

MILFORD SCHOOL DISTRICT
SAU 40
100 West Street
Milford, NH 03055
603-673-2202
Fax 603-673-2237

Michael Tenters
Director of Curriculum

Robert Marquis
Superintendent of Schools

Jennifer Burk
Business Administrator

March 22, 2017

Dear Potential Bidder:

Enclosed is an Invitation to Bid on the partial replacement of the roof at the Heron Pond Elementary School for the Milford School District. When submitted, bids must include completed Cost Statement, Good Faith Statement, the Experience/Performance Statement, and evidence of insurability and bonding capability, if applicable.

A Pre-bid Meeting has been scheduled for **11:00 AM April 3, 2017** at the site: Heron Pond Elementary School, 80 Heron Pond Road, Milford, NH
A firm completion date has been set for **August 25, 2017**. Late penalties will apply.

Please call if you require further information about the needs of the District or our general requirements.

Sincerely,

Jennifer Burk
Business Administrator
Milford School District

**Heron Pond Roof Replacement
MILFORD SCHOOL DISTRICT
BID**

GOOD FAITH STATEMENT

To Whom It May Concern:

The undersigned represents that this proposal is made in good faith, without fraud, collusion or connection of any kind with any other bidder for the same work; that he has informed himself fully in regard to the Specifications for the installation of the partial roofing system at the Heron Pond Elementary School for the Milford School District of Milford, New Hampshire, and has made his own examinations and estimates and from them makes this proposal.

The undersigned understand that the Milford School District reserves the right to waive any formalities in, to reject any and all bids or any part thereof, and/or accept any bid or part thereof, or to select a bidder whose bid is not the lowest, which it considers to be for the best interest of the Milford School District.

With the above understanding, the undersigned proposes to remove and replace the portion of the roof at the Heron Pond Elementary School for the Milford School District and to comply in all respects with said specifications for the sum or sums stated.

COMPANY: _____

ADDRESS: _____

NAME (typed or printed): _____

SIGNATURE: _____

TITLE: _____

DATE: _____

**Heron Pond Roof Replacement
MILFORD SCHOOL DISTRICT
BID**

**STATEMENT OF BUSINESS EXPERIENCE AND
ABILITY TO PERFORM**

1. How long have you been in business? _____ Years
2. How many roof replacements have you completed? _____
3. Please attach a list of the schools and work you have completed or at which you are currently engaged, including the name of the facility and project, the approximate square footage of the project, and the year the construction was complete.
4. Other
 - a. The Bidder shall provide copies of the company's employee safety training program, personnel policies (including criminal background check policy), and work rules.
 - b. The Bidder shall provide four (4) current references, including email addresses and phone numbers, two (2) of which should be school districts in New Hampshire.
 - c. The Bidder shall disclose any active or pending litigation against the Bidder.
 - d. The Bidder shall provide a copy of the Certificate of Authority from the New Hampshire Department of State indicating the Bidder may transact business in the State of NH.
 - e. For bids in excess of \$100,000, The Bidder shall submit certifications of employee 10-hour OSHA safety training.
 - f. The Bidder shall submit EPA lead paint certifications for company (ies) and employees.

BIDDER: _____

ADDRESS: _____

NAME: _____

Signature

Title

Date

**Heron Pond Roof Replacement
MILFORD SCHOOL DISTRICT**

BID
COST STATEMENT

List items, if necessary:

_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____

TOTAL (all-inclusive, not-to-exceed price) \$ _____

BIDDER: _____

ADDRESS: _____

NAME: _____

Signature

Title

Date

Heron Pond Roof Replacement
MILFORD SCHOOL DISTRICT
BID
INVITATION TO BID

SECTION I

General Requirements

The Milford School District, by its School Board (hereinafter called the "School District"), invites bids from responsible parties to provide a partial roof replacement at the Heron Pond Elementary School. The School District reserves the right to reject any or all bids as it deems to be in the best interests of the School District.

GENERAL CONDITIONS:

1. A Pre-bid Meeting has been scheduled for **11:00 AM April 3, 2017** at the site: Milford High School, 100 West Street Milford, NH 03055.
2. Should any prospective bidder desire clarification or interpretation of any items in the advertisement, invitation to bid, general conditions and specifications, he shall request such, via email, from the Director, Buildings and Grounds S.A.U. #40, at wcooper@milfordk12.org, and the question put and the answer given by the Buildings and Grounds Director will be given, and every effort will be made to share the question and answer with all known bidders.
3. All bids must be submitted on the official forms (attached hereto), sealed, labeled "**Sealed Heron Pond Roof Replacement Bid**" and delivered to the Office of the Superintendent of Schools, 100 West Street, Milford, New Hampshire 03055, by **April 17, 2017 at 11:00 AM**
4. Bidders will submit one (1) original bid and three (3) copies. All proposals must be on the forms provided and signed by the individual, partnership or corporation making the same; when made by a corporation, proposals must be signed by the officers thereof authorized to bind it by contract and be accompanied by a copy, under seal, of his authority to sign. Additional pages may be attached, dated, and signed by an authorized representative of the successful bidder, if additional space is required to provide a complete response.
5. No bid shall be withdrawn for a period of thirty-five (35) days from date of submission.
6. The bidders are invited to be present at the public bid opening at the Office of the Superintendent of Schools, 100 West Street, Milford, New Hampshire, at **11:00 PM on April 17, 2017**.
7. Awarding of the contract will be within thirty-five (35) days of the bid opening.

8. The competency, responsibility, experience, reputation, and financial standing of the bidders will be considered in making the award. The School District reserves the right to reject any or all bids, wholly or in part, to waive any informality therein, to accept any bid even though it may not be the lowest bid, and to make award which in its sole and absolute judgment will best serve the School District's interests. Bidders shall bid specifications and any exceptions must be noted.

9. All Bidders will be certified by the Secretary of State of the State of New Hampshire to transact business in the State of New Hampshire. Each Bidder shall provide a copy of the Certificate of Authority from the New Hampshire Department of State indicating the Bidder may transact business in the State of NH.

10. All bidders shall submit, with their bids, evidence from insurance and/or Surety Company (ies) licensed to do business in the State of New Hampshire, which it shall provide the bidder with insurance coverage, a performance bond, and a payment bond in the amount required herein if the bidder is successful.

11. A **Performance Bond** and a **Payment Bond** each in the total estimated amount of the annual contract shall be furnished before a contract is signed. The successful bidder shall procure and maintain in force a performance bond from an insurance or surety company licensed to do business in the State of New Hampshire for the benefit of the School District conditioned upon the faithful performance of the terms of the contract, in an amount equal to one hundred percent (100%) of the contract. The successful bidder shall procure and maintain in force a payment bond from an insurance or surety company licensed to do business in the State of New Hampshire for the benefit of the School District conditioned upon the faithful payment for goods and services required to complete the terms of the contract, in an amount equal to one hundred percent (100%) of the contract. The cost to maintain the performance and payment bonds is to be included in the bid price.

The successful bidder will be required to indemnify the School District for any loss that they may sustain from any cause arising out of the performance or lack of performance of the agreement by the successful bidder.

12. **Automobile and general liability insurance** shall be carried by the successful bidder during the life of the Agreement in the amount of five million dollars (\$5,000,000) per occurrence. The insurance may be arranged under a single policy or by a combination of an underlying policy with the balance provided by an Excess or Umbrella policy.

Such policy will name the School District as a co-insured and a certificate of such insurance must be received by the Business Administrator upon execution of the contract and prior to the start of any work on the project. The successful bidder will immediately notify the School District if the successful bidder receives any notice from the insurance company or companies providing such insurance coverage that such company or companies intends to cancel any part of such insurance; such notice shall be in addition to any obligation of the insurance company or companies to notify the School District as an additional insured.

The successful bidder shall agree to hold harmless the School District and any of the School

District's officials, elected or otherwise, and its employees from claims for damages, including legal expenses, for property damage and/or personal injuries, and/or bodily injuries, including death, which may arise from or out of the operation hereunder.

The successful bidder shall maintain **Workers' Compensation Insurance** for all employees engaged in the project. The successful bidder will immediately notify the School District if the successful bidder receives any notice from the insurance company or companies providing such insurance coverage that such company or companies intends to cancel any part of such insurance; such notice shall be in addition to any obligation of the insurance company or companies to notify the School District as an additional insured.

For bids in excess of one hundred thousand dollars (\$100,000), or where hazardous materials are involved, the successful bidder shall, prior to the performance of any work under the contract, provide the School district with certification of the successful completion of a 10-hour Occupational Safety and Health Administration (OSHA) construction safety program for each on-site employee, including those of any subcontractor, as required by NH RSA 277:5-a.

The successful bidder shall procure and maintain in force **Builder's Risk insurance** in an amount equal to 100% of the project construction costs. A certificate of such insurance must be received by the Business Administrator upon execution of the contract and prior to the start of any work on the project. The successful bidder will immediately notify the School District if the successful bidder receives any notice from the insurance company providing such insurance coverage that such company intends to cancel any part of such insurance.

13. The successful bidder will provide a copy of the bidder's (and any subcontractor's) EPA-required certification to conduct lead-based paint activities or renovations, and copies of employee's' individual certifications for same.

14. The successful bidder will provide a project schedule to the School District prior to starting work on the project and at least monthly updates thereafter.

15. The School District will provide a contract document to the successful bidder and will not be restricted to any document template developed by outside organizations such as the American Institute of Architects (AIA) or the Design Build Institute of America (DBIA).

16. The School District shall pay the successful bidder for contract expenses on a monthly basis.

17. In addition to any other rights the School District may have, the School District shall have the right to declare the successful bidder in default if (a) the successful bidder becomes insolvent; (b) a voluntary or involuntary petition in bankruptcy is filed by or against the successful bidder.

18. The contract may be terminated by the School District for unsatisfactory performance of the contract. In instances of unsatisfactory performance, the School District shall give written notice to the successful bidder citing the unsatisfactory performance and giving the successful bidder fourteen (14) days to improve its performance to the satisfaction of the School District. If the performance of the successful bidder does not improve to the satisfaction of the School District,

within the fourteen (14) day period, the School District may terminate the contract by providing written notice to the successful bidder, notifying it of final termination fourteen (14) days from the date of receipt of said notice.

19. Should termination of the contract occur, the School District may employ another contractor or contractors to complete the project, and, in the case of termination for unsatisfactory performance, hold the successful bidder herein responsible for any extra or added expense, loans, or damages suffered by the School District.

20. The successful bidder will appoint a qualified supervisor. Said person will be available to the School District's representative at all times. Said person will be responsible for enforcing with employees and contractors connected with the project the State of New Hampshire law prohibiting smoking on school property. Said person will be responsible for requiring employees and contractors connected with the project to be properly attired in shirts, long pants, and appropriate footwear (no bare torsos or shorts). Said person will be responsible for enforcing courteous conduct on the site with employees and contractors connected with the project (no swearing or vulgar language).

21. A firm completion date of **August 25, 2017** has been set. The contract will include provisions for a penalty of \$500 per day for late completion, to be deducted from the amount due under the contract.

22. As-built plans and warranties shall be provided to the School District within sixty (60) days of substantial completion of the project.

23. The successful bidder will invoice the School District monthly, terms net 45, interest rate of 0% for late payment. Invoice payment shall be subject to the receipt of lien waivers and no payment shall become due absent applicable waivers. The School District will hold **5%** retainage on the total cost of the project for one year or until such time as as-built plans and maintenance and warranty documents have been delivered, whichever is later.

SECTION II

SUMMARY:

The Milford School District is requesting a quote for the replacement of the roof at the Heron Pond

Elementary School located at 80 Heron Pond Road, Milford, New Hampshire.

The School District is requesting a proposal for the replacement of approximately 15,000 square feet of roofing located over but not limited to the cafeteria, hallway and main office areas. All areas must be field verified by contractor. The School District will be entertaining proposals for TPO (Reinforced heat weld-able, thermoplastic polyolefin compound of ethylene and propylene) roofing only. Pricing will include walkways around units and from roof hatch and roof ladders which will be installed by contractor (see attached map for locations). Removal of existing membrane, edging, insulation, flashing and fasteners will be included in pricing as well.

General Conditions:

1. GENERAL

The undersigned proposes to furnish all labor and materials required for the contract price specified.

2. PARTIES TO THE CONTRACT

It is understood that the final contract will be between the Milford School Board and the approved vendor. The contract must be approved by the Business Administrator. If circumstances require, the Milford School Board will approve the contract.

3. SUBLETTING OF CONTRACT OR ASSIGNMENT OF MONIES

No subletting of the award, or assignment of monies due or to become due, shall be made without the consent of the Milford School Board.

4. FIRE PROTECTION

The contractor will be responsible for guarding against fires. Materials will be stored neatly and safely and dispersed in order to present a minimum hazard. When equipment is in use, competent operators will be in attendance at all times. Fire legal liability insurance may be required as determined by the Superintendent of School's Office.

5. WORKER COMPETENCE AND DAILY TASK COMPLETION

All workers will be thoroughly experienced in the particular class of work upon which employed. The contractor will plan and conduct operations of the work so that each section started on one day is complete and thoroughly protected before that close of work for that same day.

1. Quality Assurance:

1. Manufacturer: Obtain primary single ply membrane from a single manufacturer. Provide secondary materials as recommended by manufacturer of primary materials.
2. Installer: Engage an experienced installer that has specialized in installing roofing systems similar to those required for this project. Installer must be acceptable to or licensed by manufacturer of primary roofing material.

A firm with not less than 10 years of successful experience in installation of roofing system

similar to those required for this project and which is acceptable to or licensed by manufacturer of primary roofing materials.

Work associated with flexible sheet roofing, including (but not limited to) vapor retarders, insulation, flashing and counterflashing, expansion joints, and flexible sheet joint sealers, is to be performed by Installer of flexible sheet roofing.

Work associated with single ply membrane roofing, including but not limited to insulation, flashing, and membrane sheet joint sealers, is to be performed by installer of work.

3. UL Listing: Provide labeled materials that have been tested and listed by UL in "Building Materials Directory" or by other nationally recognized testing laboratory for Class A rated materials/ systems.

Provide system that meets all test requirements for Factory Mutual 1-60 wind classification.

Wind Uplift Resistance: Roof and insulation components must meet or exceed I-90 (90 mph) requirements of FM 1-28 "Wind Loss Data Sheet".

2.PROJECT CONDITIONS

Weather: Proceed with roofing work when existing and forecasted weather conditions permit work to be performed in accordance with manufacturer's' recommendations and warranty requirements.

Substrate Conditions: Do not begin roofing installation until substrates have been inspected and are determined to be in satisfactory condition.

3.SPECIAL PROJECT WARRANTY

Provide written warranty, signed by Manufacturer of primary roofing materials and his authorized Installer, and General Contractor, agreeing to replace/repair defective materials and workmanship as required to maintain roofing system in watertight condition.

Warranty period is 10 years after substantial completion.

4. PRODUCTS:

Compatibility: Provide products recommended by manufacturer to be fully compatible with indicated substrates. Provide separation materials as required to eliminate contact between incompatible materials.

TPO MEMBRANE:

Membrane shall be manufactured with a woven 10 x 1000 denier polyester reinforcing scrim fully encapsulated between two layers of Ethylene Propylene (EP) polymer compounded membrane.

Thickness: 45 mil nominal
Exposed Face Color: White

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Carlisle Syntec Systems Sure-Weld TPO
Stevens Hi- Tuff/EP/ Ethylene Propylene Roofing System

Sheet Seaming System: Manufacturer's standard materials for sealing lapped joints, including edge sealer to cover exposed spliced edges as recommended by membrane manufacturer.

Cant Strips, Expansion Joints, Tapered Edge Strips and Flashing Accessories: Types recommended by membrane manufacturer, including adhesive tapes, flashing cements, and sealants.

Flashing Material: Manufacturer's standard system compatible with flexible sheet membrane.

Roofing manufacturer's standard adhered walkway protection pads or roll goods.

Slip Sheet: Type recommended by membrane manufacturer for protection of membrane from incompatible substrates.

Expansion Joint: Formed elastic extrusions as recommended by membrane manufacturer.

Roof Edge: Pre-finished two piece formed metal drip edge system, .050 aluminum, profile as shown on drawings, with Kynar 500 paint finish, 20 year warranty. Compatible with EPDM Roofing System and not subject to "oil-canning". As manufactured by W.P. Hickman Systems of Solon, OH. or equivalent.

Membrane Adhesive: As recommended by manufacturer for particular substrate and project conditions, formulated and applied to meet 1-90 requirements.

Insulation Fasteners: (for use under fully adhered membrane)As recommended by insulation and membrane manufacturers for particular substrate and project conditions, self tapping screws with oversized washers, sized and spaced to meet I-90 requirements.

INSULATING MATERIALS:

General: Provide insulating materials to comply with requirements indicated for materials and compliance with referenced standards in sizes to fit applications indicated, selected from manufacturer's standard thickness, widths, and lengths.

Polvisocyanurate Board Roof Insulation: Rigid cellular thermal insulation with polyisocyanurate closed cell foam core and manufacturer's standard facing laminated to both sides; complying with FS

HH-I-1972/2, Class 1; aged R-values in accordance with ASTM C-518 as designated at mean temperatures indicated, after conditioning per RIC/TIMA Bulletin #281-1, and as follows:

Surface Burning Characteristics: less than 25, ASTM E-84
Moisture Vapor Transmission: less than 1 perm/inch, ASTM E-96
Density: 2.0 lb./cu/ ft., ASTM D-1622
Compressive Strength: 18 psi, ASTM D- 1621
Dimensional Stability. 2% max., ASTM D-2126
Water Absorption % Volume: less than 1%, ASTM C-209
Roof insulation to be made up of two (2) layers, stagger joints.
Minimum R- value (total) - R38.
'E'NRG'Y2" by NRG Barriers, Inc.; Saco, Maine - or equal.
AUXILIARY INSULATION MATERIALS
Adhesive for Bonding Insulation: Type recommended by insulation manufacturer and complying with fire resistance requirements.

Mastic Sealer: Type recommended by insulation manufacturer for bonding edge joints and filling voids.

5. EXECUTION:

PREPARATION OF SUBSTRATE

As recommended by membrane manufacturer.

General: Comply with manufacturer's instructions for preparation of substrate to receive single ply membrane system.

Verify that penetrations, expansion joints, and blocking are in place and secured and that roof drains are properly clamped into position.

Clean substrate of dust, debris, and other substances detrimental to single ply system installation work. Remove sharp projections.

Install cant strips, flashings, and accessory items as recommended by manufacturer even though not shown.

INSULATION INSTALLATION

General: Extend insulation in two layers, 6" minimum, over entire surface to be insulated, cutting and fitting tightly around obstructions. Form cant strips, crickets, saddles, and tapered areas with additional material as shown and as required for proper drainage of membrane.

Provide tapered boards where needed for sloping to provide proper drainage. Fabricate with taper of 1/4" per foot.

Polyisocyanurate Foam Board – Rigid boards with a minimum density of 1.7 pcf polyisocyanurate –

based foam board core, permanently bonded to roofing felt facer sheets. Provide in thickness indicated, with a minimum aged r-value of 5.88 or greater.

Stagger joints in one direction for each course. For multiple layers, stagger joints in both directions between courses with no gaps to form a complete thermal envelope. Secure to substrate with mechanical anchors of type and spacing indicated but in no case provide less than one anchor per 4 square feet of surface area, or less anchorage than required by 1-90 requirements.

Do not install more insulation each day than can be covered with membrane before end of day and before start of inclement weather.

Secure roof insulation to substrate with mechanical anchors of type and spacing for FM rating specified but in no case less than one anchor per 4 square feet of surface area or less than required by FM Loss Prevention Data Sheet 1-28.

MEMBRANE INSTALLATION

- A. Start with first sheet centered on drain valley. Fold sheet in half so that the bottom side of the full length by half the width is presented.
- B. Apply 100% continuous coat of Hi-Tuff/EP bonding Adhesive to the exposed bottom side of membrane back. Adhesive must be spread out by roller as necessary to achieve 100% coverage on the substrate and membrane. Adhesive should never be broomed or mopped. Adhesive must not be cut or extended. Outside ambient air temperature must be a minimum 40 degree and rising.
- C. Allow adhesive to dry to the point of being tacky, but not sticky and stringy to the touch. When sufficiently dry, carefully unroll the glued portion of the membrane and lower it onto the glued substrate surface, avoiding any wrinkles or air pockets. Immediately roll the adhered area using a weighted roller such as a 3 foot wide by 2 foot diameter lawn roller filled with water applying pressure to promote full contact. (Note: Extreme summer ambient conditions may dictate adhering lesser areas of membrane at a time to prevent over drying of the adhesive.)
- D. Repeat procedure on the other half of the sheet.
- E. Lay out second sheet with a minimum two inch overlap on the edge of the first sheet. Perform lap splice as follows:
- F. Lap Splice: Membrane shall be overlapped and hot – air welded without any contaminants (adhesive, dirt, debris, etc.) prevalent in the seam.
- G. Hot –air welding : Weld laps with an automatic hot-air welder. Small work and repairs may be done efficiently with a hand- held welder.
- H. Lap Splice Testing: Perform daily destructive tests on a three inch wide area of seam weld to verify good peel strength. Destructive tests on welds shall be done for the first seam of the day, first seam after the automatic welder has cooled and after any extreme changes in weather conditions.
- I. Installation Details: Perimeter fastening, flashing, expansion joints and roof drains shall be done in accordance with manufacturer’s published details.

PROTECTION OF ROOFING

Upon completion, an inspection shall be made by the representative of the manufacturer.

FLASHING AND SHEET METAL

DESCRIPTION OF WORK

Types of work specified in this section include the following:

Metal counter flashings; and base flashing.

Metal wall flashing and expansion joints.

Exposed metal trim.

Miscellaneous sheet metal accessories.

SUBMITTALS

Shop Drawings; Flashing, Sheet Metal, Accessories: Submit shop drawings showing layout, joining, profiles, and anchorage's of fabricated work, including major counter-flashiness, trim/fiasco units, gutters, downspouts, scuppers and expansion joint systems; layout at 1/4" scale, details at 3" scale.

JOB CONDITIONS

Coordinate work of 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.

PRODUCTS

FLASHING AND SHEET METAL MATERIALS

Elastic Sheet Flashing/Membrane: Manufacturer's standard flexible, elastic, black, non-reinforced, flashing sheet of 50-65 mils thickness; 5070 Shore A hardness (ASTM D 2240); 1200 psi tensile strength (ASTM D 412); 120 lbs. per lin. in. tear resistance (ASTM D 624 Die C); ultimate elongation of 250% (ASTM D 412); brittleness temperature of -30 degrees F (-35 degrees C) (ASTM D 746); resistance to ozone aging of no cracks for 10% elongated sample for 100 hours in 50 pphm (50.5 mPa) ozone at 104 degrees F (70 degrees C) (ASTM D 1149); resistance to heat aging of maximum hardness increase of 15 points, elongation reduction of 40%, and tensile strength reduction of 30%, for 70 hours at 212 degrees F (100 degrees C) (ASTM D 573).

Extruded Aluminum: Manufacturer's standard extrusions of sizes and profiles indicated, or custom fabricated to suit job conditions as required, 60063-T52, AA-C22A41 Color Bronze; 0.080 inch minimum thickness for primary legs of extrusions.

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

Elastic Flashing Filler: Closed-cell polyethylene or other soft closed-cell material recommended by elastic flashing mfr. as filler under flashing loops to ensure movement with minimum stress on

flashing sheet.

FABRICATED UNITS

General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges to be seamed, form seams and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where needed.

Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1" deep, filled with mastic sealant(concealed within

Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.

Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

Aluminum Extrusion Joints: Fabricate extruded aluminum running units with formed or extruded aluminum joint covers for installation behind main members where possible. Fabricate mitered and welded corner units.

ELASTIC EXPANSION JOINT FABRICATION

General: Provide manufacturer's standard units of size and type indicated, complete with prefabricated corner and intersection units and splicing materials; with elastic sheet flashing forming the primary joint membrane, in a supported bellows arrangement to be secured to both sides of expansion joints; with bellows insulated from the below with adhesively applied, flexible, closed-dell rubber or plastic not less than 3 / 8" thick.

Type: Metal flanged edges, 3" - 4" wide, formed to profiles as indicated to fit curbs, for nailing to substrate.

Metal Flanges:0.017" (26 ga.) zinc-coated steel.

Metal Flanges: 16-oz. copper.
Metal Flanges: 0.0187" (26 ga.) stainless steel.
Metal Flanges: 0.032' aluminum.

Looped Bellows Width: 5" to 6", exclusive of flanges.

INSTALLATION REQUIREMENTS

General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendation, and with SMACNA "Architectural Sheet Metal Manual". Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units to line and level as indicated. Install work with laps, joints and seams which will be permanently watertight and weatherproof.

Underlayment: Where stainless steel or aluminum is to be installed directly on cementitious or wood substrates, install a slip sheet of red rosin paper and a course of polyethylene underlayment.

Bed Flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.

Install reglets to receive counter-flashing in manner and by methods indicated. Where shown in concrete, furnish reglets to trades of concrete work for installation as work of Division 3 sections. Where shown in masonry, furnish reglets to trades of masonry work, for installation as work Division 4 section.

- a. Install counter-flashing in reglets, either by snap-in seal arrangement, or by wedging in place for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure.
- b. Install elastic flashing in accordance with manufacturer's recommendations. Where required, provide for movement at joints by forming loops of bellows in width of flashing. Locate cover or filler strips at joints to facilitate complete drainage of water from flashing. Seam adjacent flashing sheets with adhesive, seal and anchor edges in accordance with manufacturer's recommendations.
- c. Nail flanges of expansion joint units to curb nailers, at maximum spacing of 6". Fabricate seams at joints between units with minimum 3" overlap, to form a continuous waterproof system.

6. CLEANING AND PROTECTION:

Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.

Protection: Installer shall advise Contractor of required procedures for surveillance and protection

of flashings and sheet metal work during construction, to ensure that work will be without damage or deterioration, other than natural weathering, at time of substantial completion.

