insurance and has delivered a Certificate of Insurance to the BOE Plant Operations Office.

16. BID, PERFORMANCE AND PAYMENT BONDS

- a) A Bid Bond payable to the Owner must accompany each Proposal for ten (10%) percent of the total amount of the Proposal. As soon as the Proposal prices have been compared, the Owner will return the bonds of all except the three lowest responsible proposals. A certified check may be used in lieu of a Bid Bond.
- b) A Performance Bond and a Payment Bond, each in the amount of 100 percent (100%) of the Contract Price, with a corporate surety approved by the Owner, will be required for the faithful performance of the contract. Attorneys-in-fact who sign the Bid Bonds or Payment Bonds and Performance Bonds must file with each bond, a certified and effective dated copy of their power of attorney.

17. SPECIFICATIONS –

- a) Each Bidder will be held responsible to have studied the Specifications, visit the sites (if necessary), regarding the proposed work, satisfied itself regarding all existing conditions and measurements, and to have included in the proposal an amount sufficient to cover all work.
- b) Should any Bidder find discrepancies in the Specifications, or be in doubt as to the exact meaning, notify the Town at once. The Town may then, at their option, issue Addenda clarifying same. The Town shall not be responsible for oral instructions or misinterpretations of Specifications.
- c) The Town reserves the right to issue Addenda at any time prior to the Bid Opening. All such Addenda become, upon issuance, part of the Specification. Each Bidder shall cover such Addenda in the proposal and shall acknowledge receipt of same on the blank provided therefore. It is the bidders' responsibility to access the Town's website or contact the Town for any addenda that may be issued in conjunction with this bid.
- d) The Town reserves the right to require any or all Bidders to submit statements as to previous experience in performing comparable work; and as to financial and technical organizations and resources available for this work. The mere opening and reading aloud of a bid shall not constitute or imply the Town's acceptance of the suitability of a Bidder or the bid, nor shall possession of Drawings or Specifications constitute an invitation to bid. The competency and responsibility of Bidders as well as the number of working days required for completion will be considered in making an award.

18. Site Visitation and Inspection of Existing Conditions

All bidders must visit the site and inspect the existing conditions. Site visits can be arranged by calling the BOE Plant Operations office at 203-452-4306.

19. **REFERENCES**

Bidder must have a minimum of 10 years' experience performing roof work or construction involving roof work.

Contractor must provide references for at least five (5) projects involving roof replacement or installation. References must be returned with the bid, in duplicate, and include project name, project address location, and contact information for the project client.

Organization Name: _____

Contact Name: _____ Phone: _____

Service Dates: _____

Project(s): _____

Organization Name: _____

Contact Name: _____ Phone: _____

Service Dates: _____

Project(s): _____

Organization Name: _____

Contact Name: _____ Phone: _____

Service Dates: _____

Project(s): _____

Organization Name: _____

Contact Name: _____ Phone: _____

Service Dates: _____

Project(s): _____

Organization Name: _____

Contact Name: _____ Phone: _____

Service Dates: _____

Project(s): _____

TOWN OF TRUMBULL, CONNECTICUT

BOARD OF EDUCATION
REQUEST FOR QUOTATION
REPLACEMENT OF SHINGLE ROOF AREAS AT DANIELS FARM SCHOOL
RFQ: 6071 DUE: JULY 10, 2014 AT 2:00PM

SPECIFICATIONS

General Description:

All shingle roof areas at Daniels Farm School are included in this project. The scope includes replacing the existing shingle roof and flashing any existing protrusions through the roof. Target completion date is August 22, 2014.

Bidders are responsible for verifying existing conditions and measurements.

The existing roof system includes plywood installed over foam insulation on a metal deck. The contractor shall be responsible for removing and disposing of the existing roof to the plywood deck. Any damaged or compromised plywood will be removed and replaced with new ply-wood. Plywood shall be of the same thickness as existing deck and quality shall meet standard roof construction standards as well as Local Building Code requirements. If the insulation board is damaged, this must be replaced. Insulation board replacement will be handled on a time and materials basis. The materials rate must be included in the bid as a percentage mark-up over contractor's verified wholesale cost.

The total roofing system shall have a Lifetime Warranty as noted in the detailed specifications (30 year for alternate bid). A GAF shingle-roof system has been specified, however, an alternative Manufacturer's system may be used provided the roofing system is equal to or better than the GAF materials and system specified. In addition all work must conform to manufacturer's specifications and certification requirements to assure full warranty coverage.

All work must be performed to all Federal, State and Local building and Safety codes. The contractor must pull the local building permit. The Town fee will be waived but the State fee shall be the responsibility of the contractor.

This work is being performed on school grounds and children may be present. The work area shall be secured and safe at all times. All debris shall be contained in dumpsters at the end of the night.

All work will be performed in a professional manner and consistent with generally accepted methods and means.

Gutters and leaders are NOT included in the scope and care must be taken to prevent damage of these items.

Vendor is responsible for disposal of all debris including existing roof materials removed as part of this project including dumpster costs and disposal fees.

Basic drawings are included at end of bid.

Work is not to be staged from flat roof sections. Foot traffic shall not be permitted on out of scope (flat roof) areas.

DETAL SPECIFICATIONS

1.01 SECTION INCLUDES

- A Asphalt roofing shingles.
- B Leak barrier and roof deck protection.
- C Metal flashing associated with shingle roofing.
- D Attic ventilation.

E REFERENCES American Society for Testing and Materials (ASTM) - Annual Book of ASTM Standards

1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
3. ASTM B 370 - Standard Specification for Copper Sheet and Strip for Building Construction.
4. ASTM D 3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules.
5. ASTM D 3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method).
6. ASTM D 3462 - Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules.
7. ASTM D 4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
8. ASTM D 7158 - Standard Test Method for Wind-Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method).

F ASTM E 903 - Standard Test Method for Solar Absorptance, Reflectance, and Transmission of Materials Using Integrating Spheres. Underwriters Laboratories (UL) - Roofing Systems and Materials Guide (TGFU R1306)

1. UL 790 - Tests for Fire Resistance of Roof Covering Materials.
2. UL 997 - Wind Resistance of Prepared Roof Covering Materials.
3. UL 2218 - Impact Resistance of Prepared Roof Covering Materials.

G Asphalt Roofing Manufacturers Association (ARMA)

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

I National Roofing Contractors Association (NRCA)

J American Society of Civil Engineers (ASCE).

1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

K U.S. Green Building Council (USGBC)

L Leadership in Energy and Environmental Design (LEED)

M ENERGY STAR

1.02 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.

1.03 SUBMITTALS

- A Submit copies of GAF® product data sheets, detail drawings and samples for each type of roofing product.
- B L.E.E.D. submittal: Coordinate with Section 01115 - Green Building Requirements, for LEED certification submittal forms and certification templates.

1.04 QUALITY ASSURANCE

- A Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, leak barrier, and ventilation, by a single manufacturer.
- B Installer Qualifications: Installer must be approved for installation of all roofing products to be installed under this section.

1.05 REGULATORY REQUIREMENTS

- A Provide a roofing system achieving an Underwriters Laboratories (UL) Class A fire classification.
- B . Install all roofing products in accordance with all federal, state and local building codes.
- C All work shall be performed in a manner consistent with current OSHA guidelines.

1.06 PREINSTALLATION MEETING

- A A pre-installation meeting shall be held.
- B Timing: The meeting shall take place prior to the start of the roofing installation.
- C Attendees: Meeting to be called for by manufacturer's certified contractor. Meeting's mandatory attendees shall include the certified contractor. Non-mandatory attendees shall include the owner's representative, architect or engineer's representative, and the general contractor's representative.
- D Topics: Certified contractor shall review all pertinent requirements for the project, including but not limited to, scheduling, weather considerations, project duration, and requirements for the specified warranty.

1.07 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.

1.08 WEATHER CONDITIONS

- A Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with GAF®'s recommendations

B WARRANTY

- A Minimum Warranty A (Base Bid): Provide to the owner a **GAF® Smart Choice® Shingle Ltd. Warranty covering:**

1. Manufacturing defects: 100% coverage for materials for:
 - a School building – 40 years with the first 5 years non - prorated.
2. Warranted against algae discoloration for 10 years
3. Includes Minimum Wind Speed Rating of 110 mph

- B Warranty A (Alternate Add) : Provide to the owner a **GAF® Weather Stopper® System Plus Ltd Warranty covering:**

1. Roofs installed by an Authorized Home Builder, Certified Contractor or Certified GAF® Master Elite™ Contractor only.
2. Manufacturing defects: 100% coverage for materials and labor for:
 - a Any other type of owner or building – 40 years with the first 20 years non- prorated. (excludes Marquis WeatherMax and Royal Sovereign)
3. Warranted against algae discoloration for 10 years
4. Includes Minimum Wind Speed Rating of 110 mph

PRODUCTS

MANUFACTURERS

- A Acceptable Manufacturer: GAF®, or approved equal.
- B Requests for substitutions will be considered provided a letter detailing any differences between specified product (s) accompanies this bid along with manufacturer's specifications verifying substitute product meets or exceeds specified product

SHINGLES

- A Self sealing, granule surfaced, asphalt shingle with a strong fiberglass reinforced Micro Weave® core and StainGuard® protection, which prevents pronounced discoloration from blue-green algae through formulation/unique blends of granules. Architectural laminate styling provides a wood shake appearance with a 5 5/8 inch exposure. Features GAF®'s patented High Definition® color blends and enhanced shadow effect. UL 790 Class A rated with UL 997 Wind Resistance Label; ASTM D 7158, Class H; ASTM D 3161, Type 1; ASTM D 3018, Type 1; ASTM D 3462; AC438; CSA A123.5-98; Dade County Approved, Florida Building Code Approved, Texas Dept. of Insurance Approved, ICC Report Approval. **Timberline® HD** Lifetime High Definition Shingles, by GAF®.
 - 1. Color: As selected from manufacturers' full range.
 - 2. Color: To match existing shingles as closely as possible

HIP AND RIDGE SHINGLES

- A High profile self-sealing hip and ridge cap shingle matching the color of selected roof shingle. Each bundle covers approx. 20 lineal feet (6.10m). **Timbertex®** Premium Ridge Cap Shingles, by GAF®.
- B Distinctive self-sealing hip and ridge cap shingle complementing the color of selected roof shingle. Each bundle covers approx. 31 lineal feet (9.45m) with an 8 inch (203mm) exposure. **Ridglass™ 12"** Ridge Cap Shingles by GAF®.
- C Distinctive self-sealing hip and ridge cap shingle complementing the color of selected roof shingle. Each bundle covers approx. 31 lineal feet (9.45m) with an 8 inch (203mm) exposure. **Ridglass™ 10"** Ridge Cap Shingles by GAF®.
- D Distinctive self-sealing hip and ridge cap shingle complementing the color of selected roof shingle. Each bundle covers approx. 31 lineal feet (9.45m) with an 8 inch (203mm) exposure **Ridglass™ 8"** Ridge Cap Shingles by GAF®.
- E Distinctive self-sealing hip and ridge cap shingle complementing the color of selected roof shingle. Each bundle covers approx. 25 lineal feet (7.62mm) with a 6 2/3 inch (169mm) exposure. **Seal-A-Ridge®** Ridge Cap Shingles by GAF®.
- F Distinctive hip and ridge cap shingle complementing the color of selected roof shingle. Each bundle covers approx. 33.3 lineal feet (10.15m) with a 5 5/8 inch (147mm) exposure. **Z® Ridge** Shingles by GAF®.
- G Integrated cap shingle and ridge vent design shingle complementing the color of selected roof shingle. Each bundle covers approx. 20 lineal feet (6.10m) with a 9 ¼ inch (235mm) exposure and provides 10.65 sq. in./linear ft. of net free ventilating area. **Vented RidgeCrest™** Venting Ridge Cap Shingles by GAF®.

STARTER STRIP

- A Self-sealing starter shingle designed for premium roof shingles. Each bundle covers approx. 100 lineal feet (30.48m) for English and metric shingles or 50 lineal feet (15.24m) for oversized shingles. **WeatherBlocker™** Eave/Rake Starter Strip by GAF®.
- B Self-sealing starter shingle designed for all roof shingles. Each bundle covers approx. 120 lineal feet (36.58m). **ProStart™** Starter Strip by GAF®.

LEAK BARRIER

- A Self-adhering, self-sealing, bituminous leak barrier surfaced with fine, skid-resistant granules. Approved by UL, Dade County, ICC, State of Florida and Texas Department of Insurance. Each roll contains approx. 150 sq ft (13.9 sq.m.), 36" X 50' (0.9m x 20.3m) or 200 sq. ft. (18.6 sq.m.), 36" X 66.7' (0.9m x 20.3m). **WeatherWatch®** Leak Barrier, by GAF®.
- B Self-adhering, self-sealing, bituminous leak barrier surfaced with a coated surface and added tack for extra traction. Approved by UL and ICC. Each roll contains approx. 200 sq. ft. (18.6 sq.m.), 36in. X 66.7ft. (0.9m x 20.3m) **WeatherWatch® XT** Leak Barrier, by GAF®.
- C Self-adhering, self-sealing, bituminous leak barrier surfaced with a smooth polyethylene film. Approved by UL, Dade County, ICC, State of Florida and Texas Department of Insurance. Each Roll contains approx. 200 sq. ft. (18.6 sq.m.), 36" X 66.7' (0.9m x 20.3m), and 60 mils thick. **StormGuard®** Leak Barrier, by GAF®.
- D Self-adhering, self-sealing, SBS modified waterproof leak barrier. Approved by UL, FM, Dade County, and State of Florida. Each roll contains approx. 200 sq. ft. (18.6 sq.m.), 39.4in. X 67.8ft. (1 m x 20.7m), **UnderRoof™2** Waterproof Protection by GAF®.
- E Self-adhering air & moisture barrier film surfaced SBS modified flashing. Roll sizes available in 7 different dimensions. Approved by Dade Country and Florida Building Code. **Storm Flash™** Self-Adhering Flashing by GAF®.

SHINGLE UNDERLAYMENT

- A Premium, water repellent, breather type non-asphaltic underlayment. UV stabilized polypropylene construction. Meets or exceed ASTM D226 and D4869. Approved by Dade Country, Florida Building Code, and ICC. Each roll contains approximately 10 squares (1003 sq. ft.) of material and is 54" x 223'. **Deck-Armor™** Premium Breathable Roof Deck Protection, by GAF®.
- B Synthetic, non-asphaltic, non-woven, anti-skid back coated, polypropylene constructed non breathable underlayment. Meets or exceeds ASTM D226 and D4869 approved by UL, Florida Building Code, ICC and CSA A220.1. Each roll contains approximately 10 squares (1000 gross sq. ft.) of material and is 48 in. x 250 ft. (14.6 m x 76.2 m), **Tiger-Paw™** Roof Deck Protection by GAF®.
- C Water repellent, breather type cellulose/glass fiber composite roofing underlayment. Meets or exceed ASTM D226 and D4869 and approved by UL and the Florida Building Code. Each roll contains approximately 4 squares (432 sq. ft.) of material and is 36" x 144" **Shingle-Mate®** Roof Deck Protection, by GAF®.
- D Premium, all-purpose fiberglass reinforced SBS modified underlayment. Meets or exceeds ASTM D226. Approved by UL and ICC. Each roll contains 2 squares (20.06 sqm.) of material and is 39.37 in. x 65.8 ft. (1m x 20m), **Roof Pro™** SBS Modified All-Purpose Underlayment by GAF®.
- E Non-woven fiberglass mat underlayment coated on both sides using a highly filled polymer. Provides a fire barrier and water resistant. Approved by Dade Country, Florida Building Code, and ICC approval. **VersaShield®** Fire-Resistant Roof Deck Protection by GAF®.
- F #15 Roofing Underlayment – By Others: Water repellent breather type cellulose fiber building paper. Meets or exceeds the requirements of ASTM D-4869 Type I.
- G #30 Roofing Underlayment - By Others: Water repellent breather type cellulose fiber building paper. Meets or exceeds the requirements of ASTM D-4869 Type II.

ROOFING CEMENT

- A Asphalt Plastic Roofing Cement meeting the requirements of ASTM D 4586, Type I or II.

ROOF ACCESSORIES

- A Exterior acrylic rust resistant aerosol roof accessory paint. Each 6 oz. can is available in boxes of 6 and in a wide variety of colors to compliment the roof. **Shingle-Match™** Roof Accessory Paint by GAF®.

NAILS

- A Standard round wire, zinc-coated steel or aluminum; 10 to 12 gauge, smooth, barbed or deformed shank, with heads 3/8 inch (9mm) to 7/16 inch (11mm) in diameter. Length must be sufficient to penetrate into solid wood at least 3/4 inch (19mm) or through plywood or oriented strand board by at least 1/8 inch (3.18mm).
- B METAL FLASHING 24 gauge hot-dip galvanized steel sheet, complying with ASTM A 653/A 653M, G90/Z275.
- C 16-oz/sq ft. (0.56mm) copper sheet, complying with ASTM B 370.
- D 0.032-inch (0.8mm) aluminum sheet, complying with ASTM B 209.

EXECUTION

EXAMINATION

- A Do not begin installation until the roof deck has been properly prepared.
- B If roof deck preparation is the responsibility of another installer, notify the architect or building owner of unsatisfactory preparation before proceeding.
- C PREPARATION Remove all existing roofing down to the roof deck.
- D Verify that the deck is dry, sound, clean and smooth. It shall be free of any depressions, waves, and projections. Cover with sheet metal, all holes over 1 inch (25mm) in diameter, cracks over 1/2 inch (12mm) in width, loose knots and excessively resinous areas.
- E Replace damaged deck with new materials.
- F Clean deck surfaces thoroughly prior to installation of eaves protection membrane and underlayment.
- G PREPARATION Clean deck surfaces thoroughly prior to installation of eaves protection membrane and underlayment.
- H At areas that receive eaves protection membrane, fill knotholes and cracks with latex filler.
- I Install crickets on the upslope side of all chimneys in the north, any chimney wider than 24" (610mm), and on all roofs steeper than 6/12.
- J PREPARATION Verify that the deck is structurally sound and free of deteriorated decking. All deteriorated decking shall be removed and replaced with new materials.
- K Verify that the existing shingles are dry, sound, clean and smooth. All curled, buckled or loose tabs shall be nailed down or removed.
- L Clean shingle surfaces thoroughly prior to installation of eaves protection membrane and underlayment.
- M INSTALLATION OF UNDERLAYMENTS General:
 1. Install using methods recommended by GAF®, in accordance with local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
- N Eaves:
 1. Install eaves edge metal flashing tight with fascia boards; lap joints 2 inches (51mm) and seal with plastic cement or high quality urethane sealant; nail at the top of the flange.
 2. In the north, and on all roofs between 2/12 and 4/12 (low slopes) install GAF® leak barrier up the slope from eaves edge a full 36 inches (914mm) or to at least 24 inches (610 mm) beyond the interior "warm wall". Lap ends 6 inches (152mm) and bond.
- O Valleys:
 1. Install eaves protection membrane at least 36 (914mm) inches wide and centered on the valley. Lap ends 6 inches (152mm) and seal.
 2. Where valleys are indicated to be "open valleys", install metal flashing over GAF® leak barrier before GAF® roof deck protection is installed; DO NOT nail through the flashing. Secure the flashing by nailing at 18 inches (457 mm) on center just beyond edge of flashing so that nail heads hold down the edge.

P Hips and Ridges:

1. Install GAF® leak barrier along entire lengths. If ridge vents are to be installed, position the GAF® leak barrier so that the ridge slots will not be covered.

Q Roof Deck:

1. Install one layer of GAF® roof deck protection over the entire area not protected by GAF® leak barrier at the eaves or valley. Install sheets horizontally so water sheds and nail in place.
2. On roofs sloped at more than 4:12, lap horizontal edges at least 2 inches (51mm) and at least 2 inches (51mm) over eaves protection membrane.
3. On roofs sloped between 2 :12 and 4:12, lap horizontal edges at least 19 inches (482 mm) and at least 19 inches (482mm) over eaves protection membrane.
4. Lap ends at least 4 inches (102 mm). Stagger end laps of each layer at least 36 inches (914 mm).
5. Lap GAF® roof deck protection over GAF® leak barrier in valley at least 6 inches (152mm).

R Deck-Armor™ Application

1. Deck-Armor shall be installed over a clean, dry deck.
2. Install Weather Watch® or StormGuard® Leak Barrier at eaves, valleys, rakes, skylights, dormers and other vulnerable leak areas.
3. Lay Deck-Armor™ over deck and overlap 3" (76mm) at side laps and 6" (152mm) at end laps.
4. For exposure to rain or snow, overlap 12" (305mm) at end laps.
5. For side and end laps: fasten Deck-Armor 12" (305mm) o.c. (6" (152mm)o.c. for high wind areas).
6. For middle of the roll: fasten Deck-Armor 24" (610mm) o.c. (12" (305mm) o.c. for high wind areas).
7. For exposure to rain or snow, completely cover all side laps, end laps and fasteners with tape.
8. For long term exposure see complete Deck-Armor installation instructions for side lap detail.
9. If roof may be exposed to high winds, apply tape over all fasteners at the center of the roll to prevent rain or snow from entering at the fasteners.
10. For slopes less than 2:12, a double application of Deck-Armor is required. See complete Deck-Armor installation instructions for more information.

S Penetrations:

1. Vent pipes: Install a 24 inch (610 mm) square piece of eaves protection membrane lapping over roof deck underlayment; seal tightly to pipe.
2. Vertical walls: Install eaves protection membrane extending at least 6 inches (152mm) up the wall and 12 inches (305mm) on to the roof surface. Lap the membrane over the roof deck underlayment.
3. Skylights and roof hatches: Install eaves protection membrane from under the built-in counterflashing and 12 inches (305mm) on to the roof surface lapping over roof deck underlayment.
4. Chimneys: Install eaves protection membrane around entire chimney extending at least 6 inches (152mm) up the wall and 12 inches (305mm) on to the roof surface. Lap the membrane over the roof deck underlayment.
5. Rake Edges: Install metal edge flashing over eaves protection membrane and roof deck underlayment; set tight to rake boards; lap joints at least 2 inches (51mm) and seal with plastic cement; secure with nails.

INSTALLATION OF STARTER SHINGLES

A General:

1. Install in accordance with GAF®'s instructions and local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Refer to application instructions for the selected starter strip shingles.

B Placement and Nailing:

1. For maximum wind resistance along rakes & eaves, install any GAF® starter strip containing sealant or cement shingles to underlayment and each other in a 4" (102mm) width of asphalt plastic roof cement.
2. Place starter strip shingles 1/4" – 3/4" (6 – 19mm) over eave and rake edges to provide drip edge.
3. Nail approximately 1-1/2" – 3" (38 – 76mm) above the butt edge of the shingle.
4. Rake starter course should overlap eave edge starter strip at least 3" (76mm).

INSTALLATION OF SHINGLES

A General:

1. Install in accordance with GAF®'s instructions and local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Minimize breakage of shingles by avoiding dropping bundles on edge, by separating shingles carefully (not by "breaking" over ridge or bundles), and by taking extra precautions in temperatures below 40 degrees F (4 degrees C).
3. Handle carefully in hot weather to avoid scuffing the surfacing, or damaging the shingle edges.
4. Placement and Nailing: Secure with 4, 5, or 6 nails per shingle per GAF®'s application instructions or local codes.
5. Placement of nails varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.
6. Nails must be driven flush with the shingle surface. Do not overdrive or under drive the nails.
7. Shingle offset varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.
8. Placement and Nailing: Beginning with the starter strip, trim shingles so that they "nest" within the shingle located beneath it. This procedure will yield a first course that is typically 3 inch (76mm) to 4 inch (102mm) rather than a fully exposed shingle.
9. Laterally, offset the new shingles from the existing keyways, to avoid waves or depressions caused by excessive dips in the roofing materials.
10. Using the bottom of the tab on existing shingles, align subsequent courses.
11. *Note: DO NOT install standard sized shingles (5inch exposure) over metric (5 5/8 inch exposure) shingles, as it will overexpose the shingles and reveal the nails. Use standard alignment methods to assure proper shingle placement.
12. Secure with 4, 5, or 6 nails per shingle per GAF®'s instructions or local codes.
13. Placement of nails varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.
14. Nails must be driven flush with the shingle surface. Do not overdrive or under drive the nails.
15. Shingle offset varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.
16. Valleys Install valleys using the "open valley" method:
 - a Snap diverging chalk lines on the metal flashing, starting at 3 inches (76mm) each side of top of valley, spreading at 1/8 inch per foot (9mm per meter) to the eaves.

- b Run shingles to chalk line.
 - c Trim last shingle in each course to match the chalk line; do not trim shingles to less than 12 inches (305mm) wide.
 - d Apply a 2 inch (51mm) wide strip of plastic cement under ends of shingles, sealing them to the metal flashing.
17. Install valleys using the "closed cut valley" method:
- a Run the first course of shingles from the higher roof slope across the valley at least 12 inches (305mm).
 - b Run succeeding courses of shingles from the lower roof slope across the valley at least 12 inches (305mm) and nail not closer than 6 inches (152mm) to center of valley.
 - c Run shingles from the upper roof slope into the valley and trim 2 inches (51mm) from the center line.
 - d Install valleys using "woven valley" method: Run shingles from both roof slopes at least 12 inches (305mm) across center of valley, lapping alternate sides in a woven pattern.
 - e DO NOT nail less than 6 inches (152mm) from the valley center line.

B Penetrations

- 1. All Penetrations are to be flashed according to GAF®, ARMA and NRCA application instructions and construction details.

INSTALLATION OF ATTIC VENTILATION

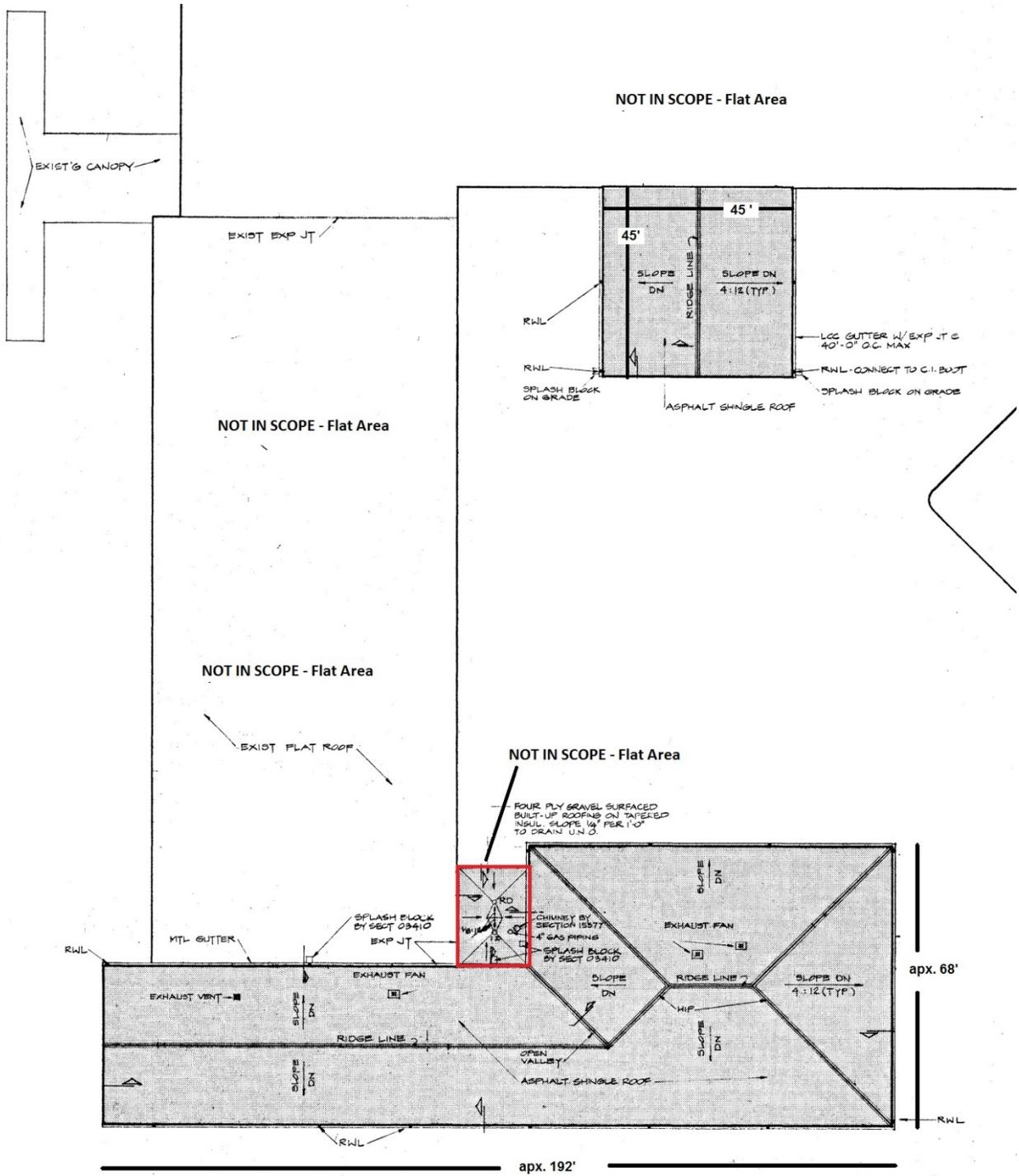
A Ridge / Soffit ventilation

- 1. Install ridge vent along the entire length of ridges:
- 2. Cut continuous vent slots through the sheathing, stopping 6 inches (152mm) from each end of the ridge.
- 3. On roofs without ridge board, make a slot 1 inch (25mm) wide, on either side of the peak (2 inch (51mm) overall).
- 4. On roofs with ridge board, make two slots 1-3/4 inches (44.5mm) wide, one on each side of the peak (3 ½ inch (89mm) overall).
- 5. Install ridge vent material along the full length of the ridge, including uncut areas.
- 6. Butt ends of ridge vent material and join using roofing cement.
- 7. Install eaves vents in sufficient quantity to equal or exceed the ridge vent area.

PROTECTION

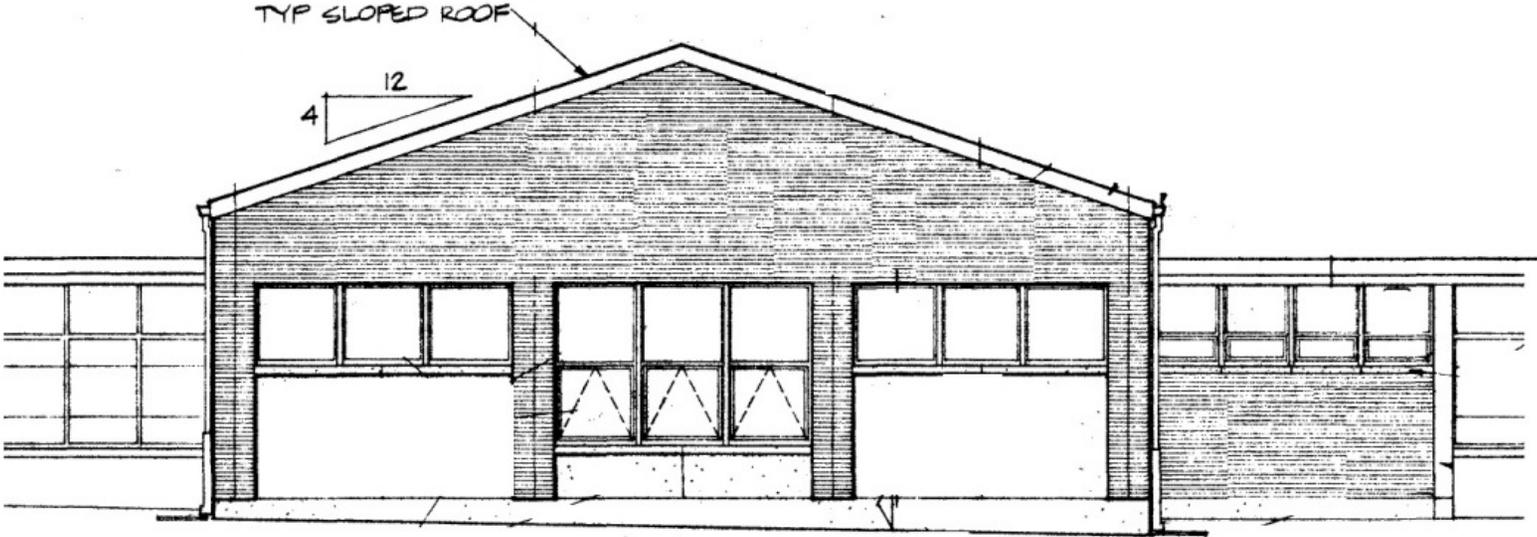
- A** Protect installed products from foot traffic until completion of the project.
- B** Any roof areas that are not completed by the end of the workday are to be protected from moisture and contaminants.

END OF SECTION

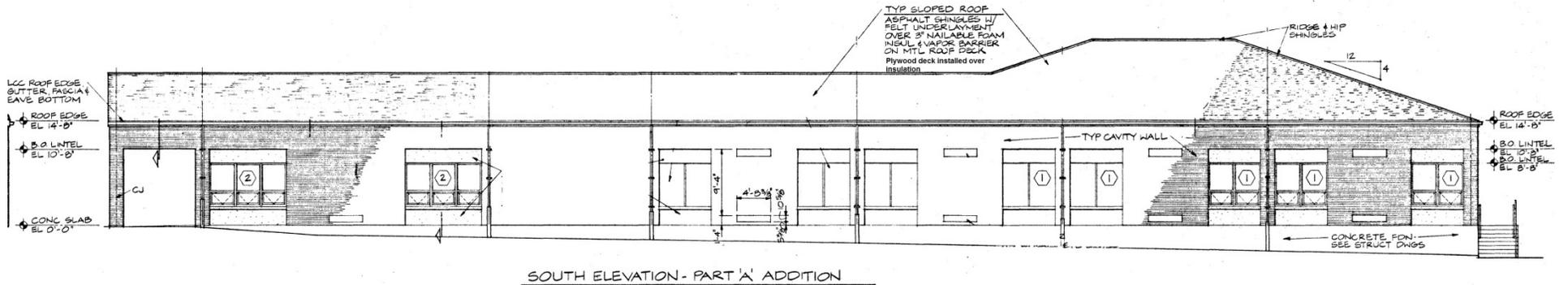


ROOF PLAN

SHADED AREAS IN SCOPE EXCEPT AS NOTED



Media Center



Classroom Wing Elevation