

## ADDENDUM

**ADDENDUM No: #5**

**PAGES: 22**

**PROJECT: Livonia Public Schools  
Dugout Renovations 2018**

**DATE:** September 10, 2018

**TO:** All Bidders

This Addendum is issued prior to the Bid Opening to clarify or change the Bid Documents. This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents issued July 20, 2018. All requirements contained in the Contract Documents shall apply to this Addendum. All incidental work necessary to complete the work shall be included in the Contractor's Proposal even though not particularly mentioned. Parts of the Specifications and Drawings referred to herein supersede previously issued data and shall form a part of the Bid Documents.

Receipt of this Addendum should be noted on the proposal form; failure to do so may subject Bidder to disqualification.

### **General:**

GN-1 Bidders shall include an allowance of **\$4,000.00** related to fence work outside of the new softball dugout at Churchill HS. The new fencing proposed in front of the dugouts is not to be used with this allowance. Any unused allowance dollars will revert back to the Owner.

### **Specifications:**

SC-1 **Insert Revised Specification Section 00 4200 Proposal Form**

SC-2 **Insert Specification Section 07 3113 Asphalt Shingles**

### **Drawings:**

DC-1 Refer to Sheet A1.02 Dugout Wall Sections & Section Details (reissued)

- A. Detail A:
  - 1. Clarify that front block height shall be 9'-8"
- B. Detail B:
  - 1. Clarify that rear block height shall be 8'-4"
- C. All block shall be 8" split face CMU

**END OF ADDENDUM #5**



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PROPOSAL FORM – ADDENDUM #5

PROPOSAL FOR: DUGOUT RENOVATIONS 2018  
CHURCHILL & STEVENSON HIGH SCHOOLS

PROPOSAL TO: LIVONIA PUBLIC SCHOOLS  
15125 Farmington Road  
Livonia, MI 48154

Attn: Mr. Phillip Francis, Director of Operations

ARCHITECT: FORESITE DESIGN, INC  
3269 Coolidge Highway  
Berkley, MI 48072  
248-547-7757  
Email: mike@foresitedesign.com

SUBMITTING CONTRACTOR: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_ / FAX: \_\_\_\_\_

EMAIL: \_\_\_\_\_

**1. BASE PROPOSAL**

I have carefully examined the bidding documents which include the Instructions to Bidders, all drawings title "**Livonia Public Schools**" and all various addenda numbered \_\_\_\_\_ to \_\_\_\_\_ as prepared by FORESITE DESIGN, INC. which cover the general and architectural trades, as well as the premises and conditions affecting this work.

The undersigned proposes to furnish all labor, materials and equipment, all utilities, transportation services and taxes for the general construction as indicated under each proposal in accordance with said documents for the sum(s) provided below.

Within one (1) hour after the completion of the opening of the bids, the Contractors who submitted the three lowest bids must submit a list of the names of each subcontractor who will provide labor or a portion of the work or improvement to the Contractor for which he will be paid an amount exceeding 5 percent of the prime Contractor's total bid or \$40,000 whichever is greater. If the Contractor(s) fail to submit such a list within the required time, his bid shall be deemed not responsive.

**A. PROPOSAL A COMPLETE**

**PROPOSAL A : BASE BID \$ \_\_\_\_\_**

**(written sum)**

**Dollars**

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**2. ALTERNATES**

- A. Install Standing Seam Metal Roofing and Fascia in lieu of Asphalt Shingles  
(Applicable for Churchill Softball and Stevenson Baseball Dugouts)

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Add to or Delete from Base Proposal Amount:    \$ \_\_\_\_\_

**3. TIME OF COMPLETION**

The undersigned understands and agrees that time is of the essence and that all services and installation of all work and materials provided for in the contract must be fully completed in a timely manner. The dates shown below are for a baseline only and exact schedule will be confirmed after award of Contract.

**Proposal A: Dugouts**

Start-  
Complete-

October 3, 2018  
November 29, 2018

**4. VOLUNTARY ALTERNATES**

The following alternates are offered at this time for the consideration of the Owner. If accepted, the Base Proposal will be changed by the amount listed.

- A.

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Add to or Delete from Base Proposal Amount:    \$ \_\_\_\_\_

- B.

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Add to or Delete from Base Proposal Amount:    \$ \_\_\_\_\_

- C.

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Add to or Delete from Base Proposal Amount:    \$ \_\_\_\_\_

**5. PRICE GUARANTEE**

The Undersigned agrees that its proposal shall not be withdrawn and the price stated in the Proposal is guaranteed for ninety (90) consecutive days from the bid date.

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**6. TAXES**

The undersigned acknowledges that the prices stated above include all applicable taxes of whatever character or description.

**7. ADDENDA**

If any Addenda covering changes to the Bidding Documents have been received during the bidding period, the bidder shall fill in their numbers and dates which acknowledge having received the same, and having included in this proposal the work involved.

- No. 1 Dated \_\_\_\_\_
- No. 2 Dated \_\_\_\_\_
- No. 3 Dated \_\_\_\_\_
- No. 4 Dated \_\_\_\_\_
- No. 5 Dated \_\_\_\_\_

**8. NEGOTIATION**

The Undersigned agrees that, should the overall cost exceed the funds available, it will be willing to negotiate with the Owner for the purpose of making further reductions in the Contract Work, and shall agree to give full credit for all such reductions in the work requested by the Owner, including full value of labor, materials, and subcontract work and reasonable proportionate reductions in overhead and profit, thereby arriving at an agreed upon Contract price.

**9. UNIT PRICES**

All unit prices quoted shall include the sum total of all additional costs of labor, material, overhead, profit, fees, general conditions, and such other costs incidental to the work described. Any increase in cost must be approved by the Owner in writing prior to work being performed.

For all revisions involving the deletion of Contract work, it is agreed that full credit shall be given the Owner for such work deleted on a unit basis as quoted hereinafter.

UNIT PRICE BID PROPOSAL A (DUGOUTS)

A.	Over excavation and spoil removal	\$ _____	Truck cu. yard (cy)
B.	Helmet Cubby	\$ _____	Each
C.	Bat Storage Container	\$ _____	Each
D.	Portland Cement Concrete	\$ _____	Cubic yard (cy)

Any increased cost based on the unit prices must be approved by Owner's written change order prior to starting work. Quantities must be confirmed by a Testing Agency or Architect and the Owner.

**10. LIQUIDATED DAMAGES PROVISION**

Contractor shall complete the entire work and obtain a Certificate of Substantial Completion by the substantial completion date indicated on the Proposal Form. Contractor and Owner agree that if the Certificate of Substantial Completion is obtained later than the date, the following liquidated provisions apply. The project completion date shall be adjusted by an amount of time properly

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documented in Change Orders. If the Owner and Contractor do not agree with the adjustment in Contract time due to Change directives, such adjustment shall be determined by the Architect.

A. SITE OBSERVATION FEE

If the Contractor fails to obtain the Certification of Substantial Completion for the Project by the Project Completion Date (as adjusted pursuant to this paragraph), the Contract Sum payable to the Contractor will be reduced in the amount of \$1000.00 for each day that the issuance of the Certificate of Occupancy exceeds the Project Completion Date, weather permitting and through no fault of the Owner or Foresite Design, Inc.

**11. RIGHTS RESERVED BY OWNER**

The Owner reserves the unconditional right to waive any irregularities, reject any or all proposals or to accept proposals which in the judgment of the Owner will serve the best interests of the Owner. The Owner reserves the right to award to a Contractor based on factors other than low bid.

**12. PROPOSAL GUARANTEE (BID BOND)**

Is required: Refer to AIA Document A701-1997 "Instruction to Bidders"  
Amount: 5% of contract sum

**13. CONTRACT SECURITY (Performance and Labor & Material Payment Bond)**

Is required: Refer to AIA Document A701-1997 "Instruction to Bidders"  
Amount: 100% of contract sum

**14. CONTRACT EXECUTION**

The Undersigned agrees to execute a Contract for work covered by this Proposal as provided for in the Bidding Documents. The Undersigned declares the legal status indicated below:

- Individual
- Partnership, having the following partners:
  - 1. \_\_\_\_\_
  - 2. \_\_\_\_\_
  - 3. \_\_\_\_\_
- Corporation, Incorporated under the laws of the State of \_\_\_\_\_

The Undersigned affirms that:

- A. This proposal is based upon the materials and construction, equipment, etc., named or described in the specifications.
- B. The address, given below, is the legal address to which all notices, directions, or other communications may be served or mailed.
- C. Its proposal is made in good faith, without collusion or connection with any other person or persons bidding for the same work, and that the process quoted herein include all terms, insurance, royalties, transportation charges, allowances, taxes, use of all tools and equipment, overhead, profit, etc., necessary to fully complete the work in accordance with the Contract Documents.

**15. The Contractor shall hold harmless from and indemnify the Owner and Architect against all claims, suits, actions, costs, counsel fees, expenses, damages, judgments or decrees, by reason of any person or persons or property being damaged or by the Contractor, or any other employed under said Contractor, in any capacity during the progress of the work whether by negligence or otherwise.**

The Undersigned agrees to live up to the above specifications and gives the Owner the right to deduct the cost of any damage caused by faulty work and any item conflicting with good

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workmanship from the final payment.

If notified of acceptance of this proposal, the undersigned agrees to execute a contract for the above work, for the above stated compensation, in form of the standard form of the AIA.

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**FIRM NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_  
\_\_\_\_\_

**SIGNED:** \_\_\_\_\_

**NAME:** \_\_\_\_\_

**TITLE:** \_\_\_\_\_

**TELEPHONE:** \_\_\_\_\_

**FAX:** \_\_\_\_\_

**EMAIL:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

Return TWO (2) signed copies.

The Owner reserves the unconditional right to waive any informality or irregularity, reject any or all proposals, or to accept proposals which in the judgment of the Owner will serve its best interests, and to make in its judgment a determination as to the adequacy of the Contractor's qualifications, experience, and capability.

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**CONTRACTOR QUALIFICATIONS**

1. Years in Business: \_\_\_\_\_ years  
(This company and this business)
  
2. Minimum Experience – at least three (3) comparable (similar) projects of similar size and cost, with customer reference.

Project Name: \_\_\_\_\_

Location: \_\_\_\_\_

Cost: \_\_\_\_\_

Year: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Title: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Project Name: \_\_\_\_\_

Location: \_\_\_\_\_

Cost: \_\_\_\_\_

Year: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Title: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Project Name: \_\_\_\_\_

Location: \_\_\_\_\_

Cost: \_\_\_\_\_

Year: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Title: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

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## SECTION 07 3113 - ASPHALT SHINGLES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes, but not limited to roofing materials and the following:
  - 1. Asphalt shingles (Glass-Fiber Reinforced).
  - 2. Felt underlayment.
  - 3. Self-adhering sheet underlayment.
  - 4. Ice and water-shield waterproof underlayment.
  - 5. Ridge vents.
  - 6. Sloped roof deck insulation.
  - 7. Metal trim and flashing.
- B. Related Sections include the following:
  - 1. Division 06 1000 Section "Rough Carpentry" for roof deck wood structural panels.
  - 2. Division 07 2100 Section "Thermal Insulation" for roofing types.
  - 3. Division 07 6200 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings and counter-flashings not part of this Section.
  - 4. Division 07 7200 Section "Roof Accessories" for ridge vents, soffit vents, relief vents, roof hatches and roof penetrations.

#### 1.3 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: For the following products, of sizes indicated, to verify color selected.
  - 1. Asphalt Shingle: Full-size asphalt shingle strip.
  - 2. Ridge and Hip Cap Shingles: Full-size ridge and hip cap asphalt shingle.
  - 3. Ridge Vent: 12-inch- (300-mm-) long Sample.
- C. Qualification Data: For Installer, including certificate signed by asphalt shingle manufacturer stating that Installer is approved, authorized, or licensed to install roofing system indicated.

- D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency or by manufacturer and witnessed by a qualified testing agency, for asphalt shingles.
- E. Maintenance Data: For asphalt shingles to include in maintenance manuals.
- F. Warranties: Special warranties specified in this Section.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual that is approved, authorized, or licensed by asphalt shingle roofing system manufacturer to install roofing system indicated.
- B. Source Limitations: Obtain ridge and hip cap shingles ridge vents, felt underlayment, and self-adhering sheet underlayment through one source from a single asphalt shingle manufacturer.
- C. Fire-Test-Response Characteristics: Provide asphalt shingle and related roofing materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
  - 1. Exterior Fire-Test Exposure: Class A; ASTM E 108 or UL 790, for application and roof slopes indicated.
- D. Wind-Resistance-Test Characteristics: Where wind-resistant roofing shingles are indicated, provide products identical to those tested according to ASTM D 3161 or UL 997 and passed. Identify each bundle of roofing shingles with appropriate markings of applicable testing.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 3100 Section "Project Management and Coordination."

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store roofing materials in a dry, well-ventilated, weather-tight location according to asphalt shingle manufacturer's written instructions. Store underlayment rolls on end on pallets or other raised surfaces. Do not double-stack rolls.
  - 1. Handle, store, and place roofing materials in a manner to avoid significant or permanent damage to roof deck or structural supporting members.
- B. Protect unused underlayment from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.

#### 1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit asphalt shingle roofing to be performed according to manufacturer's written instructions and warranty requirements.

1. Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended by manufacturer.

## 1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace asphalt shingles that fail in materials or workmanship within specified warranty period. Materials failures include manufacturing defects and failure of asphalt shingles to self-seal after a reasonable time.

1. Material Warranty Period: Twenty-five (25) years from date of Substantial Completion.
2. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds up to **75 mph (33 m/s)** for five (5) years from date of Substantial Completion.
3. Algae-Discoloration Warranty Period: Asphalt shingles will not discolor five (5) years from date of Substantial Completion.
4. Workmanship Warranty Period: Ten (10) years from date of Substantial Completion.

- B. Special Project Warranty: Roofing Installer's warranty, on warranty form at end of this Section, signed by roofing Installer, covering Work of this Section, in which roofing Installer agrees to repair or replace components of asphalt shingle roofing that fail in materials or workmanship within the following warranty period:

1. Warranty Period: Five (5) years from date of Substantial Completion.

## 1.9 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Asphalt Shingles: One (1) unbroken bundle of each type.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturer's Products: Subject to compliance with requirements, products that may be incorporated into the Work include the products specified.

- B. Manufacturer's Product – Basis of Design:

1. Manufacturer: ???
2. Shingle Design Type: ???
3. Tab Arrangement: As selected from Manufacturer's full range.
4. Strip Size: As selected from Manufacturer's full range.
5. Color and Blend: As selected from Manufacturer's full range

## 2.2 GLASS-FIBER-REINFORCED ASPHALT SHINGLES

- A. Laminated-Strip Asphalt Shingles: ASTM D 3462, laminated, multi-ply overlay construction, glass-fiber reinforced, mineral-granule surfaced, and self-sealing.
1. Manufacturers:
    - a. Atlas Roofing Corporation
    - b. Celotex Corporation
    - c. CertainTeed Corporation
    - d. GAF Materials Corporation
    - e. Georgia-Pacific Corporation
    - f. Globe Building Materials, Inc.
    - g. Malarkey Roofing Company
    - h. Owens Corning
    - i. TAMKO Roofing Products, Inc.

## 2.3 UNDERLAYMENT MATERIALS

- A. Felts: ASTM D 226 or ASTM D 4869, Type I or II, asphalt-saturated organic felts, nonperforated.
- B. Self-Adhering Sheet Underlayment, Polyethylene Faced: ASTM D 1970, minimum of **40-mil- (1.0- mm-)** thick, slip-resisting, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release paper backing; cold applied. Provide primer for adjoining concrete or masonry surfaces to receive underlayment.
1. Manufacturer Products:
    - a. Carlisle Coatings & Waterproofing, Div. of Carlisle Companies Inc.; Dri-Start "A."
    - b. Grace, W. R. & Co.; Grace Ice and Water Shield.
    - c. Henry Company; Perma-Seal PE.
    - d. Johns Manville International, Inc.; Roof Defender.
    - e. Owens Corning; WeatherLock M.
    - f. Polyguard Products, Inc.; Polyguard Deck Guard.
    - g. Protecto Wrap Company; Rainproof TM.
  2. Ice and Water Shield Waterproof Underlayment:
    - a. WinterGuard; CertainTeed Corporation.
    - b. Bituthene Ice and Water Shield; Grace: W.R. Grace & Co.
    - c. Polyguard Deck Guard; Polyguard Products, Inc.
    - d. Moisture Guard; Tamko Asphalt Products, Inc.
    - e. Weather Watch; GAF Building Materials Corporation.
    - f. Jiffy Seal Ice and Water Guard; Protecto Wrap Co.
- C. Ice and Water Shield Waterproof Underlayment; Minimum 40-mil- (1-mm-) thick, self-adhering, polymer-modified, bituminous sheet membrane, complying with ASTM D 1970. Provide primer when recommended by underlayment manufacturer.
1. Provide Ice and Water Shield Underlayment on roof areas upwards from bottom of the eaves and extending and at 36 inches minimum beyond the exterior building perimeter wall line and at each side of valleys, hips, ridges, skylights, roof openings and additional areas as dimensioned on Drawings. Provide other roofing underlayment in-between. Lap underlayments per Manufacturer's recommendations. Underlayment must be compatible with the roofing material.
  2. Refer to this Specification Section under Underlayment Installation.

- D. Smooth-Surface Roll Roofing Underlayment: Provide at entire roof deck areas an organic roofing felt saturated with asphalt and coated on both sides with an asphaltic compound, 36 inches (914 mm) wide, weighing at least 50 lb/square (244 kg/sq. m) and complying with ASTM D 224, Type II or III.
- E. Mineral-Surface, Organic-Felt Roll Roofing: Mineral-granular-surfaced, organic-felt-based, asphalt roll roofing, 36 inches (914 mm) wide, complying with ASTM D 249, Type I.
- F. Mineral-Surface, Glass-Felt Roll Roofing: Mineral-granular-surfaced, glass-felt-based, asphalt roll roofing, 36 inches (914 mm) wide, complying with ASTM D 3909.
- G. Asphalt Plastic Cement: Nonasbestos fibrated asphalt cement, complying with ASTM D 4586.
- H. Roll-Roofing Lap Cement: Nonasbestos asphalt lap cement, complying with ASTM D 3019, Type III.
- I. Granular-Surfaced Valley Lining: ASTM D 3909, mineral-granular-surfaced, glass-felt-based, asphalt roll roofing; 36 inches (914 mm) wide.

## 2.4 ROOF INSULATION

- A. Sloped Asphalt Shingle Roof Deck Insulation: Vented Nail-Base Insulation: Polyisocyanurate Insulation bonded to top layer of 7/16" APA rated OSB top and bottom. Provide tongue and groove "Vented Nail-based" roof insulation boards.
  - 1. ASTM C 1289-95, Class 1, Type V.
  - 2. FM Standard 4450/4470 Approval.
  - 3. Thickness: 4 inches minimum complying to minimum R-Values.
  - 4. R-Value: 19 minimum. Comply with LTTR; R-Values.
  - 5. Manufacturer's Product – Basis-of-Design:  
Triangle Design Inc., Nail-based Vented decking, Allendale, MI.  
Phone: 616-895-7330 OR – Cornell Corp., Vent-Top ThermaCal.
  - 6. Refer to Division 07 2100 Section "Thermal Insulation" for other acceptable manufacturers.

## 2.5 RIDGE VENTS

- A. Rigid Ridge Vent: Manufacturer's standard rigid section high-density polypropylene or other UV-stabilized plastic ridge vent with nonwoven geotextile filter strips and with external deflector baffles; for use under ridge shingles.
  - 1. Manufacturer's Products:
    - a. Air Vent Inc., a CertainTeed Company; ShingleVent II.
    - b. Cor-A-Vent, Inc.; V-Series.
    - c. GAF Materials Corporation; Cobra Rigid Vent II.
    - d. Globe Building Materials, Inc.; SmartAir Ridge Vent.
    - e. Mid-America Building Products; RidgeMaster Plus.
    - f. Owens Corning; VentSure Ridge Vent.
    - g. Trimline Building Products; Trimline Ridge Vent.
    - h. O'Hagin's, Inc. – Low-profile attic vents.

2. Minimum Net Free Area: Provide enough vents to comply with Attic Ventilation Code requirements acceptable to Authorities and agencies having jurisdiction.
- B. Provide all roof and eave vents and additional vent units required, but not indicated on the Drawings necessary to comply with roofing criteria of the Attic Ventilation Code requirements.
1. Ridge Vent: High-density polypropylene, nonwoven modified polyester, or other UV-stabilized plastic designed to be installed under asphalt shingles at the ridge.
  2. Soffit, Eave, Gable and Attic Vents: Provide in colors to match the roof shingles.

## 2.6 ACCESSORIES

- A. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.
- B. Roofing Nails: ASTM F 1667; aluminum, stainless-steel, copper, or hot-dip galvanized steel wire shingle nails, minimum **0.120-inch- (3-mm-)** diameter, barbed or smooth shank, sharp-pointed, with a minimum **3/8-inch- (9.5-mm-)** diameter flat head and of sufficient length to penetrate **3/4 inch (19 mm)** into solid wood decking or extend at least **1/8 inch (3 mm)** through OSB or plywood sheathing.
1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.
- C. Felt Underlayment Nails: Aluminum, stainless-steel, or hot-dip galvanized steel wire with low profile capped heads or disc caps, **1-inch (25-mm)** minimum diameter.

## 2.7 METAL FLASHING AND TRIM

- A. Sheet Metal Flashing and Trim: Comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."
1. Stainless Steel: ASTM A 167, Type 304, with No. 2B or 2D finish, minimum 0.015 inch (0.4 mm) thick, unless otherwise indicated.
  2. Aluminum Sheets: ASTM B 209 (ASTM B 209M), alloy 3003 H14 with mill finish, minimum 0.024 inch (0.6 mm) thick, unless otherwise indicated.
  3. Galvanized-Steel Sheets: ASTM A 526, G 90 (ASTM A 526M, Z 275) hot-dip galvanized steel with coating designation according to ASTM A 525 (ASTM A 525M), mill phosphatized where indicated for painting; 0.0217 inch (0.55 mm) thick, unless otherwise indicated.
- B. 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.
1. Apron Flashings: Fabricate with lower flange a minimum of **4 inches (100 mm)** over and **4 inches (100 mm)** beyond each side of downslope asphalt shingles and **6 inches (150 mm)** up the vertical surface.
  2. Step Flashings: Fabricate with a headlap of **2 inches (50 mm)** and a minimum extension of **4 inches (100 mm)** over the underlying asphalt shingle and up the vertical surface.
  3. Cricket and Backer Flashings: Fabricate with concealed flange extending a minimum of **18 inches (450 mm)** beneath upslope asphalt shingles and **6 inches (150 mm)** beyond each side of chimney, skylight and **6 inches (150 mm)** above the roof plane.

4. Open Valley Flashings: Fabricate in lengths not exceeding **10 feet (3 m)** with **1-inch- (25-mm-)** high inverted-V profile at center of valley and equal flange widths of **12 inches (300 mm)**.
  5. Drip Edges: Fabricate in lengths not exceeding **10 feet (3 m)** with **2-inch (50-mm)** roof deck flange and **1-1/2-inch (38-mm)** fascia flange with **3/8-inch (9.6-mm)** drip at lower edge.
- C. Vent Pipe Flashings: ASTM B 749, Type L51121, at least **1/16 inch (1.6 mm)** thick. Provide lead sleeve sized to slip over and turn down into pipe, soldered to skirt at slope of roof and extending at least **4 inches (100 mm)** from pipe onto roof.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
  2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored; and that provision has been made for flashings and penetrations through asphalt shingles.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 UNDERLAYMENT INSTALLATION

- A. Single-Layer Felt Under-layment: Install single layer of felt under-layment on roof deck perpendicular to roof slope in parallel courses. Lap sides a minimum of **2 inches (50 mm)** over underlying course. Lap ends a minimum of **4 inches (100 mm)**. Stagger end laps between succeeding courses at least **72 inches (1830 mm)**. Fasten with felt under-layment, roofing nails.
1. Install felt under-layment on roof deck not covered by self-adhering sheet under-layment. Lap sides of felt over self-adhering sheet under-layment not less than **3 inches (75 mm)** in direction to shed water. Lap ends of felt not less than **6 inches (150 mm)** over self-adhering sheet under-layment.
- B. Double-Layer Felt Under-layment: Install double layers of felt under-layment on roof deck perpendicular to roof slope in parallel courses. Install a **19-inch- (485-mm-)** wide starter course at eaves and completely cover with full-width second course. Install succeeding courses lapping previous courses **19 inches (485 mm)** in shingle fashion. Lap ends a minimum of **6 inches (150 mm)**. Stagger end laps between succeeding courses at least **72 inches (1830 mm)**. Fasten with felt under-layment, roofing nails.
1. Apply a continuous layer of asphalt roofing cement over starter course and on felt under-layment surface to be concealed by succeeding courses as each felt course is installed. Apply over entire roof.
  2. Install felt under-layment on roof sheathing not covered by self-adhering sheet under-layment. Lap edges over self-adhering sheet under-layment not less than **3 inches (75 mm)** in direction to shed water.

3. Terminate felt under-layment extended up not less than **4 inches (100 mm)]** against sidewalls, curbs, chimneys and other roof projections.
- C. Self-Adhering Sheet Under-layment: Install self-adhering sheet under-layment, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of under-layment manufacturer if applicable. Install at locations indicated on Drawings, lapped in direction to shed water. Lap sides not less than **3-1/2 inches (89 mm)**. Lap ends not less than **6 inches (150 mm)** staggered **24 inches (600 mm)** between courses. Roll laps with roller. Cover under-layment within seven days.
1. Prime concrete and masonry surfaces to receive self-adhering sheet under-layment.
  2. Eaves: Extend from edges of eaves **36 inches (914 mm)** beyond interior face of exterior wall.
  3. Rakes: Extend from edges of rake **36 inches (914 mm)** beyond interior face of exterior wall.
  4. Valleys: Extend from lowest to highest point **18 inches (450 mm)** on each side.
  5. Hips: Extend **18 inches (450 mm)** on each side.
  6. Ridges: Extend **36 inches (914 mm)** on each side without obstructing continuous ridge vent slot.
  7. Sidewalls: Extend beyond sidewall **18 inches (450 mm)** and return vertically against sidewall not less than **4 inches (100 mm)**.
  8. Dormers, Chimneys, Skylights, and other Roof-Penetrating Elements: Extend beyond penetrating element **18 inches (450 mm)** and return vertically against penetrating element not less than **4 inches (100 mm)**.
  9. Roof Slope Transitions: Extend **18 inches (450 mm)** on each roof slope.
- D. Concealed Woven or Closed-Cut Valley Lining: Comply with ARMA and NRCA recommendations. Install a **36-inch- (914-mm-)** wide felt under-layment centered in valley. Fasten to roof deck with felt under-layment, roofing nails.
1. Lap roof deck felt under-layment over valley felt under-layment at least **6 inches (150 mm)**.
  2. Install a **36-inch- (914-mm-)** wide strip of granular-surfaced valley lining centered in valley, with granular-surface face up. Lap ends of strips at least **12 inches (300 mm)** in direction to shed water, and seal with asphalt roofing cement. Fasten to roof deck with roofing nails.
- E. Metal-Flushed Open Valley Under-layment: Install two layers of **36-inch- (914-mm-)** wide felt underlayment centered in valley. Stagger end laps between layers at least **72 inches (1830 mm)**. Lap ends of each layer at least **12 inches (300 mm)** in direction to shed water, and seal with asphalt roofing cement. Fasten each layer to roof deck with felt underlayment, roofing nails.
1. Lap roof deck felt underlayment over first layer of valley felt underlayment at least **6 inches (150 mm)**.
- F. Granular-Surfaced Open Valley Lining: Comply with ARMA and NRCA recommendations. Install a **36-inch- (914-mm-)** wide felt underlayment centered in valley. Fasten to roof deck with felt under-layment, roofing nails.
1. Lap roof deck felt under-layment over valley felt under-layment at least **6 inches (150 mm)**.
  2. Install an **18-inch- (450-mm-)** wide strip of valley lining centered in valley, with granular-surface face down. Install a second **36-inch- (914-mm-)** wide strip of valley lining centered in valley, with granular-surface face up. Lap ends of each strip at least **12 inches (300 mm)** in direction to shed water, and seal with asphalt roofing cement.

Stagger end laps between succeeding strips at least **72 inches (1830 mm)**. Fasten each strip to roof deck with roofing nails.

### 3.3 METAL FLASHING INSTALLATION

- A. General: Install metal flashings and other sheet metal to comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."
  - 1. Install metal flashings according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."
- B. Apron Flashings: Extend lower flange over and beyond each side of downslope asphalt shingles and up the vertical surface.
- C. Step Flashings: Install with a headlap of **2 inches (50 mm)** and extend over the underlying asphalt shingle and up the vertical surface. Fasten to roof deck only.
- D. Cricket and Backer Flashings: Install against the roof-penetrating element extending concealed flange beneath upslope asphalt shingles and beyond each side.
- E. Open Valley Flashings: Install centrally in valleys, lapping ends at least **8 inches (200 mm)** in direction to shed water. Fasten upper end of each length to roof deck beneath overlap.
  - 1. Secure hemmed flange edges into metal cleats spaced **12 inches (300 mm)** apart and fastened to roof deck.
  - 2. Adhere **9-inch- (225-mm-)** wide strip of self-adhering sheet to metal flanges and to self-adhering sheet under-layment.
- F. Rake Drip Edges: Install rake drip edge flashings over under-layment and fasten to roof deck.
- G. Eave Drip Edges: Install eave drip edge flashings below under-layment and fasten to roof sheathing.
- H. Pipe Flashings: Form flashing around pipe penetrations and asphalt shingles. Fasten and seal to asphalt shingles as recommended by manufacturer.

### 3.4 ASPHALT SHINGLE INSTALLATION

- A. Install asphalt shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."
- B. Install starter strip along lowest roof edge, consisting of an asphalt shingle strip with tabs removed **at least 7 inches (175 mm)** wide with self-sealing strip face up at roof edge.
  - 1. Extend asphalt shingles **3/4 inch (19 mm)** over fascia at eaves and rakes.
  - 2. Install starter strip along rake edge.
- C. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.

- D. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.
- E. Install asphalt shingles by single-strip column or racking method, maintaining uniform exposure. Install full length first course followed by cut second course, repeating alternating pattern in succeeding courses.
- F. Fasten asphalt shingle strips with a minimum of four (4) roofing nails located according to manufacturer's written instructions.
1. Where roof slope exceeds 20:12, seal asphalt shingles with asphalt roofing cement spots after fastening with additional roofing nails.
  2. Where roof slope is less than 4:12, seal asphalt shingles with asphalt roofing cement spots.
  3. When ambient temperature during installation is below **50 deg F (10 deg C)**, seal asphalt shingles with asphalt roofing cement spots.
- G. Woven Valleys: Extend succeeding asphalt shingle courses from both sides of valley **12 inches (300 mm)** beyond center of valley, weaving intersecting shingle-strip courses over each other. Use one-piece shingle strips without joints in the valley.
1. Do not nail asphalt shingles within **6 inches (150 mm)** of valley center.
- H. Closed-Cut Valleys: Extend asphalt shingle strips from one side of valley **12 inches (300 mm)** beyond center of valley. Use one-piece shingle strips without joints in the valley. Fasten with extra nail in upper end of shingle. Install asphalt shingle courses from other side of valley and cut back to a straight line **2 inches (50 mm)** short of valley centerline. Trim upper concealed corners of cut-back shingle strips.
1. Do not nail asphalt shingles within **6 inches (150 mm)** of valley center.
  2. Set trimmed, concealed-corner asphalt shingles in a **3-inch- (75-mm-)** wide bed of asphalt roofing cement.
- I. Open Valleys: Cut and fit asphalt shingles at open valleys, trimming upper concealed corners of shingle strips. Maintain uniform width of exposed open valley **1/8 inch in 12 inches (1:96)** from highest to lowest point.
1. Set valley edge of asphalt shingles in a **3-inch- (75-mm-)** wide bed of asphalt roofing cement.
  2. Do not nail asphalt shingles to metal open valley flashings.
- J. Ridge Vents: Install continuous ridge vents over asphalt shingles according to manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing.
- K. Ridge and Hip Cap Shingles: Maintain same exposure of cap shingles as roofing shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds. Fasten with roofing nails of sufficient length to penetrate sheathing.
1. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.

### 3.5 ROOFING INSTALLER'S WARRANTY

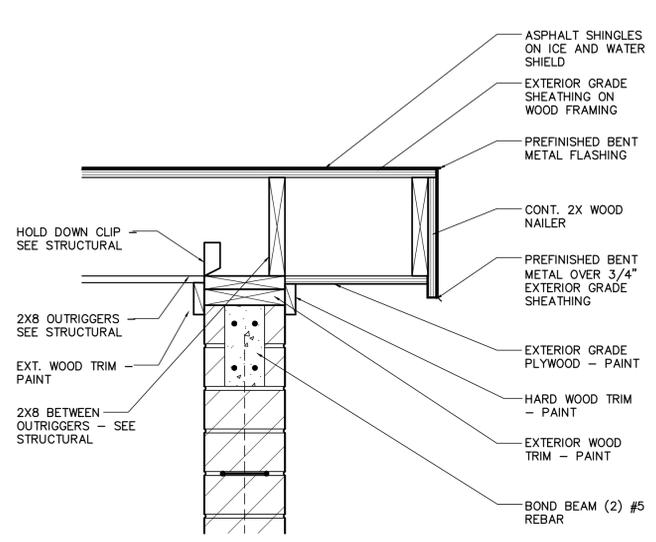
- A. WHEREAS **<Insert name>** of **<Insert address>**, herein called the "Roofing Installer," has performed roofing and associated work ("work" ) on the following project:
1. Owner: **<Insert name of Owner.>**
  2. Address: **<Insert address.>**
  3. Building Name/Type: **<Insert information.>**
  4. Address: **<Insert address.>**
  5. Area of Work: **<Insert information.>**
  6. Acceptance Date: **<Insert date.>**
  7. Warranty Period: **<Insert time.>**
  8. Expiration Date: **<Insert date.>**
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
    - a. lightning;
    - b. peak gust wind speed exceeding **<Insert wind speed> mph (m/sec);**
    - c. fire;
    - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
    - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
    - f. vapor condensation on bottom of roofing; and
    - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
  2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
  3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
  4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.

5. During Warranty Period, if original use of roof is changed, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

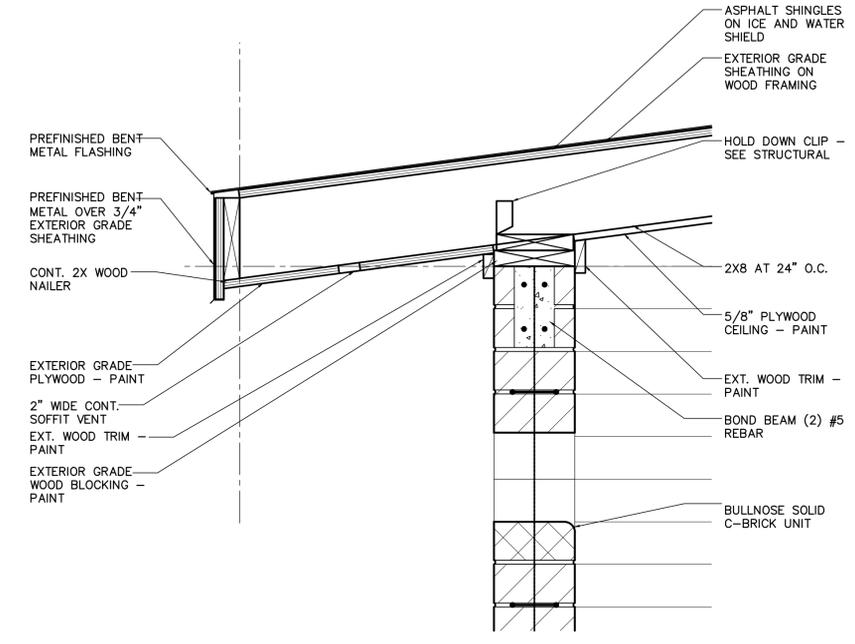
E. IN WITNESS THEREOF, this instrument has been duly executed this **<Insert day>** day of **<Insert month>**, **<Insert year>**.

1. Authorized Signature: **<Insert signature.>**
2. Name: **<Insert name.>**
3. Title: **<Insert title.>**

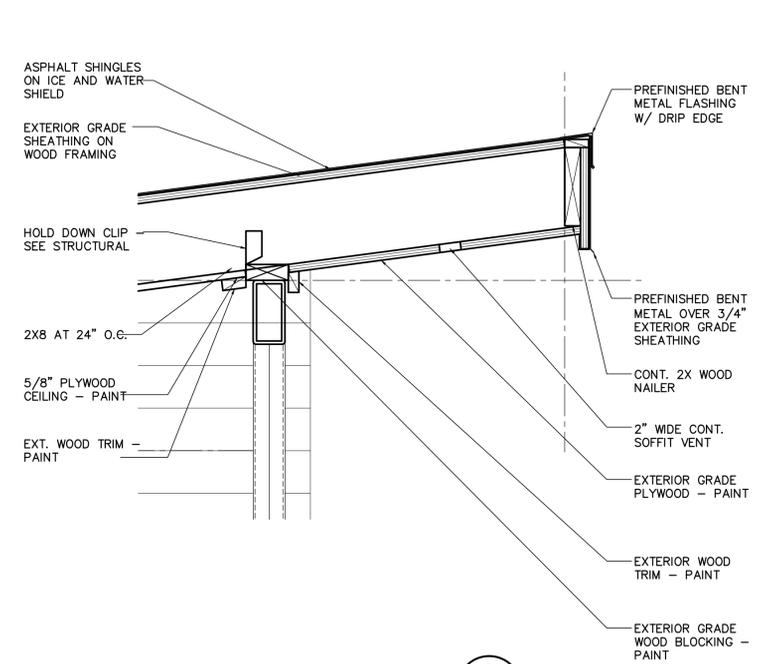
END OF SECTION 07 3113



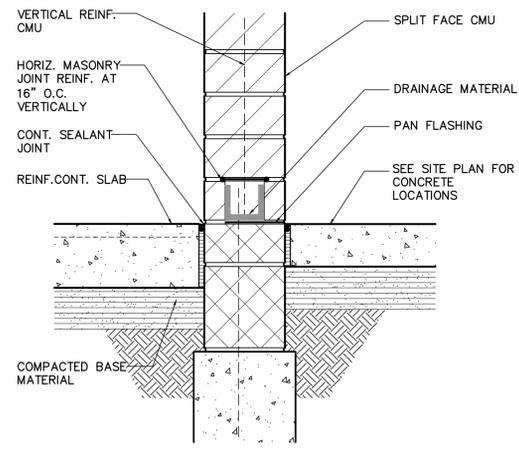
**G** SECTION DETAIL  
 A1.02 SCALE: 1 1/2" = 1'-0"



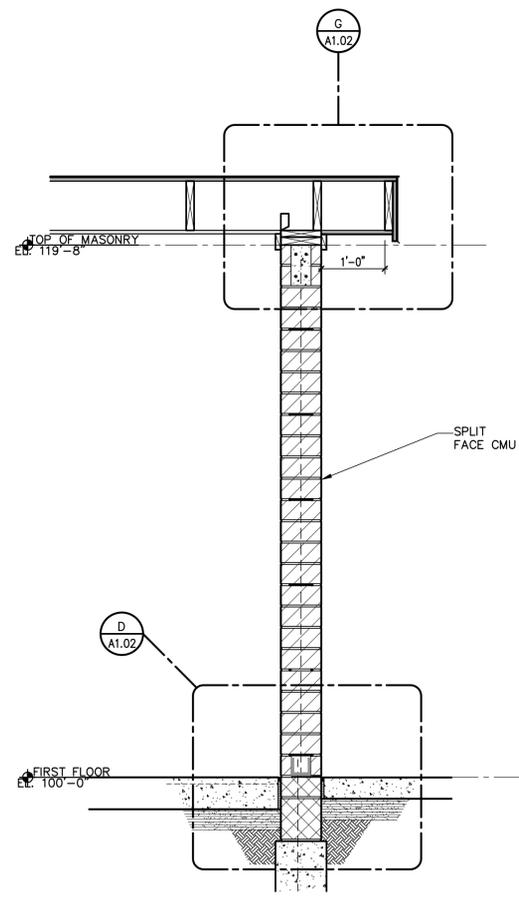
**F** SECTION DETAIL  
 A1.02 SCALE: 1 1/2" = 1'-0"



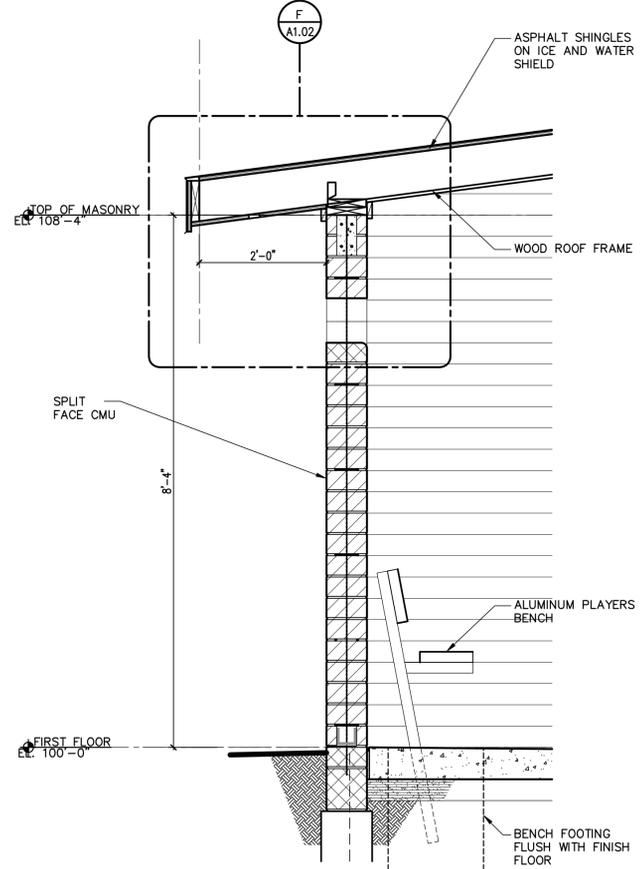
**E** SECTION DETAIL  
 A1.02 SCALE: 1 1/2" = 1'-0"



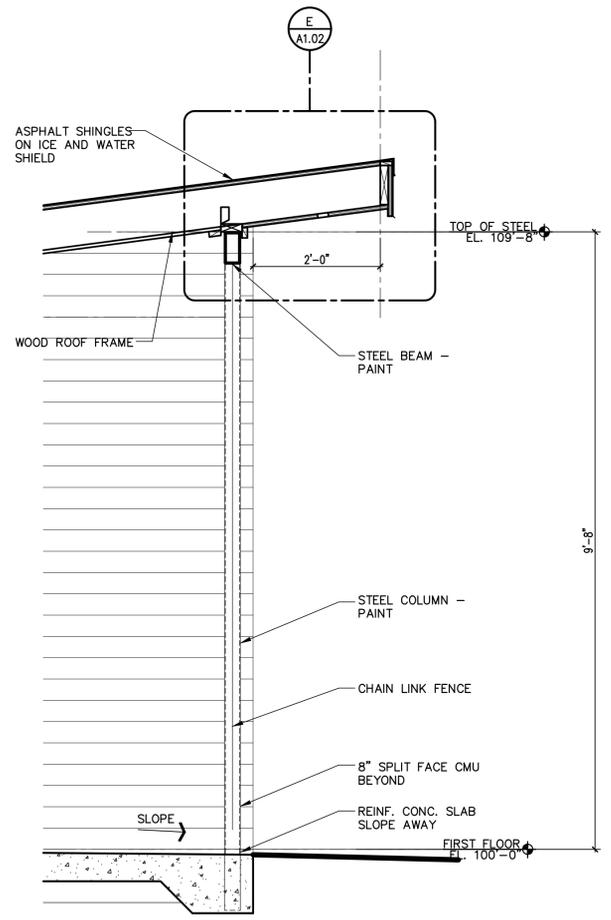
**D** WALL SECTION  
 A1.02 SCALE: 3/4" = 1'-0"



**C** WALL SECTION  
 A1.01 SCALE: 3/4" = 1'-0"



**B** WALL SECTION  
 A1.02 SCALE: 3/4" = 1'-0"



**A** WALL SECTION  
 A1.02 SCALE: 3/4" = 1'-0"

REVISIONS

PROJECT

CHURCHILL HIGH SCHOOL

2018 SYNTHETIC TURF & TRACK RENOVATIONS

OWNER

LIVONIA PUBLIC SCHOOLS

15125 FARMINGTON ROAD  
 LIVONIA, MI 48154

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SHEET TITLE

DUGOUT WALL SECTIONS & SECTION DETAILS

DWN. BY	KRM	CHK BY	PAC
DATE	7-20-2018	SCALE	AS NOTED

SHEET NO.

A1.02