PROJECT MANUAL

RE-ROOF AND ROOF REPLACEMENT
9380 CHESTNUT AVE
FRANKLIN PARK, IL 60131

FOR

THE VILLAGE OF FRANKLIN PARK ILLINOIS
9500 BELMONT AVENUE
FRANKLIN PARK, IL 60131

PATTERSON
CONSULTING
Roofing and Waterproofing Consultants

Patterson Consulting, Ltd.
2112 W. Galena Blvd, Suite 8-433 • Aurora, IL 60506
Gary S. Patterson, Senior Consultant, GRP • Email: gary@pattcon.net
Phone: 630-844-0110 • Fax: 630-677-2090 • Mobile: 630-677-2090

TABLE OF CONTENTS

January 15, 2020

To: All Bidders

Subject: Invitation to Bid

Project: Re-Roof and Roof Replacement
9380 Chestnut Ave
Franklin Park, IL 60131

Project No.: 20-850

To All Bidders:

Patterson Consulting, Ltd. has been engaged by The Village of Franklin Park Illinois (Owner) to provide bidding documents, plans and specifications, and drawing details to re-roof the garage (Area A) and completely replace the roof covering the office (Area B) of the building as indicated on Roof Sketch (Aerial Photo) - RS-1. The project also requires renovation of deteriorated metal and concrete decking where necessary on a unit cost basis, brick and mortar joint renovation around the west entrance door to the garage, renewal of the brick chimney exterior surfaces, and complete replacement of the poured concrete chimney cap on the garage roof.

The subject building is a two-story commercial property that was a former fleet vehicle maintenance repair shop with repair bays within the north garage portion of the building with ground floor and mezzanine level offices in the south office part of the facility. The building is reported to have been originally constructed in 1966 and was purchased by the Village of Franklin Park in 2019.

The building has a basic rectangular footprint with the south office roof area (~1,275 ft^2) slightly elevated above the lower north garage area (~5,060 ft^2) of the building. There is an attached commercial building with adjoining roof and demising wall on the east side of the garage and office roof areas, which is NOT part of the roofing project. The building construction consists of a concrete foundation and slab floor on grade with a structural steel frame and concrete masonry unit (CMU) exterior walls that have been covered with finished brick on the south elevation and completed with a common brick façade on the remaining exterior surfaces.

The interior steel support structure and walls are exposed to view within the garage area with steel cross member supports set over the structural steel frame. The steel roof deck in the garage area appears to be a 22 gauge corrugated steel material conforming to a standard Type "B" profile, which has been factory painted on both its bottom and top surfaces. The deck appears to have been spot welded to the steel framework. No excessive corrosion was noticed during our visual inspections of interior conditions.

The office area of the building appears to have a system of five to six inch thick by two foot wide by twenty-five foot long prefabricated hollow-core concrete deck panels set over the CMU block wall system. The deck panels have been grouted together at joint intersections to form a continuous flat surface plane. The ends of the panels can be seen between floors from the interior of the garage.

Some deteriorated brick and mortar joints are evident in certain areas of the masonry façade and within garage chimney construction where it extends above the roof surface on the east side of the building. The

poured in place concrete chimney cap is also cracked and shall be replaced as a portion of the base bid. No below grade areas are reported to be present in the construction. There are several ground-level overhead door openings for vehicle access to service bays along the west elevation of the building.

Core samples were extracted from both the garage and office roof areas. The garage roof assembly appears to begin with a Type B, 22 gauge, painted steel roof deck that is attached with spot welds to the steel structure. A single layer of 2.0-inch thick polyisocyanurate insulation has been mechanically fastened to the deck and covered with a layer of heavy asphaltic base sheet membrane. The roof assembly is completed with installation of a smooth surface modified bitumen membrane system with three inch wide side laps and four to six inch wide endlaps. The west gutter edge of the garage roof has been repaired in the past with installation of granule surface modified bitumen field membrane and gutter edge cover stripping, which has resulted in an elevated perimeter edge condition that has caused some water retention in the field of the garage roof and along its gutter edge.

The office roof area appears to be constructed from six inch thick by two foot wide by 25 foot long hollow-core concrete roof deck panels that are grouted together at side edge butt joints. A base sheet of asphaltic membrane appears to have been partially adhered (sprinkle mopped) with hot asphalt directly to the asphalt-primed concrete roof deck surface, followed by installation of a two-ply smooth surface modified bitumen cap sheet membrane assembly. No insulation is present within the office roof assembly. Insulation is installed on the interior of the building below the deck. Both roofs have been coated with aluminum roof paint on their top surface, which has substantially deteriorated and flaked away.

The garage roof is sloped in a single westerly direction to a perimeter edge gutter system. The remaining two garage roof edges have an elevated gravel stop edge system installed and the south perimeter edge connects to the higher office roof along a common boundary. The office roof area is sloped in a single south to north direction toward the garage roof and water spills onto the garage roof surface where it is then directed by the garage roof slope into the garage roof west gutter system.

The garage roof has a variety of mechanical penetrations, which are predominately located at the southeast corner of the roof area. The penetrations include a curb-mounted exhaust unit, stanchion mounted HVAC condenser unit, a large cylindrical powered air exhaust unit, plumbing vent pipes, a few flue stacks, and other miscellaneous penetrations.

The Owner is now interested in having a qualified roofing contractor re-roof the garage roof area and completely replace the roofing materials covering the office area of the building. The garage roof will be core cut every 100 square feet to discover any latent moisture content within the existing roof assembly. Moisture contaminated roofing materials will be replaced with like, kind, and size materials where necessary on a unit cost basis.

The existing gutter system installed along the west perimeter edge of the garage roof will be completely removed. New wood blocking and tapered insulation will be installed at a lower elevation to facilitate proper drainage. The balance of the garage roof existing field membrane surface will be properly prepared and then covered with a fully adhered 60 mil (FB-110) fleece-backed TPO membrane roofing system with penetration flashings and heat-welded seams. Continuous ribbons/beads of foam adhesive are required to be set at six (6) inches on center in the Factory Mutual Global (FMG) defined field and perimeter areas and four (4) inches apart within FMG specified corner locations. The completed roof system must also achieve a UL Class A fire resistance rating.

A new gutter system and new perimeter edge sheet metal will be installed around the edges of the new TPO roof system. 60 mil TPO membrane is to be adhered to vertical flashing substrate surfaces with Cav-Grip III or equal bonding adhesive and terminated as shown on project detail drawings.

The office roof field and flashing membrane systems, sheet metal edging, and wood blocking shall be completely torn off the building down to the surface of the concrete roof deck and other substrate surfaces. The concrete deck and other substrate surfaces will then be inspected and repaired or replaced on a unit cost basis where necessary to provide a suitable platform for installation of new roofing materials.

The concrete roof deck will be prepared with asphalt primer and subsequently covered with a new vapor barrier system consisting of a single layer of torch-applied 160 mil smooth surface modified bitumen membrane with heat-welded seams. The new vapor barrier system shall be properly sealed to adjoining construction using roofing manufacturer approved detailing at perimeter edges and penetration points.

A new insulation system consisting of two-layers of 2.6 thick polyisocyanurate insulation will be foam-adhered over the new vapor barrier system surface to meet FMG 1-90 performance requirements. The new office roof insulation assembly shall have a finished R-Value of 30 or more and provide positive slope for complete water evacuation onto the garage roof surface and into the garage roof gutter drainage system.

The office roof insulation top surface will be covered with 60-mil (FB-110) fleece-back TPO membrane that is fully adhered with the roofing manufacturer's foam adhesive. Continuous ribbons/beads of foam adhesive are required to be set at six (6) inches on center in the Factory Mutual Global (FMG) defined field and perimeter areas and four (4) inches apart within FMG specified corner locations. The completed roof system must also achieve a UL Class A fire resistance rating.

The successful Bidder will be required to furnish certificates and policies of insurance as required of the Contract. Contractors and their subcontractors must provide Certified Monthly Payroll Reports showing compliance with the State’s current Prevailing Wage Ordinance.

The Bidder to whom a Contract is awarded shall be required to furnish a Performance Bond and a Payment Bond or an Irrevocable Letter of Credit acceptable to the Village for 100 percent of the Contract Price, in accordance with the requirements of the Contract Documents.

Any agreement or collusion among bidders or prospective bidders in restraint of freedom of competition by agreement to bid a fixed price, or otherwise, shall render the bids of such bidder void. Each bidder shall accompany his bid with a sworn statement, or otherwise swear or affirm, that he has not been a party to any such agreement or collusion.

The Bidding and Tax Exempt Documents for the Project may be obtained by downloading digital PDF formatted copies via the following Internet Link:

https://drive.google.com/open?id=1QGBiS0K4Y5WYSMKltXD3pk-rp9oulRXe

Patterson Consulting will be the Owner's site representative for all improvements specified in this Project Manual.

Alternate Bids will be considered for the following Scopes of Work - Areas A & B: Fully Adhered 60 mil TPO Roof System and Fully Adhered 60 mil EPDM Roof System.

Additive Bids will be considered for the following Scopes of Work - None.

The roofing contractor must provide an approved roofing manufacturer’s 20-year ″No Dollar Limit″ (NDL) ″Full-System″ warranty from the date of substantial completion of the Work and supply a 2-year

roofing contractor's warranty as provided in the Project Manual. It is the intent of the Owner to complete the entire installation within 45 calendar days or less from the start of Work.

Bids will be received in person only until 10:00 am CT, Wednesday, February 12, 2020 at 9500 Belmont Avenue, Franklin Park, IL 60131 and will be opened publicly by the Village Clerk at 10:00 am CT, Wednesday, February 12, 2020 and the results announced to bidders in attendance at that time by the Village Clerk.

The Village requires that 10% of bid amount be paid as bid security. Questions may be directed to: Gary S. Patterson, Patterson Consulting, Ltd., 2112 W. Galena Blvd, Suite 8-433, Aurora, IL 60506 Phone: 630-844-0110.

Please notify the writer immediately if you do not intend to submit a bid. Thank you, in advance, for your participation.

Sincerely,

PATTERSON CONSULTING, LTD.

Gary S. Patterson
Senior Consultant, GRP

END OF SECTION 00100

January 15, 2020

To: All Bidders

Subject: Notification to Bidders

Project: Re-Roof and Roof Replacement
9380 Chestnut Ave
Franklin Park, IL 60131

Project No.: 20-850

To All Bidders:

Bids will be received in person only until 10:00 am CT, local time, on Wednesday, February 12, 2020 by The Village of Franklin Park Illinois, at 9500 Belmont Avenue, Franklin Park, IL 60131 and will be opened publicly by the Village Clerk at 10:00 am CT, local time, on Wednesday, February 12, 2020 and the results announced to bidders in attendance at that time.

Re-Roof and Roof Replacement - 9380 Chestnut Ave, Franklin Park, IL 60131

Separate bids will be received for the following:

Base Bid(s) - Areas A & B:

1. Fully Adhered 60 mil (FB-110) Fleece-Back TPO Roof System

Alternate(s) - Areas A & B:

1. Fully Adhered 60 mil TPO Roof System
2. Fully Adhered 60 mil EPDM Roof System

Additive(s) - None:

1. None
2. None

Attendance at a scheduled pre-bid conference is mandatory. The pre-bid conference will be held on the roof at the project site at 10:00 am CT on Friday, January 31, 2020. Each bidding contractor is expected to attend the pre-bid meeting and to become thoroughly acquainted with the site and project conditions prior to submitting a bid.

Participants will initially meet at the south entrance to building to have a brief conference before proceeding to the roof to perform a site inspection of existing conditions.

Attendees should wear necessary personal protective equipment and observe all OSHA personal safety requirements.

NOTIFICATION TO BIDDERS

The successful Bidder will be required to furnish certificates and policies of insurance as required of the Contract. Contractors and their subcontractors must provide Certified Monthly Payroll Reports showing compliance with the State's current Prevailing Wage Ordinance.

The Bidder to whom a Contract is awarded shall be required to furnish a Performance Bond and a Payment Bond or an Irrevocable Letter of Credit acceptable to the Village for 100 percent of the Contract Price, in accordance with the requirements of the Contract Documents.

Any agreement or collusion among bidders or prospective bidders in restraint of freedom of competition by agreement to bid a fixed price, or otherwise, shall render the bids of such bidder void. Each bidder shall accompany his bid with a sworn statement, or otherwise swear or affirm, that he has not been a party to any such agreement or collusion.

The Bidding and Tax Exempt Documents for the Project may be obtained by downloading digital PDF formatted copies via the following Internet Link:

https://drive.google.com/open?id=1QGBiS0K4Y5WYSMKltXD3pk-rp9oulRXe

Patterson Consulting will be the Owner's site representative for all improvements specified in this Pro-ject Manual.

Any questions or requests for additional digital copies of Plans, Specifications, and blank Bid Forms together with any further information desired may be obtained from the offices of Patterson Consulting, Ltd., 2112 W. Galena Blvd, Suite 8-433, Aurora, IL 60506, Phone: 630-844-0110 Fax: 630-844-0330, E-Mail: gary@pattcon.net.

Sincerely,

PATTERSON CONSULTING, LTD.

Gary S. Patterson
Senior Consultant, GRP

END OF SECTION 00110

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

B. Standard Conditions of the Contract:
   1. AIA Document A101 (2017) - Standard Form of Agreement Between Owner and Contractor (Inserted by Web Link Reference Below)
      https://www.aiacontracts.org/contract-documents/69981-standard-form-of-agreement-between-owner-and-contractor

C. General Conditions of the Contract:
   1. AIA Document A201 (2017) - general Conditions of the Contract for Construction (Inserted by Web Link Reference Below)
      https://www.aiacontracts.org/contract-documents/25131-general-conditions-of-the-contract-for-construction

D. Special Conditions of the Contract:
   1. AIA Document A701 (2018) Instructions to Bidders (Inserted by Web Link Reference Below)
      https://www.aiacontracts.org/contract-documents/6128704-instructions-to-bidders

END OF SECTION 00520

BID TO:
Village Clerk, Roberta Johnson
The Village of Franklin Park Illinois
9500 Belmont Avenue
Franklin Park, IL 60131
Fax: N/A
Email: N/A

BID FOR:
Re-Roof and Roof Replacement
9380 Chestnut Ave
Franklin Park, IL 60131
Project No.: 20-850

BIDDER:

Company Name: _____

Address:_____

City:_____ State: _____ Zip: _____

Business Phone: _____ Fax: _____ Mobile: _____

Email:_____ Date: _____

The Undersigned:

1. Confirms receipt of:
   A. Project Manual for the subject Project.
   B. Addendum number _____, Dated _____
   C. Addendum number _____, Dated _____
   D. Addendum number _____, Dated _____
   E. Addendum number _____, Dated _____
   F. Addendum number _____, Dated _____
   G. Addendum number _____, Dated _____

2. Confirms completion of a site inspection and through review of the Bidding Documents to acquaint the Contractor with all work stipulated in the Bidding Documents.

3. Contractor & Subcontractors Agree:
   A. To hold this Bid open for 30 calendar days after the Bid due date.
   B. To start and finish the Work in the Project Manual in agreement with the dates stipulated in the Contract Agreement.
   C. To enter into and execute a Contract, if awarded on the Basis of the Bid, and to furnish all bonds and insurances required in the Bidding Documents.
   D. To accomplish the Work in accord with the Contract Documents.
   E. The successful Bidder will be required to furnish certificates and policies of insurance as required by the Contract. Contractors and their subcontractors must provide Certified Monthly Payroll Reports showing compliance with the State's current Prevailing Wage Ordinance.

BID TO:
Village Clerk, Roberta Johnson
The Village of Franklin Park Illinois
9500 Belmont Avenue
Franklin Park, IL 60131
Fax: N/A
Email: N/A

BID FOR:
Re-Roof and Roof Replacement
9380 Chestnut Ave
Franklin Park, IL 60131
Project No.: 20-850

BIDDER:

Company Name: _____

Address:_____

City:_____ State: _____ Zip: _____

Business Phone: _____ Fax: _____ Mobile: _____

Email:_____ Date: _____

The Undersigned will construct the referenced Project and submits the following prices and guarantee:

BASE BID - AREAS A & B:

1. Fully Adhered 60 mil (FB-110) Fleece-Back TPO Roof System ..... $_____

ALTERNATE BID(S) - AREAS A & B:

1. Fully Adhered 60 mil TPO Roof System ..... $_____
2. Fully Adhered 60 mil EPDM Roof System ..... $_____

ADDITIVE BID(S) - NONE:

1. None ..... $_____
2. None ..... $_____

UNFORESEEN CONDITIONS:

1. Deck Repair/Replacement and Unforeseen Conditions
   (Do NOT Include in Base or Alternate Bids): $10,000.00

ROOFING GUARANTEE:

1. Provide Roofing Manufacturer's 20-year "No Dollar Limit" (NDL) "Full-System" Warranty at NO additional cost to Owner (Yes/No): _____
2. Provide Roofing Contractor's 2-year Labor and Material Warranty at NO additional cost to Owner (Yes/No): _____

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]

BID TO:
Village Clerk, Roberta Johnson
The Village of Franklin Park Illinois
9500 Belmont Avenue
Franklin Park, IL 60131
Fax: N/A
Email: N/A

BID FOR:
Re-Roof and Roof Replacement
9380 Chestnut Ave
Franklin Park, IL 60131
Project No.: 20-850

BIDDER:

Company Name: _____

Address:_____

City:_____ State: _____ Zip: _____

Business Phone: _____ Fax: _____ Mobile: _____

Email:_____ Date: _____

UNIT PRICES:

1.	Repair concrete roof deck	per sq. ft. of area	$_____
2.	Replace metal roof deck	per sq. ft. of area	$_____
3.	Replace wood blocking or nailer	per bd. ft. of area	$_____
4.	Roof Drains	per drain, with connects	$_____
5.	Drain Piping	per lineal foot	$_____
6.	4" x 4" treated wood blocking stanchions	Price per lineal foot	$_____
7.	6" x 6" treated wood blocking stanchions	Price per lineal foot	$_____

TIME AND MATERIALS:

1.	Repair of conditions not described	Material cost plus %	$_____
		Per man-hour	$_____
2.	Repair crew of three (3) men w tools & equip	Material cost plus %	$_____
		Per 8-hr day	$_____

START DATE:

1. Identify Start Date when bidder will be available to begin Work specified in the Project Manual. (Date) _____

Authorized Signature:

_____

Printed Name:

_____

Title: Date:

_____ _____

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]

BID TO:
Village Clerk, Roberta Johnson
The Village of Franklin Park Illinois
9500 Belmont Avenue
Franklin Park, IL 60131
Fax: N/A
Email: N/A

BID FOR:
Re-Roof and Roof Replacement
9380 Chestnut Ave
Franklin Park, IL 60131
Project No.: 20-850

BIDDER:

Company Name: _____

Address:_____

City:_____ State: _____ Zip: _____

Business Phone: _____ Fax: _____ Mobile: _____

Email:_____ Date: _____

SUBCONTRACTORS:

Plumbing: _____

Sheet Metal: _____

Mechanical: _____

Electrical: _____

Masonry: _____

Carpentry: _____

Painting: _____

Structural: _____

Decking: _____

Crane: _____

Disposal: _____

Interior Protection: _____

Patio Decks: _____

Landscaping: _____

Tree Trimming: _____

BID TO:
Village Clerk, Roberta Johnson
The Village of Franklin Park Illinois
9500 Belmont Avenue
Franklin Park, IL 60131
Fax: N/A
Email: N/A

BID FOR:
Re-Roof and Roof Replacement
9380 Chestnut Ave
Franklin Park, IL 60131
Project No.: 20-850

BIDDER:

Company Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Business Phone: _____ Fax: _____ Mobile: _____

Email: _____ Date: _____

ROOFING MANUFACTURER'S AFFIDAVIT:

The aforementioned roofing contractor is in good standing with the undersigned roofing system manufacturer and upon satisfactory final inspection and completion of the Work outlined in this Project Manual; the contractor is fully authorized to provide the roofing manufacturer's 20-year ″No Dollar Limit″ (NDL) ″Full-System″ warranty as specified.

Company Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Business Phone: _____ Fax: _____ Mobile: _____

Email: _____ Date: _____

Authorized Signature:

_____

Printed Name:

_____

Title: Date:

_____ _____

END OF SECTION 00525

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 SEALED BIDS

A. Sealed bids will be received by hand delivery only until 10:00 am CT, February 12, 2020 for roof replacement on designated roof Areas A & B of Re-Roof and Roof Replacement project as indicated on the Drawings.
   1. Bid to: Village Clerk, Roberta Johnson
   2. Address envelopes to: The Village of Franklin Park Illinois, 9500 Belmont Avenue, Franklin Park, IL 60131
   3. Fax Number: N/A
   4. E-Mail: N/A

B. Write in the lower left corner:
   1. Project ID: 20-850

1.3 PLANS AND SPECIFICATIONS

A. Additional digital copies of blank proposals, plans, specifications and any further information desired may be obtained from Gary S. Patterson at 630-677-2090.

1.4 DEFINITION OF TERMS

A. Whenever the term "Owner" occurs in the Specifications or other documents, it shall mean The Village of Franklin Park Illinois.

B. Whenever the term “Owners Representative” or "Consultant" occurs in the specifications, it shall mean Gary S. Patterson, Patterson Consulting, Ltd.

C. Whenever the term "Contractor" occurs in the Specifications or other documents, it shall mean a person, firm or corporation contracting with the Owner to supply labor, equipment, and materials specified herein for the successful completion of this contract.

1.5 PRE-QUALIFICATION OF BIDDERS

A. Bidders expecting to bid may be required to file, prior to the time of award of contract, a confidential financial statement and experience questionnaire, which may be a complete report of the financial resources and liabilities, equipment, past record, and personnel.

B. Bidders must submit names of any subcontractors to be utilized on the bid form attached. All subcontractors must be approved by The Owner.

1.6 BIDDER REQUIREMENTS:

A. The Prime Bidder on this Project must be a Roofing Contractor with a minimum of 5-years' experience installing the specified roof system and other qualifications that may be specified in the Construction Documents.

B. Requests for substitutions of specified materials or practices must be submitted by the prime bidder. Requests for substitutions from manufacturers, suppliers or subcontractors will not be considered.

1.7 ADDENDUM TO PROPOSAL

A. The Owner reserves the right to modify the proposal to within 24 hours of the scheduled date for the opening of proposals. All addenda shall be in writing and sent to all bidders having attended the pre bid conference at the project site.

1.8 AWARDING OF CONTRACT

A. The Owner reserves the right to award the contract to the lowest and best, and not necessarily to the lowest bidder, or to reject any or all bids without formalities.

1.9 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND SITE OF WORK

A. The bidder is expected to examine carefully the site of the proposed work, the proposal, plans, specifications, supplemental specifications, special provisions and contract forms, before submitting a bid.

B. The submission of a bid shall be considered evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work, and as to the requirements of the site conditions, plans, specifications, supplemental conditions, special provisions and contracts, and no allowance will be made for lack of knowledge concerning such conditions after the contract is signed.

1.10 PREPARATION OF BID PROPOSAL

A. The bidder shall submit his bid upon the forms furnished by the Owner. All words and figures shall be in ink or typewritten.

B. The bidder's bid must be signed with ink by the individual, by one or more members of the partnership, or by one or more officers of a corporation, or by an agent of the Contractor legally qualified and acceptable to the Owner.

C. If the proposal is made by an individual, his name and business address must be shown; by a partnership, the name and business address of each partnership member must be shown; by a corporation, the name of the state under the laws of which the corporation is chartered and the name and title of the officer or officers having authority under the bylaws to sign contracts, the name of the corporation and the business address of its corporate official must be shown.

1.11 DELIVERY OF BIDS

A. The bids shall be placed in a sealed envelope so marked as to indicate the identity of the project and the name and address of the bidder. Proposals will be received until the hour and date set for the opening thereof, and must be in the hands of the official indicated by such time. Bids received after the time for opening may be returned to the bidder unopened.

B. Fax and/or E-mail transmittals of bids are NOT acceptable.

1.12 WITHDRAWAL OF BIDS

A. A bidder may withdraw his bid, provided the request in writing is in the hands of the official indicated in the proposal by the time set for opening bid.

1.13 DISQUALIFICATION OF BIDDERS

A. Any of the following reasons may be considered as being sufficient for the disqualification of a bidder and the rejection of his proposal or proposals:
   1. If the bid is on a form other than that furnished by the Owner or if the form is altered or any part thereof is detached.
   2. If there are unauthorized additions, conditional or substitute bids, or irregularities of any kind which may tend to make the bid incomplete, indefinite or ambiguous as to its meaning.
   3. If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award. This does not exclude a bid limiting the maximum gross amount of awards acceptable to any one bidder at any one bid letting, provided that any selection of awards will be made by the Owner.
   4. More than one proposal for the same work from an individual firm or corporation under the same or different name.
   5. Evidence of collusion among bidders. Participants in such collusion will receive no recognition as bidders for any future work of the Owner until any such participant shall have been reinstated as a qualified bidder.
   6. Bid prices, which obviously are unbalanced.

1.14 BID DOCUMENT FORM

A. Each bidder shall submit an individual Bid Document Form. The Bid Form in these documents must be utilized; no alteration of the form shall be made.

1.15 INSURANCE

A. The successful bidder shall provide the Owner and Consultant with appropriate insurance coverage, including automobile liability, general liability, property insurance, etc. and name the Owner and Consultant, an additional insured.

B. Original sets of certificates shall be on file with the Owner and Consultant before work commences. Each such certificate of insurance shall provide for payment of not less than the amount of $2,000,000.00 for injury or death of one person and $5,000,000.00 for any one accident, and $2,000,000.00 for property damage for any one accident, and a total aggregate property damage limit of $5,000,000.00.

C. The successful bidder shall also agree to protect the Owner and Consultant against all claims, demands, expenses, suits, or judgments arising because of, or resulting from the operations of the contractors, his agents, or his employees during the execution of this contract.

D. The successful bidder shall present evidence of insurance coverage by presenting the following prior to signing of a contract:
   1. Authenticated copies of all insurance coverage.
   2. Authorization by the State of Illinois to do business in the State of Illinois, if the insurance company is not a corporation of the State of Illinois.
   3. Workmen's Compensation Certificate of the State of Illinois.

E. Insurance certificate shall be submitted with coverage as follows:
   1. Claim under Workers' or Workmen's Compensation, disability benefit of other similar employee benefit acts;
   2. Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;
   3. Claims for damages because of bodily injury, sickness of disease, or death of any person other than his employees;
   4. Claims for damages insured by usual personal injury liability coverage which are sustained by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or any other person;
   5. Claims for damages, other than to the work itself, because of injury to or destruction of the tangible property, including loss of use resulting there from; and claims for damages because of bodily injury or death of any person, or property damage arising out of the ownership, maintenance, or use of any motor vehicle.

F. Contractor shall provide Certificate of Insurance Coverage with coverage as noted in General Requirements.

1.16 TAXES

A. The Village has obtained "Tax Exempt" status from the State of Illinois Department of Revenue and therefore is not subject to federal, state and local requirements with regard to all taxes owed and/or required. A letter issued by the State of Illinois Department of Revenue signifying this status is available at the following Internet Link:

https://drive.google.com/open?id=1QGBiS0K4Y5WYSMKltXD3pk-rp9oulRXe

1.17 WORK SCHEDULE AND PENALTIES

A. The Contractor shall start the Work within ten (14) days of a notice to proceed and shall execute the Work with diligence and dispatch to maintain such schedules and milestones as established by the Owner.

B. Contractor shall submit a preliminary construction schedule with his bid assuming a start date within three (3) weeks from the bid due date.

C. In the event that the Contractor should fail to maintain the progress schedule or the schedule as established above, the Owner reserves the right, after 48 hours formal notice, either by letter or telegram to the Contractor, to procure the materials, equipment, and labor necessary to proceed with, or to complete the Work, or any portion thereof from other sources and charge the cost thereof to the Contractor.

1.18 APPLICATION FOR PAYMENT

A. An invoice for payment for materials may be submitted upon delivery of materials to job site. All suppliers and subcontractors must be paid in full and Waiver of Lien by major suppliers and subcontractors must be issued prior to any subsequent payments being made to the contractor.

B. When all work has been completed, and a final inspection has been made, Contractor may invoice the Owner for 90% of the remaining labor and the materials, which were provided by Contractor. Once any and all deficiencies have been corrected, the Owner will make payment of 90% of the balance of the total contract price, with adds and deducts, and will make payment of the remaining 10% once the warranty has been issued.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01100

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 SUMMARY OF WORK:

A. The Prime Bidder shall provide all labor, materials, tools, equipment, services, etc. to provide complete, watertight roof systems, drainage and other related work as shown and/or specified in the Bidding Documents.

B. General Scope of Roofing Work - Garage (Area A):
   1. Observe all federal, state, local safety and building code requirements and obtain a building permit from the local governing authority as necessary to perform the work as specified.
   2. Install temporary interior protection (only where necessary) to prevent damage, contamination, disruption, and/or injury, to interior contents, operations, and building occupants.
   3. Follow the project specific and roofing manufacturer written installation guidelines and practices for application of a new fully adhered fleece-back 60 mil TPO roofing system.
   4. Conform to roofing manufacturer and other trade written installation guidelines, repair guidelines, and typical practices.
   5. Renovate masonry wall surfaces receiving roofing system materials prior to beginning roofing operations to provide a stable and acceptable surface for the installation of the new roofing system and keep the tie-in between the existing roof and new roof in a watertight condition at all times.
   6. Remove all loose debris from the surface of the existing roof and prepare it as required by the roofing system manufacturer to receive the specified foam-adhered membrane roofing system.
   7. Remove and properly dispose of designated curbs, housings, and related mechanical features from the project site and cover deck openings with like and kind decking with approved attachment to match existing deck.
   8. Remove membrane curb and wall flashings, fasteners, all sheet metal, and accessory materials, down to the top surface of the existing roof field membrane and substrates.
   9. Completely remove all existing membrane flashings and cant insulation strips from the base of all curbs, walls, and penetration flashing surfaces.
   10. Core sample the existing insulation system every 100 sf. for moisture and/or physical damage and replace damaged materials with like, kind, and size insulation to the level of the existing roof membrane.
   11. Repair or replace substandard decking determined by Consultant to have unacceptable deterioration or structural damage with like and kind decking with approved attachment to the structure on a unit cost basis.
   12. Remove the first four feet of membrane, insulation, gutter, and wood blocking along the entire west gutter edge of the building.

13. Install 1/4 inch per foot tapered insulation along the entire gutter edge of the building to promote water flow into the gutter system.
14. Fasten new wood blocking to meet FMG 1-49 performance standards along the gutter edge to match the reduced elevation of the new tapered insulation.
15. Install 1/2 inch per foot tapered polyisocyanurate insulation on the high side of large mechanical unit curbs.
16. Replace substandard wood blocking to the elevation of the existing roof membrane surface, and attach all blocking to resist 400 pounds per square inch of pullout force in any direction, in order to provide a suitable surface for the installation of new sheet-metal edging.
17. Install a new foam-adhered 60 mil thick (FB-110) fleece-back TPO thermoplastic roofing system, complete with, membrane flashings, sheet metal edging, and accessories over the prepared existing field membrane and other substrate surfaces; flowing project and roofing manufacturer requirements to achieve FMG 1-90 wind uplift performance requirements (6 inches on center in field, 6 inches on center along perimeter margins, and 4 inches on center in FMG defined corner zones).
18. Properly dispose of ALL debris generated by the Work and remove from the premises.
19. Restore all property damaged by Work activities to its original condition before leaving the project site.

C. General Scope of Roofing Work - Office (Area B):
1. Observe all federal, state, local safety and building code requirements and obtain a building permit from the local governing authority as necessary to perform the work as specified.
2. Install temporary interior protection (only where necessary) to prevent damage, contamination, disruption, and/or injury, to interior contents, operations, and building occupants.
3. Completely remove the existing roofing membrane system, including field membrane, cover board, insulation, membrane flashings, fasteners, all sheet metal, and accessory materials, down to the surface of the concrete roof deck.
4. Remove and properly dispose of designated curbs, housings, and related mechanical features from the project site and cover deck openings with like and kind decking with approved attachment to match existing deck.
5. Completely remove all existing membrane flashings and cant insulation strips from the base of all curbs, walls, and penetration flashing surfaces.
6. Repair or replace decking determined by Consultant to have unacceptable deterioration or structural damage with like and kind decking with approved attachment to the structure on a unit cost basis.
7. Replace substandard wood blocking, install new wood blocking to the elevation of the new insulation system, and attach all blocking to resist 400 pounds per square inch of pullout force in any direction where necessary along perimeter edges and at other locations in order to provide a suitable surface and elevation for the installation of new sheet-metal edging.
8. Properly prepare the existing roof deck with primer according to the roofing manufacturer requirements and install a single layer of the roofing manufacturer's 160 mil thick smooth surface APP modified bitumen vapor barrier membrane system.
9. Conform to roofing manufacturer and other trade written installation guidelines, repair guidelines, and typical practices.
10. Renovate masonry wall surfaces receiving roofing system materials prior to beginning roofing operations to provide a stable and acceptable surface for the installation of the new roofing system and keep the tie-in between the existing roof and new roof in a watertight condition at all times.
11. Install two layers of 2.6 inch thick polyisocyanurate insulation in foam adhesive over the new APP modified bitumen vapor barrier system to meet FMG 1-90 wind uplift

performance requirements (12 inches on center in field, 6 inches on center along perimeter margins, and 4 inches on center in FMG defined corner zones).

12. Install a new foam-adhered 60 mil thick (FB-110) fleece-back TPO thermoplastic roofing system, complete with membrane flashings, sheet metal edging, and accessories over the new insulation system top surface and other substrate surfaces; flowing project and roofing manufacturer requirements.
13. Properly dispose of ALL debris generated by the Work and remove from the premises.
14. Restore all property damaged by the Work activities to its original condition before leaving the project site.

D. Unit Prices:
   1. Provide Unit Prices on the Bid Document Form.
   2. Include the following quantities and lump sum allowances in the base bid, additions to or subtractions from these indicated quantities to be adjusted by unit prices or lump sums quoted;
      a. Base Bid Allowances: None.

E. Work Includes:
   1. Base Bid:
      a. Fully Adhered 60 mil (FB-110) Fleece-Back TPO Roof System

F. Options Include:
   1. Alternate Bid #1:
      a. Fully Adhered 60 mil TPO Roof System.
   2. Alternate Bid #2:
      a. Fully Adhered 60 mil EPDM Roof System.
   3. Alternate Bid #3:
      a. None.
   4. Alternate Bid #4:
      a. None.
   5. Additive Bid #1:
      a. None.
   6. Additive Bid #2:
      a. None.

1.3 INTENT OF THE SPECIFICATIONS:

A. The intent of these specifications is to describe the materials and methods of construction required for the performance of the work. In general, it is intended that the drawings shall delineate the detailed extent of the work. When there is a discrepancy between drawings, referenced specifications, and standards and this specification, this specification shall govern.

B. Consultant designed the work conveyed in the Contract Documents for Owner's benefit. These Contract Documents are between Owner and Consultant only. Nothing contained in these Contract Documents shall create a contractual relationship between the Contractor and the Consultant.

C. Assumption of Responsibility: Throughout these specifications, unless specifically noted otherwise, all work shall be assumed the sole responsibility of the Contractor.

1.4 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC "MasterFormat" numbering system.
   1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete.
   2. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
      a. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words implied, but not stated, shall be inferred, as the sense requires. Singular words shall be interpreted as plural and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
      b. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
         1) The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase

1.5 WORK UNDER OTHER CONTRACTS

A. Owner may award separate contracts for related or unrelated construction operations at this site. These operations may be conducted simultaneously with work under this contract.

B. Cooperation with other Contractors and Trades that may be present on the site is expected so that work on those contracts may be carried out. Owner reserves the right to resolve conflicts if required.

1.6 EXISTING HVAC AND ELECTRICAL EQUIPMENT

A. Existing HVAC and electrical equipment will require temporary disconnection, relocation, and reconnection. Such work shall be a part of this Contract and shall be performed by the appropriate licensed tradesmen. Cost of the work shall be included in Base Bid.

B. Electrical conduit and electrical items will have to be permanently relocated to prevent re-attachment to new roofing, flashing, or sheet metal components. Such work shall be a part of this contract and shall be performed by the appropriate licensed tradesmen. Cost of the work shall be included in Base Bid.

1.7 REGULATORY REQUIREMENTS

A. The Village has obtained "Tax Exempt" status from the State of Illinois Department of Revenue and therefore is not subject to federal, state and local requirements with regard to all taxes owed and/or required. A letter issued by the State of Illinois Department of Revenue signifying this

status is available at the following Internet Link:

https://drive.google.com/open?id=1QGBiS0K4Y5WYSMKltXD3pk-rp9oulRXe

B. Governing Codes and Standards:
   1. Work performed under this specification shall comply with applicable Industry Standards and all applicable codes, laws, and ordinances of the municipal, state, and federal departments concerned. Materials and workmanship required by such regulations shall be provided by the Contractor whether or not specifically noted herein or shown on the drawings.
   2. Bidders are directed to immediately advise the Consultant if they discover any materials, products, or designs that conflict with or fail to satisfy any of the following Codes, Standards or Local Ordinances;
      a. International Building Code (IBC)
      b. Americans with Disabilities Act Architectural Guidelines (ADAAG)

C. National Fire Protection Association (NFPA)

D. Occupational Safety and Health Standards of Construction Industry (OSHA) e Environmental Protection Agency (EPA)

E. Factory Mutual Global (FMG)

F. Underwriters Laboratories (UL)
   1. Industry Standards: Minimum standards of construction shall comply with all applicable standards including but not limited to;
      a. NRCA
      b. SMACNA

G. The above notwithstanding, Industry Standards and Codes are recognized as minimum requirements. In many cases, these Contract Documents specify materials, quantities, thicknesses, details, assemblies, etc., that clearly exceed the Industry Standards and prevailing Codes. In all these cases, the more stringent requirements in the Contract Documents shall be required.

1.8 NOTICES AND POSTINGS:

A. The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the Work. If Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, without providing notice to building owner's representative, Contractor shall assume full responsibility and shall bear all costs.

B. All permits shall be placed in a plastic tube and be kept in the location designated by the Fire Safety officer for the entire duration of the work. The following shall be posted on site;
   1. Copies of all permits
   2. Copies of all SDS sheets
   3. A Job Board showing escape routes and the locations of fire alarms and smoke detectors and other information and documents as required by the fire safety officer.

4. A completed safety triangle listing hazardous substance ratings of products stored at or in use at the job site

1.9 PERMITS AND FEES:

A. Obtain Hazardous substance permits from Owner. All containers five (5) gallons or larger must be labeled with the permit number.

B. Obtain open burn permits and filing of pre and post burn inspection reports in writing on a daily basis as required by Owners Safety office.

C. The Contractor shall apply for and secure all incidental permits, governmental fees and licenses necessary for proper execution and completion of the Work.

1.10 PROTECTION:

A. The Contractor shall use precautions necessary to provide for the safety of property owner, visitors to the site, and all connected with the work of this project.

B. All existing facilities both above and below the ground shall be protected and maintained free of damage. Existing facilities shall remain operating during the period of construction unless otherwise permitted. All access roadways must remain open to traffic unless otherwise permitted.

C. Cranes and delivery vehicles may be placed only where approved by the Owner.

1.11 SAFETY REQUIREMENTS

A. All application, material handling, and associated equipment shall conform to and be operated in conformance with OSHA safety requirements.

B. Comply with applicable Federal, State, Local and Owner health and safety requirements.

C. Applicable asbestos-containing material removal procedures must be used where asbestos is detected, although no asbestos containing materials (ACM's) are known to exist in subject roofing system installation.

D. Notify the Owner in advance whenever work is expected to be potentially hazardous and/or harmful to persons and/or property on the site. Contractor is solely responsible for employing means and methods (acceptable to the Owner) deemed necessary to prevent harm to such persons and property.

E. Maintain a construction crewmember as a Floor Area Guard whenever roof decking is being repaired or replaced.

F. Maintain proper fire extinguishing equipment and trained personnel within close proximity and with unobstructed access to work areas whenever power tools, torches and/or other heat-producing equipment is being used on the project.

G. ALL SAFETY REQUIREMENTS OF THE BUILDING OWNER INCLUDING OBTAINING OWNER ISSUED PERMITS AND EMPLOYEE SAFETY TRAINING MUST BE FOLLOWED. NO EXCEPTIONS WILL BE PERMITTED. SAFETY ORIENTATION MEETING REQUIRED PRIOR TO PERFORMING ANY WORK. ALL EMPLOYEES MUST WEAR OWNER ISSUED IDENTIFICATION BADGES WHEN REQUIRED.

1.12 CONTRACTOR REQUIREMENTS

A. Roofing Contractor's Qualifications to be submitted prior to award of the Contract:
   1. Certification or letter from the Manufacturer that Contractor has been an approved applicator by the Manufacturer prior to the bidding period. Certification must be maintained throughout the installation.
   2. Letter from Roofing Manufacturer confirming that all bidding documents have been approved, that the site has been inspected and meets the requirements for suitability, that these Specifications and the Drawing Details are acceptable to them for the deck and surfacing to which they are to be applied, and that the specified warranty shall be provided upon satisfactory completion of the project.
      a. If details for any manufacturer's systems proposed in the Contract Documents are not acceptable to the manufacturer, submit corresponding details proposed for the particular application, together with the manufacturer's reasons for not accepting the conditions depicted in the Specifications or Drawings. No alternate details will be considered without evidence of valid objections on the part of the manufacturer to the Contract requirements.
      b. No deviation is to be made from this Specification without prior written approval by the manufacturer; submit such approval to the Consultant.

B. Shall appoint a Safety Coordinator who shall be a member of the roofing installation crew. The name of the appointee shall be submitted, including all qualifications for the appointment.

C. Maintain a daily job log to be kept on site at all times from the pre-roofing conference until final close- out. The job log shall include:
   1. Copies of all submittals.
   2. Safety coordinator appointment with emergency telephone numbers; fall protection plan and material safety data sheets for all products.
   3. A summary of each day's work including any photographs or detail revisions.
   4. A field sketch showing areas of work for the day.
   5. Accident reports
   6. Material delivery records; and a visitor register.
   7. Complaint log, listing complaints received from any party of any nature, and the actions taken and resolution, with dates and names of individuals involved.

D. Contractor shall provide a supervisor or superintendent to be present on the job site at all times to supervise all Work by all subcontractors utilized on the project. On site Foreman/Superintendent must have a cell phone on site at all times and provide number to Consultant and Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01110

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 DESCRIPTION

A. Work included: This Section applies to situations in which the Contractor or his representatives including, but not necessarily limited to, suppliers, subcontractors, employees, and field engineers, enter upon Owner's property.

1.3 QUALITY ASSURANCE

A. Promptly upon award of the Contract, notify all pertinent personnel regarding requirements of this Section.

B. Owner may require all personnel who will enter upon the Owner's property to certify their awareness of and familiarity with requirements of this Section.

1.4 BUILDING OCCUPANCY

A. The facility may be occupied and in use during construction. Cooperate with Owner during construction process to minimize disruptions of Owner usage.

B. Contractor is fully and solely responsible for the safety and protection of all occupants going into, leaving out of, or occupying the interior of the buildings. All costs associated with providing this service are to be included in the base bids.

C. Maintain existing buildings in a weather tight condition throughout the construction process. Protect buildings and occupants during all construction operations and repair any damage caused by construction operations immediately

1.5 TRANSPORTATION FACILITIES

A. Driveways and Entrances: Keep driveways and entrances clear. Do not park vehicles or store materials unless specifically authorized by the Owner.
   1. Schedule deliveries to minimize the use of driveways and entrances.
   2. Load, unload and store materials and equipment to minimize use of space and time requirements at loading, temporary storage and set up areas.

B. Do not use handicapped parking area(s) at any time for any purpose.

C. Provide adequate protection for curbs and sidewalks over which trucks and equipment pass to reach job site. If any damage occurs, the contractor is responsible for repairs.

D. Use of cranes, dumpsters or other impediments to traffic must be confined to hours and locations allowed by the Owner;
   1. Cranes and delivery vehicles may be placed only where approved by the Owner.
   2. Set up site has underground structures, tanks and utilities. Contractor is responsible, after the award of the bid, to determine locations of underground items and their load bearing capacities. Any equipment to be placed over these structures, tanks and utilities must not exceed their load bearing capacities.

E. Contractor's vehicles:
   1. Require Contractor's vehicles, vehicles belonging to employees of Contractor, and all other vehicles entering upon Owner's property in performance of Work of Contract, to use only the access areas approved in advance by Owner.
   2. Do not permit such vehicles to park on any street or other area of Owner's property except in the area approved by Owner as "Contractor's Parking Area." Contractor employees must obtain parking permits and park in contractor lots when required by the Owner.

1.6 LANDSCAPING

A. Provide adequate protection for trees, grass, shrubs and all other landscaping during set-up or construction. If any damage occurs, the contractor is responsible for repairs as designated by the Owner.

B. Landscaping must be restored to original condition.

C. Underground structures, tanks and utilities must be protected and must not be exposed to loads that exceed their load bearing capacity.

1.7 FACILITY USAGE

A. Use of Site: Limit use of site to work in areas established during pre-bid and pre-construction meetings. Do not utilize or disturb areas of the site not previously identified beyond the work area without prior written approval.

B. Do not store materials inside building areas, including penthouses unless pre-approved by Owner.

C. Safety: Do not block fire exits or doorways. Allow for egress of traffic at all times. Keep driveways and entrances serving the premises open and clear for use by the Owner, Owner’s employees and emergency vehicles at all times

D. Provide adequate protection for all interior and exterior portions of the building during set-up and construction. If any damage occurs, the contractor is responsible for repairs as designated by the Owner.

E. Restrooms and other amenities of the building will only be used with permission of the Owner. If such authorization is given, the Contractor is responsible for maintaining cleanliness and repairs as designated by the Owner.

1.8 OWNER CONDITIONS

A. The following Owner conditions shall apply throughout the course of the work. Violation of these conditions shall be grounds for immediate and permanent removal from the site of the offending personnel, or entire crew.
   1. Audio Equipment: Playing of loud radios, tape players, CD players, televisions, or other audio devices is prohibited everywhere on site.
   2. Appropriate Clothing: Construction personnel shall dress in appropriate clothing at all times, everywhere on site. Shirts and full-length pants shall be worn at all times. No article of clothing or visible body parts may have obscene or profane language or graphics displayed on it in any manner.
   3. Smoking: Smoking is prohibited at all times. There are no designated smoking areas on any of the Owners property.
   4. Language: Loud or abusive language, particularly obscene or profane language is prohibited at all times.
   5. Firearms, alcoholic beverages and illegal drugs are strictly prohibited at all times.

1.9 SECURITY

A. Restrict access of all persons entering upon the Owner's property to the Access Route and to the actual site of the work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01140

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 TAXES:

1.3 The Village has obtained "Tax Exempt" status from the State of Illinois Department of Revenue and therefore is not subject to federal, state and local requirements with regard to all taxes owed and/or required. A letter issued by the State of Illinois Department of Revenue signifying this status is available at the following Internet Link:

https://drive.google.com/open?id=1QGBiS0K4Y5WYSMKltXD3pk-rp9oulRXe

1.4 PERMITS AND FEES:

A. The Contractor shall apply for and secure all incidental permits, governmental fees and licenses necessary for proper execution and completion of the Work.

B. All permits shall be placed in a plastic tube and be kept in the location designated by the Fire Safety officer for the entire duration of the work.

1.5 GOVERNING CODES:

A. Work performed under this specification shall be in compliance with applicable codes, laws, and ordinances of the municipal, state, and federal departments concerned. Materials and workmanship required by such regulations shall be provided by the Contractor whether or not specifically noted herein or shown on the drawings.

1.6 NOTICES:

A. The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the Work. If Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, without providing notice to building owner's representative, Contractor shall assume full responsibility and shall bear all costs.

1.7 REGULATORY REQUIREMENTS

A. Federal, State and local building and fire codes.

B. OSHA and EPA requirements

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01150

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 DESCRIPTION

A. Work included:
   1. Make such changes in the Work, in the Contract Sum, in the Contract Time of Completion, or any combination thereof, as are described in written Change Orders signed by the Owner and the Designated Owner's representative and issued after execution of the Contract, in accordance with the provisions of this Section.

1.3 QUALITY ASSURANCE

A. Include within the Contractor's quality assurance program such measures as are needed to assure familiarity of the Contractor's staff and employees with these procedures for processing Change Order data.

1.4 SUBMITTALS

A. Make submittals directly to the Designated Owner's representative at his normal place of business.

B. Submit the number of copies called for under the various items listed in this Section.

1.5 PRODUCT HANDLING

A. Maintain a "Register of Bulletins and Change Orders" at the job site, accurately reflecting current status of all pertinent data.

B. Make the Register available to the Designated Owner's representative for review at his request.

1.6 PROCESSING CHANGES INITIATED BY THE OWNER

A. Should the Owner contemplate making a change in the Work or a change in the Contract Time of Completion, the Designated Owner's representative will issue a "Bulletin" to the Contractor.
   1. Bulletins will be dated and will be numbered in sequence.
   2. The Bulletin will describe the contemplated change, and will carry one of the following instructions to the Contractor:

a. Make the described change in the Work at no change in the Contract Sum and no change in the Contract Time of Completion;
b. Promptly advise the Designated Owner's representative as to credit or cost proposed for the described change. This is not an authorization to proceed with the change.

B. If the Contractor has been directed by the Designated Owner's representative to promptly advise him as to credit or cost proposed for the described change, the Contractor shall:
1. Analyze the described change and its impact on costs and time;
2. Secure the required information and forward it to the Designated Owner's representative for review.
3. Meet with the Designated Owner's representative as required to explain costs and, when appropriate, determine other acceptable ways to achieve the desired objective;
4. Alert pertinent personnel and subcontractors as to the impending change and, to the maximum extent possible, avoid such work as would increase the Owner's cost for making the change, advising the Designated Owner's representative in writing when such avoidance no longer is practicable.

1.7 PROCESSING CHANGES INITIATED BY THE CONTRACTOR

A. Should the Contractor discover a discrepancy among the Contract Documents or other cause for suggesting a change in the Work, a change in the Contract Sum, or a change in the Contract Time of Completion, he shall notify the Designated Owner's representative as required by pertinent provisions of the Contract Documents.

B. Upon agreement by the Designated Owner's representative that there is reasonable cause to consider the Contractor's proposed change, the Designated Owner's representative will issue a Bulletin in accordance with the provisions described in Article 1.6 above.

1.8 PROCESSING BULLETINS

A. Make written reply to the Designated Owner's representative in response to each Bulletin.
1. State proposed change in the Contract Sum, if any.
2. State proposed change in the Contract Time of Completion, if any.
3. Clearly describe other changes in the Work required by the proposed change or desirable therewith, if any.
4. Include full backup data such as subcontractor's letter of proposal or similar information.
5. Submit this response in single copy.

B. When cost or credit for the change has been agreed upon by the Owner and the Contractor the Designated Owner's representative will issue a "Change Order" to the Contractor.

1.9 PROCESSING CHANGE ORDERS

A. Change Orders will be dated and will be numbered in sequence.

B. The Change Order will describe the change or changes, will refer to the Bulletin or Bulletins involved, and will be signed by the Owner and the Designated Owner's representative.

C. The Designated Owner's representative will issue three copies of each Change Order to the Contractor.
   1. The Contractor promptly shall sign all three copies and return two copies to the Designated Owner's representative.
   2. The Designated Owner's representative will retain one signed copy in his file and will forward one signed copy to the Owner.

D. Should the Contractor disagree with the stipulated change in Contract Sum or change in Contract Time of Completion, or both:
   1. The Contractor promptly shall return two copies of the Change Order, unsigned by him, to the Designated Owner's representative with a letter signed by the Contractor and stating the reason or reasons for the Contractor's disagreement.
   2. The Contractor's disagreement with the Change Order shall not in any way relieve the Contractor of his responsibility to proceed with the change as ordered and to seek settlement of the dispute under pertinent provisions of the Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01153

PART 1 - GENERAL REQUIREMENTS

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 COORDINATION, SEQUENCING, AND SCHEDULING

A. Work Hours:
   1. Work day is limited to the local city ordinance and Owner requirements.
   2. Work week is confined to hours permitted by local codes. Overtime hours can be worked during hours permitted by local codes. No additional compensation for premium time or over time will be allowed.
   3. Deck replacement work on all buildings may be restricted to times when building is not occupied.
   4. Duct work, electrical or mechanical equipment shutdowns will be done in off hours as approved by the Owner.

B. Coordinate work with all installers and subcontractors to ensure proper sequencing of related trades and efficient and orderly installation of each part of the work in a manner that minimizes inconvenience to the Owner.

C. Drainage: Coordinate all removal and replacement so that all roof areas have proper and unrestricted drainage at all times.

D. Coordinate and schedule work within 30 feet of air intakes with the Owner. Work to be performed only when fans and intakes can be shut down.
   1. Contractor responsible to coordinate shutdown of ductwork smoke detectors and maintain an hourly fire watch and keep a written fire watch log approved by the Owner while the detectors are down.
   2. Install tarpaulins over intake vents after shut down occurs.
   3. Remove tarpaulins daily after work is complete and inform Owner that intakes can be re-started.

1.3 ENVIRONMENTAL REQUIREMENTS

A. Do not proceed with the Work under adverse weather conditions, immediately after rainfall (for weather sensitive products), or when climatic conditions are outside manufacturer's recommended limitations for installation. Proceed with the work only when weather forecasts are favorable for proper development of the performance characteristics of the materials.

B. Do not work in rain, snow or in presence of water, dew or frost.

C. Weather delays may not extend the schedule, as defined in the terms of the Construction Documents, unless specifically approved by the Owner, at the Owner's sole discretion

1.4 HVAC AND RELATED WORK

A. The Contractor must include all costs associated with raising rooftop units, gas lines, soil stacks, conduits, etc. or with repositioning, same to ensure that proper flashing heights as designed and required by the manufacturer and by industry standards are achieved. This includes costs involved in evacuating and charging HVAC units, and gas lines. Work may need to be performed during off hours to accommodate the Owner. The Contractor must also use licensed, Owner approved and proper subcontractors for all of this type of work.

B. Conduits, junction boxes, cabling, etc. that are mounted on walls or copings must be moved and remounted on masonry above the counter flashings or on proper blocking or supports on the roof. No such items may be mounted or remounted in a manner in which attachment penetrates flashing or metal roof components.

1.5 PROTECTION AND CLEANING

A. Protect building, property, equipment, roads, approaches, parking areas, loading dock areas, sidewalks, vehicles, underground structures, tanks and utilities and landscaping from damage due to the Work, including but not limited to contamination, soiling, staining or defacing.

B. Protect workers from radiation, including rooftop microwave antennas in accordance with OSHA regulations, ANSI standards and FCC regulations published in 47 CFR 1.1307(b).
   1. Do not move or disturb roof top antennas with unqualified personnel. Use only appropriate tradesmen approved by the Owner to move or relocate antennas or dishes.

C. Clean and protect construction in process and adjoining materials in place during handling and installation. Apply protective coverings where necessary to prevent damage or deterioration.

D. Coordinate and sequence Work so that other trades do not damage completed installations.

E. The Contractor is responsible for the protection of all vegetation, persons, and property on the site and the adjoining rights of way from the Work associated with this Project. Any damaged items will be replaced or repaired to the satisfaction of the Owner.

F. The Contractor is responsible for daily cleanup of all debris and for protection of all persons and property in and around the work areas. Any soiling of or damage to vehicles, pedestrians, personal property or real property caused by Work from this Project will be the responsibility of the Contractor.

G. The Contractor shall not discontinue the job once work has begun. A full crew must be on site performing appropriate Contract Work on any day in which work can be performed.

H. Unapproved Subcontractors cannot be utilized on this Project. All Subcontractors are subject to the Owners approval.

1.6 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

A. Before submitting a bid, each Bidder will, at Bidders own expense make or obtain any additional examinations, investigations, exploration, tests, and studies and obtain any additional information

and data which pertain to the physical conditions at or contiguous to the site or otherwise which may affect cost, progress performance or furnishing of the Work and which the Bidder deems necessary to determine that its Bid for performing and furnishing the Work is in accordance with the time, price and other terms and conditions of the Contract Documents.

B. On request in advance, Owner will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for the submission of a Bid. Bidder shall fill all holes, clean up and restore the site to its former conditions upon completion of such exploration.

C. The submission of a Bid will constitute an incontrovertible representation by the Bidder that the Bidder has complied with every requirement of the Construction Documents and that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and such means, methods, techniques sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 GENERAL

A. Measurements: Independently verify dimensions shown on Drawings or in these specifications.

B. Contractor is responsible for all measurements and dimensions including dimensional variations from place to place on the building, or variations between actual field dimensions and those that may be indicated in these specifications and drawings.

C. Moisture: Contractor is responsible for the consequences of moisture in or on substrates that may interfere with the Work. Perform testing as necessary to determine if moisture that will interfere with the Work is present. Remove moisture or remove and replace moisture-containing materials before completing installation of the Work.

END OF SECTION 01300

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. General Project Coordination.
   2. Conservation.
   3. Cleaning and Protection.

1.2 GENERAL PROJECT COORDINATION

A. Coordination: The Contractor shall coordinate the construction operations of all the installers and Subcontractors to ensure the efficient and orderly installation of each part of the Work.
   1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
   2. Coordinate installation of different components with Subcontractors to ensure maximum accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.

B. Administrative Procedures: The Contractor shall coordinate scheduling and timing of required administrative procedures with all other construction activities and activities of other Subcontractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Installation and removal of temporary facilities, roadways and controls.
   2. Delivery and processing of submittals.
   3. Progress meetings.
   4. Pre-construction meetings.
   5. Project closeout activities.

C. Inspection of Conditions: Contractor shall inspect both the substrate and conditions under which Work is to be performed. Installers shall not proceed until unsatisfactory conditions have been corrected in a manner acceptable to the Installer as well as the manufacturer of the product, material, or equipment. Proceeding with an installation shall be considered prima facie evidence that the substrates and conditions under which the Work is to be performed are completely satisfactory and acceptable to the installer, and that they will not adversely affect the installation in any way.

D. Contractor shall coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

E. Leaks: It is understood that this project will be weather tight and free from leaks of any type. All leaks that occur during construction, or the Warranty period shall be immediately and properly repaired within twenty four (24) hours of its reported occurrence at no cost to the Owner unless as a result of specific warranty exclusions or if leak was a documented pre-existing condition in an area not yet worked on by the Contractor.

F. Manufacturer's Instructions: Where installations include manufactured products or equipment, comply with manufacturer's applicable instructions and recommendations for installation, only to the extent that these instructions or recommendations are more explicit or more stringent than other requirements shown in the Contract Documents.

G. Contractor shall install each unit of Work during weather conditions and Project status, which will assure the best possible results in coordination with the entire Work. Isolate each unit of Work from incompatible Work as necessary to prevent deterioration.

H. Understanding that the introduction of moisture into the building spaces during construction can foster the growth of mold, mildew and fungi, Contractor shall be responsible for taking whatever steps necessary to prevent moisture infiltration into the building spaces during construction.

1.3 CONSERVATION

A. Conservation: Contractor shall coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

B. Salvage materials and equipment involved in performance of, but not actually incorporated into, the work.

1.4 CLEANING AND PROTECTING

A. Contractor shall clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at Substantial Completion.

B. Contractor shall clean and provide maintenance on completed construction as frequently as necessary though the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.

C. Limiting Exposures: Contractor shall supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures may include, but are not limited to, the following;

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Thermal shock.
5. Excessively high or low humidity.
6. Air contamination or pollution.
7. Water or ice.
8. Solvents.
9. Chemicals.
10. Sunlight (UV)
11. Radiation.
12. Puncture.
13. Abrasion.
14. Heavy traffic.

15. Soiling, staining, and corrosion.
16. Bacteria.
17. Rodent and insect infestation.
18. Combustion.
19. Electrical current.
20. High-speed operation.
21. Improper lubrication.
22. Unusual wear or other misuse.
23. Contact between incompatible materials.
24. Destructive testing.
25. Misalignment.
26. Excessive weathering.
27. Unprotected storage.
28. Improper shipping or handling.
29. Theft.
30. Vandalism.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01310

PART 1 - GENERAL REQUIREMENTS

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

B. Related section: Section 01770 – Contract Close-Out.

1.2 SUMMARY

A. This section specifies requirements for meetings and administrative procedures that include but are not limited to the following:
   1. Preconstruction conference.
   2. Progress meetings.
   3. Substantial Completion inspection.
   4. Final Completion inspection and Project Close-out

1.3 SUBMITTALS

A. See Related Sections: Section 01100 – Summary, and Section 01330 – Submittals.

1.4 PRECONSTRUCTION CONFERENCE

A. The Preconstruction Conference will be scheduled within 5 working days after the Owner has issued the Notice to Proceed, but prior to actual start of the Work. All submittals must be received prior to time of the Conference.

B. Attendance: Consultant, roofing manufacturer/supplier, and Contractor's Representative.
   1. Minimum agenda: Data will be distributed and discussed on:
      a. Organizational arrangement of Contractor's forces and personnel, and those of Subcontractors, and materials suppliers.

C. Channels and procedures for communication.

D. Review set-up area and storage areas.

E. Review all required permits.

F. Construction schedule, including sequence of critical work.

G. Designation of responsible personnel.

H. Contract Documents, including distribution of required copies of Drawings and revisions.

I. Processing of Shop Drawings and other data submitted to the Consultant for review.

J. Processing of field decisions and Change Orders.

K. Rules and regulations governing performance of the work including working hours, use of premises, Owner rules and requirements.

L. Parking availability.

M. Procedures for safety and first aid, security, quality control, housekeeping, and related matters.

1.5 PROGRESS MEETINGS

A. Will be scheduled by Consultant weekly or as described at the pre-construction meeting.

B. Minimum Attendance: Owner, Contractor's Representative, Job Superintendent, Consultant, and Subcontractors, as appropriate.
   1. Minimum Agenda:
      a. Review and correct minutes of the previous progress meeting.
      b. Review of Work progress.

C. Field observations, problems, and decisions.

D. Identification of problems, which impede planned progress.

E. Maintenance of progress schedule.

F. Corrective measures to regain projected schedules if construction is behind schedule.

G. Planned progress during succeeding work period.

H. Coordination of projected progress.

I. Maintenance of quality and work standards.

J. Effect of proposed changes on progress, schedule, and coordination.

K. Interface requirements.

L. Status of any incomplete submittals.

M. Deliveries.

N. Change orders.

O. Documentation of information for payment requests.

P. Other business relating to work.

Q. Reporting:

1. Distribute minutes of meetings no later than three working days after each meeting to each party present and to parties who should have been present.

1.6 SUBSTANTIAL COMPLETION INSPECTION

A. Related section: Section 01770 – Contract Close-Out.

1.7 FINAL INSPECTION

A. Related section: Section 01770 – Contract Close-Out

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01311

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 SUMMARY

A. The submittals specified in this section must be submitted at the times specified in this Section and as referenced in related sections of the Construction Documents.

B. The requirements are in addition to any Submittals required in the Owner's Bidding Requirements.

1.3 SUBMITTAL PROCEDURES

A. Coordination of submittals:
   1. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted.
   2. Verify that each item and the submittal for it conform in all respects with the specified requirements.
   3. By affixing the Contractor's signature or approval stamp to each submittal, he/she certifies that this coordination has been performed.

1.4 SUBMITTAL DOCUMENTS

A. All Bidders must submit the following documentation with their bids:
   1. Construction Schedule.
   2. Name of proposed roof membrane Manufacturer.
   3. Submit List of Subcontractors and Suppliers

B. All Bidders must submit the following documentation for this Project prior to the award of the bid;
   1. Membrane manufacturer's data as specified in Section 07500 if different from the manufacturer specified as the basis for the specification.
   2. Copy of the roofing manufacturer's warranty, which meets all requirements of the specified warranty.
   3. Individual product identification, including manufacturer's literature and SDS sheets for all products to be used.
   4. Confirmation of Contractor requirements enumerated in Section 01100.
   5. Letter from material manufacturer confirming that all bidding documents have been approved, that the site has been inspected and meets the requirements for suitability, that these Specifications and the Drawing Details are acceptable to them for the deck and surfacing to which

they are to be applied, and that the specified warranty shall be provided upon satisfactory completion of the project

a. If details for any manufacturer's systems proposed in the Contract Documents are not acceptable to the manufacturer, submit corresponding details proposed for the particular application, together with the manufacturer's reasons for not accepting the conditions depicted in the Specifications or Drawings. No alternate details will be considered without evidence of valid objections on the part of the manufacturer to the Contract requirements.
b. No deviation is to be made from this Specification without prior written approval by the manufacturer; submit such approval to the Consultant

C. Contractor must submit the following documentation for this Project no later than 5 days before start of Work:
1. Shop Drawings:
a. Metal Fascia and Copings: Show profiles, joining method, location of accessory items, anchorage and flashing details, adjacent construction interface, and dimensions.
b. Shop drawings of each item specified that differ from the basis of design specified in the Construction Documents showing layout, profiles, methods of attachment, and joining methods.
c. Shop drawings for new penthouse, doors, stairway, roof, flashings and closures.
d. Color samples of metal finishes and sealants for approval by the Owner
e. Shop drawing showing adhesive patterns for FMG 1-90 attachment. Show perimeter, corner and field densities of insulation fasteners and placement, type and spacing of perimeter nailer attachments, and adhesive patterns at perimeters, corners and field of the roof for insulation and base sheets.
f. Tapered insulation layouts
2. Schedule of values.
3. Final Construction Schedule.
4. Completed Safety Triangle for all products that will be in use or stored at the job.
5. Asbestos monitoring, removal and abatement plans and procedures to be utilized if necessary;
a. Copies of OSHA asbestos training certificates for all workers at the project
b. Contractor must submit the following asbestos related documentation as required
c. Results of air monitoring tests to be submitted daily, immediately after start of work if asbestos related procedures are required
d. Credentials and declarations of the competent person. A written summary of safety procedures required based on the results of air monitoring shall be submitted before air monitoring activity is suspended

D. The following submittals are required before final payment:
1. Closeout submittals as required in Section 01770 – Contract Close-Out.
2. Warrantees as required in Section 01783 – Warrantees.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01330

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 GENERAL

A. The abbreviations and acronyms defined in this section are provided as a convenience and may not be inclusive of all abbreviations and acronyms used in the specifications.

1.3 SUBMITTALS

A. A Shop drawing showing fastening and /or adhesive patterns for FMG 1-90 attachment and evidence of UL Class A rating for roof covering materials.

1.4 DEFINITIONS AND ABBREVIATIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract

B. “Approved”: When used to convey Consultant's action on Contractors submittals, applications, and requests, “approved” is limited to Consultant's duties and responsibilities as stated in the Conditions of Contract.

C. BMV: Brick masonry unit.

D. Clean: Shall be construed to mean the level of cleanliness generally provided by skilled cleaners using commercial quality maintenance equipment and materials.

E. CMU: Concrete masonry unit.

F. “Directed”: A command or instruction by Consultant. Other terms including “requested”, “authorized”, “selected”, “approved”, “required”, and “permitted” have the same meaning as “directed”.

G. DL: Dead load.

H. “Experienced”: When used with an entity, “experienced” means having successfully completed a minimum of five previous projects similar in size and scope to this Project.

I. FCC: Federal Communications Commission.

J. “Furnish”: Supply, deliver, or provide to the Project site, for assembly, installation, and similar operations.

K. “Indicated”: Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated”.

L. “Install”: Operations and procedures to set materials, components and details referred to in the Contract Documents and Drawings into place for final use.

M. “Installer”: Contractor or another entity engaged by the Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

N. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

O. LL: Live Load

P. PLF: Pounds per linear foot.

Q. “Provide”: Furnish and install, complete and ready for intended use.

R. “Project Site”: Space available for performing construction activities. The extent of Project Site is shown on the drawings and may or may not be identical with the description of the land on which Project is to be built.

S. PSF: Pounds per square foot.

T. PSI: Pounds per square inch.

U. “Regulations”: Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

V. RFI: Requests for information.

W. Roofing Terminology: Refer to the following publications for terms related to roofing work not otherwise defined in this section.
1. ASTM D 1079: Definitions of Terms Relating to Roofing, Waterproofing, and Bituminous Materials.
2. NRCA Roofing and Waterproofing Manual.
3. Roof Consultants Institute Glossary of Terms. W SF: Square foot.

1.5 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made part of the Contract Documents by reference.

B. Publication dates: Comply with standards in effect as of the date of the Contract Documents, unless otherwise indicated.

C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the more stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Consultant for a decision before proceeding.
   1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are the minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to the Consultant for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
   1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from the publication source and make them available on request.

E. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in the Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and web site addresses are subject to change and are believed to be accurate and up to date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities Available from Access Board www.access-board.gov	800-872-2253 202-272-5434
CFR	Code of Federal Regulations Available from Government Printing office www.access.gpo.gov/nara/cfr	888-293-6498 202-512-1530
FS	Federal Specification Available from Defense Automated Printing Services //astimage.daps.dla.mil/online Available from General Services Administration www.fss.gsa.gov/pub/fed-specs.cfm Available from National Institute of Building Sciences www.nibs.org	 215-697-6257 202-619-8925 202-289-7800

1.6 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in the Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in the Gale Research's "Encyclopedia of Associations" or in the Columbia Books' "National Trade and Professional Associations of the US".

B. Industry Organizations: Where abbreviations and acronyms are used in the Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in the following list. Names, telephone numbers, and web site addresses are subject to change and are believed to be accurate and up to date as of the date of the Contract Documents.

AAMA	American Architectural Manufactures Association	
ACI	American Concrete Institute/ACI International www.aci-int.org	248-848-3700
AIA	American Institute of Architects (The) www.e-architect.com	202-626-7300
AISC	American Institute of Steel Construction www.aisc.com	800-644-2400 312-670-2400
ALSC	American Lumber Standard Committee	301-972-1700
ANSI	American National Standards Institute www.ansi.org	202-293-8020
APA	APA- The Engineered Wood Association www.apawood.org	253-565-6600
ASHRAE	American Society of Heating, Refrigerating and Air-conditioning Engineers www.ashrae.org	800-527-4723
ASTM	American Society for Testing and Materials www.astm.org	610-832-9585
AWPA	American Wood Preservers Association www.awpa.com	817-326-6300
AWS	American Welders Society www.aws.org	800-443-9353 305-443-9353
BIA	Brick Industry Association (The) www.bia.org	703-620-0010
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	423-892-0137
CRSI	Concrete Reinforcing Steel Institute	
FM	Factory Mutual System (See FMG)	
FMG	Factory Mutual Global www.fmglobal.com	401-275-3000
ICRA	International Concrete Repair Institute (The) www.icri.org	703-450-0016

LPI	Lightning Protection Institute www.lightning.org	800-488-6864 847-577-7200
MFMA	Metal Framing Manufacturers Association	312-644-6610
MHIA	Material Handling Industry of America www.mhia.org	800-345-1815 704-676-1190
NAAMM	National Association of Architectural Metal Manufactures www.naamm.org	312-332-0405
NACE	National Association of Corrosion Engineers www.nace.org	281-228-6200
NAIMA	North American Insulation Manufacturers Association (The) www.naima.org	703-684-0084
NCMA	National Concrete Masonry Association www.ncma.org	703-713-1900
NECA	National Electrical Contractors Association www.necanet.org	301-657-3110
NEMA	National Electrical Manufacturers Association www.nema.org	703-841-3200
NFPA	National Fire Protection Association www.nfpa.org	800-344-3555 617-770-3000
NLGA	National Lumber Grades Authority www.nlga.org	604-524-2393
NRCA	National Roofing Contractors Association www.nrca.net	800-323-9545 847-299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	888-846-7622 301-587-1400
PCA	Portland Cement Association	
PCI	Precast Concrete Instititute	
PDI	Plumbing and Drainage Institute www.pdionline.org	800-589-8956 508-230-3516
SDI	Steel Deck Institute www.sdi.org	847-462-1030
SJI	Steel Joist Institute www.steeljoist.org	843-626-1995
SMACNA	Sheet Metal and Air Conditioning Contractors National Association www.smacna.org	703-803-2980

SPIB	Southern Pine Inspection Bureau www.spib.org	850-434-2611
SPRI	SPRI (Single Ply Institute) www.spri.org	781-444-0242
SSPC	Society for Protective Coatings www.sspc.org	800-837-8303 412-281-2331
SWRI	Sealant, Waterproofing, and Restoration Institute www.swronline.org	816-472-7974
UL	Underwriters Laboratories www.ul.com	800-704-4050 847-272-8800

C. Code Agencies: Where abbreviations and acronyms are used in the Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in the following list. Names, telephone numbers , and web site addresses are subject to change and are believed to be accurate and up to date as of the date of the Contract Documents.

BOCA	BOCA International, Inc. www.boca.org	708-799-2300
IAPMO	International Association of Plumbing and Mechanical Officials (The) www.iapmo.org	909-595-8449
ICBO	International Conference of Building Officials www.icbo.org	800-284-4406

D. Federal Government Agencies

CPSC	Consumer Protection Agency www.cpsc.gov	800-638-2772 310-504-0990
EPA	Environmental Protection Agency www.epa.gov	202-260-2090
FCC	Federal Communications Commission	
GSA	General Services Administration www.gsa.gov	202-708-5082
NIST	National Institute of Science and Technology www.nist.gov	301-975-6478
OSHA	Occupational Safety and Health Administration	202-693-1999

1.7 REFERENCE STANDARDS

A. General: Standards listed by reference, including revisions by issuing authorities, form a part of this specification section to the extent indicated. Standards listed are identified by issuing

authority, authority abbreviations, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referenced to by authority abbreviation and standard designation

B. American Society of Civil Engineers - Reference Document ASCE 7-95, Minimum Design Loads for Buildings and Other Structures.

C. ACI 530 ACI 530-02/ASCE 5-02/TMS 402-02 “Specification for Masonry Structures”, published by the American Concrete Institute, American Society of Civil Engineers, and the Masonry Society.

D. ACI 530.1 ACI 530.1-02/ASCE 6-02/TMS 602-02 “Specification for Masonry Structures”, published by the American Concrete Institute, American Society of Civil Engineers, and the Masonry Society
   1. American Society of Testing and Materials (ASTM).
   2. ASTM A 366 - Standard specification for Commercial Steel (CS), Carbon (0.15 Maximum percent) Cold-rolled.
   3. ASTM A 653 – Standard Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galannealed) by the hot dip process.
   4. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the hot dip process.
   5. ASTM C 90 – Hollow Load Bearing Concrete Masonry Units
   6. ASTM C 144 – Standard Specification for Aggregate for Masonry Mortar
   7. ASTM C150 – Standard Specification for Portland Cement
   8. ASTM C 165 - Compressive strength
   9. ASTM C 203 - Flexural strength
   10. ASTM C 207 – Standard Specification for Hydrated Lime for Masonry Purposes
   11. ASTM C 216 – Standard Specification for Facing Brick
   12. ASTM C 270 – Standard Specification for Mortar for Masonry Unit
   13. ASTM C 355 - Water vapor permeance
   14. ASTM C 404 – Aggregates for Masonry Grout
   15. ASTN C 476 – Grout for Reinforced and Non-reinforced Masonry
   16. ASTM C 518 - Thermal resistance
   17. ASTM C 1177 - Water Absorption
   18. ASTM D 41 - Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
   19. ASTM D 312 - Specification for Asphalt Used in Roofing
   20. ASTM D 610 – Standard Test Method for Evaluating Degree of Rusting on Painted Steel Surfaces.
   21. ASTM D 714 - Standard Test Method for Evaluating Degree of Blistering of Paints.
   22. ASTM D 1621 - Standard Test Method for Compressive strength of Rigid Cellular Plastics.
   23. ASTM D 1622 – Standard Test Method for Apparent Density of Rigid Cellular Plastics.
   24. ASTM D 1623 – Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics
   25. ASTM D 1654 – Standard Test Method for Evaluation of Painted or Corrosive Specimens Subjected to Corrosive Environments.
   26. ASTM D 1970 - Specification for Sheet Materials, Self-Adhering Polymer Modified Bituminous, Used as Steep Roofing Underlayment for Ice Dam Protection
   27. ASTM D 2126 – Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.

28. ASTM D 2626 - Specification for Asphalt Saturated and Coated Organic Base Sheet Used in Roofing
29. ASTM D 2863 – Standard Test Method for Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index).
30. ASTM D 4586 - Specification for Asphalt Roof Cement, Asbestos Free
31. ASTM D 5147 - Test Method for Sampling and Testing Modified Bituminous Sheet Material
32. ASTM E 84 - Flame spread
33. ASTM E 96 - Water vapor transmission
34. ASTM E 108 – Spread of flame FMG
35. FMG - Loss Prevention Data Sheets 1-7; 1-28; 1-28R; 1-29; 1-29R; 1-49.
36. FMG - (FMRC) Approval Guide - Roof Coverings.
37. FMG Standard 4470 - Approval Standard for Class I Roof Covers.

1.8 CODE AND TEST REQUIREMENTS

A. The roof system which is bid shall have been tested in compliance with the following codes and test requirements.
   1. Underwriters Laboratories Class or Warnock Hersey [‘A’] external fire classification.
   2. FMG Listing: Provide Roofing Membrane, Base Flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system and that are listed in FMG’s “Approval Guide” for Class I construction.
      a. Fire/Windstorm Classification: Class 1A-90
      b. Hail Resstance: SH

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01420

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 COMMUNICATIONS

A. Requests for information: Contractor shall issue requests for information (RFI's) to Consultant in a timely manner, in writing, preferably by e-mail.
   1. Number each RFI.
   2. Indicate the latest date by which a response is needed so as not to delay the Work. Allow at least two business days after receipt for a response (complex issues may require longer to research).
   3. Maintain a log of RFI's showing status of each.
   4. If practicable, include a proposed solution to each issue raised in an RFI.

1.3 CONTRACTOR AND MANUFACTURER

A. Contractor shall:
   1. Be experienced in roofing work as required in Section 01100.
   2. Be acceptable by Owner and roofing material manufacturer.
   3. Maintain an effective quality assurance program, independent of the activities by the Owner, Consultant, Observers, or manufacturers. Contractor may not rely on Consultants monitoring or on observation services provided by others as a substitute for performing Contractor's own quality assurance program.
   4. Accept sole responsibility for the quality of the work.
   5. Notify Consultant orally, followed in writing, of conditions that the Contractor believes will yield unsatisfactory performance, or of items of non-conformity between these Contract Documents and manufacturers specifications or instructions, or of discovered errors and omissions. Failure of Contractor to submit written notification shall be construed as a representation by Contractor that the Contract Documents are acceptable to Contractor, that they are sufficient in scope and detail to indicate and convey understanding of the terms and conditions for performance and furnishing of the Work, and that Contractor reasonably believes the work will perform as intended.
   6. Correct Work reported to be defective with no increase in cost to the Owner. Once defective Work is reported to the Contractor, that Work shall be considered to require correction until it is actually corrected, regardless of whether it is mentioned again. When a portion of the Work is reported as defective, the Contractor shall promptly investigate the extent to which similar Work has the same conditions. All similar Work shall be considered defective until the full extent of the defective conditions are documented to the Consultant's satisfaction.

B. Roofing manufacturer shall:

1. Be an Associate Member in good standing with National Roofing Contractor's Association (NRCA).
2. Notify Consultant of planned site visits in a timely manner so Consultant can coordinate his site visits to correspond.
3. Material manufacturer must supply a representative to perform periodic observations throughout the course of the Project. Written reports must be submitted to the Consultant and copies to the Contractor. Each site visit must be accompanied by a written report.
4. Provide written reports to Consultant summarizing any communication with Contractor regarding any aspect of the Work.
5. Provide a factory-trained technician to attend site meetings and to perform final observations of the roofing system.

C. Provide specified Warranty upon completion of satisfactory installation of the roofing system.

1.4 TESTING

A. Each roof system and the ceilings under must be tested for asbestos by a testing lab approved by the Owner, if asbestos is detected, it must be abated as required by current OSHA and EPA standards.

B. Infrared scan must be made prior to the request for final payment. Infrared scanner must be approved by the manufacturer issuing the Warranty and the Consultant. Scan may not be made by Contractor who installed the work.

C. Any deficiencies noted during observations, including results of the infrared scan must be corrected by the Contractor and approved in writing by the Consultant prior to scheduling inspection for Final Completion.

1.5 SUBMITTALS

A. A Submit certification by the manufacturer of the system materials used that these Specifications and the Drawing Details are acceptable to them for the deck and surfacing to which they are to be applied.
1. If details for any manufacturer’s systems proposed in the Contract Documents are not acceptable to the manufacturer, submit corresponding details proposed for the particular application, together with the manufacturer’s reasons for not accepting the conditions depicted in the Specifications or Drawings. No alternate details will be considered without evidence of valid objections on the part of the manufacturer to the Contract requirements.
2. No deviation is to be made from this Specification without prior written approval by the manufacturer; submit such approval to the Consultant.

PART 2 - PRODUCTS

2.1 GENERAL

A. Comply with Quality Control, References, Contract Documents, and Manufacturer's data. Where conflict may exist, the more stringent requirements govern.

B. Provide Primary Roofing Products for any system other than the specified standard, including each type of roofing sheet (felt), bitumen, adhesives, primers, base flashings, and miscellaneous flashing materials from a single manufacturer, which has produced that type of product successfully for not less than twenty (20) years. Provide secondary products (insulation, mechanical fasteners, lumber, etc.) only as recommended and/or required by manufacturer of the roof membrane as required for the specified warranty and FMG Approval.

PART 3 - EXECUTION

3.1 JOB LOG

A. Contractor to maintain a daily job log to be kept on site at all times from the pre-roofing conference through project closeout. The job log shall include:
   1. Copies of all submittals.
   2. Safety coordinator appointment with emergency telephone numbers; fall protection plan and material safety data sheets for all products.
   3. A summary of each days work including any photographs or detail revisions.
   4. A field sketch showing areas of work for the day.
   5. Accident reports.
   6. Complaint log, listing complaints received from any party of any nature, and the actions taken and resolution, with dates and names of individuals involved

END OF SECTION 01430

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 SUMMARY

A. Work included: Provide for construction facilities and temporary controls, including temporary utilities, support facilities, and security and protection. All temporary facilities shall be provided by the Contractor.

B. Temporary utilities include, but are not limited to, the following:
   1. Water: provided by Owner where available.
   2. Electric power: 120 V power only will provided by Owner where available in sufficient amperage, to be distributed by the Contractor. If amperage is insufficient as distributed by the Contractor, the Contractor must re-distribute power or provide his own supplementary power to prevent disrupting power services due to tripped breakers.
   3. Sanitary facilities: provided by the Contractor.

C. Support Facilities include, but are not limited to, the following:
   1. Waste disposal services to be provided by the Contractor.
   2. Field office, document storage, and miscellaneous services and facilities to be provided by the Contractor, if needed.

D. Security and Protection facilities include, but are not limited to, the following:
   1. Temporary fire protection to be provided by the Contractor.
   2. Barricades, warning lights and warning signs to be provided by the Contractor.
   3. Environmental protection to be provided by the Contractor.
   4. Temporary fences and gates to be provided by the Contractor.
   5. Temporary pavements, walkways and ground protection to be provided by the Contractor.
   6. Temporary scaffolding providing outside stairway access to roof to be provided by the Contractor.

1.3 SUBMITTALS

A. Within five days prior to commencement of Work, submit schedule for delivery and set up of each temporary facility.

B. If temporary utilities are used submit the following:
   1. Reports of tests, inspections meter readings and similar procedures performed on temporary utilities.
   2. Implementation and Termination Schedule: submit a schedule indicating implementation and termination of each temporary utility.

1.4 QUALITY ASSURANCE

A. Regulations: If temporary utilities are utilized, comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
   1. Building code requirements.
   2. Health and safety regulations.
   3. Utility company regulations.
   4. Police, fire department, and rescue squad rules.
   5. Environmental protection regulations

B. Standards: Comply with NFPA 241 "standard for Safeguarding Construction, Alteration, and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities".
   1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electrical service. Install service in compliance with NFPA "National Electric Code".

C. Inspections: If temporary utilities are used, arrange for Authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.
   1. Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not allow hazardous, dangerous or unsanitary conditions or public nuisances to develop or persist on site.

1.5 PROJECT CONDITIONS

A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility.

B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as necessary as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire- prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. General: Provide new equipment. If acceptable to the Consultant, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended
   1. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-Volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.

B. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of

electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

C. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
   1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Use qualified personnel for installation of temporary facilities and utilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work and the Owners use of the site.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Engage the appropriate local utility company and a licensed electrician to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company requirements.
   1. Arrange with utility company and the Owner for a time when service can be interrupted, if necessary, to make connections for temporary services.

B. Toilets: Provide temporary toilet facilities for use during construction. Use of Owner facilities is not permitted.

C. Waste Collection and Disposal: Collect waste from construction and staging areas and elsewhere daily.

D. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Consultant.

B. Temporary Fire Protection: Unless fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations."

1. Remove propane tanks from roof daily and place in secure cages. Cages to be located within secure barricades and fencing as approved by Owner.
2. Locate fire extinguishers at not less than one extinguisher on each roof at each point of access and near all convenient and effective points where torches are in use.
3. Store combustible materials in fire safe locations.
4. Do not obstruct access to fire hydrants, fire lanes or emergency vehicle access routes, temporary fire- protection facilities, stairways, fire exits, doorways or other emergency exit routes. Do not impede operation of smoke hatches or fire suppression systems. No smoking is allowed on site.
5. Provide supervision of welding operations, heat-producing electrical devices, combustion-type temporary heating units, and similar sources of fire ignition.
6. Provide fire watch whenever torches, welding devices or open flame are in use. Maintain fire watch for one hour after torches are extinguished. Fire watch to include interior and exterior inspection and use of hand held heat detection device to detect any hot spots. Perform pre and post burn inspections and provide written fire watch reports to Owner daily.

C. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.

D. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site.

E. Temporary Pavements: Provide temporary construction pavements, at unpaved staging areas, consisting of graded and compacted crushed stone materials of size and thickness capable of supporting loads of all construction vehicles, traffic without deforming and rutting. Maintain surface as required.

1. Wider construction vehicles must cross over a public sidewalk and/or curb, provide a temporary concrete ramp (sloped on three sides) from street pavement to top of curb across the width of the construction vehicle access, and replace a portion of the concrete sidewalk with 7" thick reinforced concrete (6.5 sack mix; 5,000 psi; 7% air content; finish to match existing sidewalk) across the width of the vehicle access.

F. Temporary Signs: Provide temporary weatherproof signs to indicate construction vehicle access and the building it serves.

3.4 OPERATION, TERMINATION AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

B. Maintain facilities in a neat and orderly fashion and keep in good operating condition during the progress of the Work.

C. Termination and Removal: Unless the Consultant requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired

1. Materials and facilities that constitute temporary facilities are the Contractor's property. The Owner reserves the right to take possession of project identification signs.

END OF SECTION 01500

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. A Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 DELIVERY, STORAGE AND HANDLING

A. Delivery of Materials
   1. Deliver materials to job-site in new, dry, unopened and well-marked containers showing product and manufacturer's name.
   2. Deliver materials in sufficient quantity to allow continuity of work.

B. Storage of Materials
   1. Store adhesives and ply sheets in dry area protected from water or extreme humidity.
   2. Store ply sheets on ends where possible; on sloped roofs, store flat parallel to joists. Discard rolls, which have been flattened, creased, or otherwise damaged.
   3. Stack insulation on pallets.
   4. Remove plastic packing shrouds. Cover all stored materials with tarpaulin top to bottom. Secure tarpaulin.
   5. Rooftop storage: Disperse material on roof to avoid structure overloading.

C. Material Handling
   1. Handle all materials on site to avoid bending, tearing, or other damage during transportation and installation.
   2. Material handling equipment shall be selected and operated so as not to damage existing construction or applied roofing. Do not operate or situate material handling equipment in locations that will hinder smooth flow of vehicular or pedestrian traffic.

D. Environmental Requirements

   1 Do not work in rain, snow or in presence of water.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01600

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 SUMMARY

A. Procedures for cutting and patching building surfaces necessary for installation or completion of the Work.

B. Related Sections include the following:
   1. All Divisions 1 through 16.

1.3 DEFINITIONS

A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work

1.4 SUBMITTALS:

A. A Submit a proposal for prior approval, with shop drawings if necessary, describing the procedures for any cutting and patching that is to be performed according to requirements in Section 01330 - Submittals. Provide the following information as a minimum;
   1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they are necessary.
   2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
   3. Products: List products to be used and firms or entities that will perform the Work.
   4. Dates: Indicate when cutting and patching will be performed.
   5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
   6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
   7. Consultant’s and Owner’s Approval: Obtain approval of cutting and patching proposal before performing cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.5 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
   1. Structural concrete.
   2. Structural steel.
   3. Lintels.
   4. Structural decking.
   5. Miscellaneous structural metals.
   6. Exterior curtain-wall construction.
   7. Equipment supports.
   8. Piping, ductwork, vessels, and equipment.
   9. Structural systems of special construction.

B. Operational Elements: Do not cut and patch the following operating elements and related components in a manner that results in reducing their capacity to perform as intended or those results in increased maintenance or decreased operational life or safety.
   1. Primary operational systems and equipment.
   2. Air or smoke barriers.
   3. Fire-protection systems.
   4. Control systems.
   5. Communication systems.
   6. Conveying systems.
   7. Electrical wiring systems.
   8. Operating systems of special construction.

C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or results in increased maintenance or decreased operational life or safety.
   1. Water, moisture, or vapor barriers.
   2. Membranes and flashings.
   3. Exterior curtain-wall construction.
   4. Equipment supports.
   5. Piping, ductwork, vessels, and equipment.
   6. Noise- and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence that cutting and patching were performed. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Consultant's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
   1. If possible, retain original Installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced, and specialized firm.
      a. Processed concrete finishes.
      b. Stonework and stone masonry.
      c. Ornamental metal.
      d. Matched-veneer woodwork.
      e. Preformed metal panels.
      f. Roofing.
      g. Firestopping.

h. Window wall system.
i. Stucco and ornamental plaster.
j. Terrazzo.
k. Aggregate wall coating.
l. Wall covering.
m. HVAC enclosures, cabinets, or covers.

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.6 WARRANTEES

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 Materials

A. General: Comply with requirements specified in other Sections of these Specifications.

B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. A Examine surfaces to be cut and patched; apply sample materials if necessary to confirm color and texture matching before proceeding.
1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid interruption of services to occupied areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete immediately.
   1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
   3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
   4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
   5. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications
   1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
   2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
   3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a watertight condition.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

END OF SECTION 01731

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 DESCRIPTION

A. Work included:
   1. Provide an orderly and efficient transfer of the completed Work to the Owner.

1.3 QUALITY ASSURANCE

A. Prior to requesting inspection by the Owners Representative, use adequate means to assure that the Work is completed in accordance with the specified requirements and is ready for the requested inspection.

1.4 PROCEDURES

A. Substantial Completion:
   1. All roofing materials and components are in place and water tight according to specifications with alternates approved by Designated Owner's representative and Building Owner.
   2. Roofing Contractor will notify designated Owner's representative of substantial completion. Within a reasonable time after receipt of notification, the designated Owner's representative will inspect to determine status of completion.
   3. Should the designated Owner's representative determine that the Work is not substantially completed:
      a. The Designated Owner's representative will promptly notify the Contractor, giving the reasons therefore.
      b. Roofing Contractor will remedy the deficiencies and notify the Designated Owner's representative when ready for re-inspection.
      c. The Designated Owner's representative will re-inspect the Work.

B. Final Completion:
   1. Designated Owner's representative will prepare and submit a written statement at completion.
   2. Certify that:
      a. Contract Documents have been reviewed;
      b. Work has been inspected for compliance with the Contract Documents;
      c. Work has been completed in accordance with the Contract Documents;
      d. Equipment and systems have been tested as required, and are operational;
      e. Work is completed and ready for final inspection.

3. The Designated Owner's representative will make an inspection to verify status of completion.
4. Should the Designated Owner's representative determine that the Work is incomplete or defective:
   a. The Designated Owner's representative will promptly notify the Contractor, in writing, listing the incomplete or defective work.
   b. Remedy the deficiencies promptly, and notify the Designated Owner's representative when ready for re-inspection.
5. When the Designated Owner's representative determines that the Work is acceptable under the Contract Documents, he will request the Contractor to make close-out submittals.

C. Close-out submittals include, but are not necessarily limited to:
1. Project Record Documents described in Section 01720, if part of specification;
2. Operation and maintenance data for items so listed in pertinent other Sections of these Specifications, and for other items when so directed by the Owners Representative;
3. Warranties
4. Evidence of payment and release of liens;
5. List of subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.

D. Final adjustment of accounts:
1. Submit a final statement of accounting to the Owners Representative, showing all adjustments to the Contract Sum.
2. If so required, the Designated Owner's representative will prepare a final Change Order showing adjustments to the Contract Sum which were not made previously by Change Orders.

1.5 INSTRUCTION

A. Instruct the Owner's personnel in proper operation and maintenance of systems, equipment, and similar items which were provided as part of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.2 GENERAL

A. This portion of the specification sets forth the warranty requirements for the following roof area(s): All

1.3 WARRANTY

A. Quotations for the base bid will include a 20-year, ″No Dollar Limit″ (NDL) ″Full-System″ warranty as specified in section 07500.
   1. The material supplier will issue the warranty to the owner upon material supplier acceptance of the project completion.

B. Quotations for the base bid will include a 2-year, Labor, Material, and Workmanshipwarranty as specified in section 07500.
   1. The Roofing Contractor will issue the warranty to the owner upon Consultant acceptance of the project completion.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01741

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. Concrete Rehabilitation: Section 030131.

B. Masonry Cleaning: Section 040123.

C. Cementitious Waterproofing: Section 071613.

D. Water Repellent Coating: Section 071900.

E. Joint Sealers: Section 079200.

F. Opaque Exterior Wall Resurfacing: Section 099704.

1.2 SUBMITTALS

A. Product Data:
1. Portland Cement: Brand and manufacturer's name.
2. Lime: Brand and manufacturer's name.
3. Mortar Pigments: Brand and manufacturer's name.
4. Packaged Products: Manufacturer's specifications and application instructions for products specified.
5. Sand: Location of pit, name of owner, and previous test data.

B. Samples: Deliver to the Site for comparison with existing masonry.
1. Mortar for Exposed Joints and Cracks: Each required type, minimum 12 inches long by full thickness, showing finish and color.
2. Masonry Units: Each required type, full size, showing finish and full color range.

1.3 QUALITY ASSURANCE

A. Field Examples: Prior to performing the Work of this Section, prepare a sample panel of not less than 12 sq ft for each type of masonry restoration Work required. Do not proceed further with the Work until the sample panel has been approved by the Director's Representative. Approved samples will be used as quality standards for the Work. Maintain approved samples at the Site until the Work is completed.
1. Sample panels may be a portion of existing masonry, which is to be restored, at a location directed by the Director's Representative.

B. Material Container Labels: Material containers shall bear the manufacturer's label indicating manufacturer's name, trade name of product, lot number, shelf life of product, and mix ratio (if applicable).

1.4 DELIVERY, STORAGE, AND HANDLING

A. Packaged Products:
   1. Deliver materials to the site in manufacturer's original, sealed containers. Do not deliver materials, which have exceeded shelf life limitation set forth by the manufacturer.
   2. Comply with manufacturer's printed instructions for storing and protecting materials.

B. Bulk Aggregate: Store in a manner that will keep aggregate clean and protected from the weather elements.

1.5 PROJECT CONDITIONS

A. Environmental Requirements:
   1. For factory packaged products, comply with the manufacturer's printed limitations and instructions.
   2. At temperatures below 40 degrees F, maintain mortar temperature between 40 degrees F and 120 degrees F unless otherwise recommended by the material manufacturer. If necessary, heat mixing water and sand to produce the required results.
   3. At temperatures between 32 degrees F and 20 degrees F, provide wind breaks and cover the restored masonry to prevent wetting and freezing. Maintain restored masonry above freezing for not less than 16 hours using auxiliary heat or insulating blankets.
   4. At temperatures below 20 degrees F, provide heated enclosures for performing the Work. At the end of the workday, maintain the enclosures and keep the Work from freezing for not less than 24 hours.
   5. Do not lower freezing point of mortar by use of antifreeze, calcium chloride, or other additives.
   6. Do not use frozen materials or materials coated with ice or frost.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Mortar Types:
   1. Type N Mortar: ASTM C 270, Type N.
   2. Modified Type N Pointing Mortar: ASTM C 270, Type N, modified with an acrylic additive in accordance with the additive manufacturer's printed instructions for the intended usage.
   3. Type C-1 Patching Mortar: "Thorite" by Thoro System Products; "Sonopatch" by Sonneborn Building Products; "Deco-Rez TPM 722" or "Deco-Rez TPM 723" by General Polymers Corp.; "SikaTop 122" or "SikaTop 123" by Sika Corp.; "Emaco R300 CI" or "Emaco R320 CI" or "Emaco R350 CI" or "Emaco S88 CI" by Master Builders, Inc.

B. Mortar Color: For exposed Type N mortar and Modified Type N pointing mortar, select materials (complying with the requirements) and proportion pigments with other ingredients as necessary to match the color of existing corresponding materials.

C. Mortar Pigments: High purity, finely ground, chemically inert, unfading, lime proof mineral oxides specially prepared for use in mortar.

D. Acrylic Additive: "Acryl 60" by Thoro System Products; "Sonocrete" by Sonneborn Building Products; "Anchor - IT" by Anti-Hydro Waterproofing Co.

E. Masonry Units: Match existing units in type, grade, size, appearance, and texture unless otherwise indicated.

F. Accessories:

PART 3 - EXECUTION

3.1 PREPARATION

A. Protection: Protect adjacent surfaces not being restored. Protect sills, ledges, and projections from material droppings.

B. Surface Preparation:
1. Prepare surfaces to be restored in compliance with product manufacturer's printed instructions and as specified.
2. Remove dirt, dust, and foreign material from surfaces to be restored.
3. Clean areas to be restored with compressed air or water flushing, except as otherwise recommended by the mortar manufacturer.

C. Materials Preparation:
1. Dry concrete masonry units and stone that have become wet. Do not wet these masonry units.
2. Wet bricks that have a high absorption rate. Wet bricks until water runs off. Install bricks when surface is slightly damp.
3. Prepare exposed Type N mortar and Modified Type N pointing mortar to match the color and appearance of existing adjoining mortar.

3.2 REPOINTING JOINTS

A. Rake or cut out joints to a minimum depth of 5/8 inch and until sound surface is reached. Where cutting is required to remove existing mortar and joint filler, use a rotary power masonry saw wherever possible without damaging masonry. Cut the mortar and joint filler cleanly from the sides of the joints, leaving square corners. Flush joints clean with water or compressed air.

B. Dampen joints slightly before application of mortar, making sure there is no free water. Backpack joints tightly out to a depth of 5/8 inch from the face of masonry with Modified Type N pointing mortar. After backpacking mortar has attained initial set, redampen remaining 5/8 inch depth of joints, fill with Modified Type N pointing mortar, and finish joints to match existing adjoining joints.
1. Where joint sealant is required, backpack the joints tightly out to a uniform depth of 1/4 inch.
2. Where joint sealant is required, cut out the joints or backpack the joints (as required by existing conditions) to the depth shown on the Drawings.

3.3 REPLACING MASONRY UNITS

A. Provide temporary shoring or other supports as required to prevent displacement of existing masonry which is to remain. Perform the removal Work with such care as may be required to prevent damage to adjoining masonry which is to remain.

B. Remove the deteriorated and damaged masonry units to their full depth, including the surrounding joint mortar. Wherever possible without damaging masonry, use a rotary power masonry saw for cutting Work. Leave square corners at adjoining masonry which is to remain. Clean joints and cavities by flushing with water or compressed air.

C. Dampen contact surfaces slightly before application of mortar, making sure there is no free water. Install matching masonry units with Type N mortar. Install units to match and align with existing masonry. Maintain bonding and coursing pattern of existing masonry. Use presoaked wood wedges where necessary to properly set the units and maintain uniform matching joints. Backpack and fill joints full of mortar. Finish joints to match existing adjoining joints.

D. Accessories:

3.4 FILLING JOINTS

A. Rake out loose mortar until sound surface is reached. Flush joints clean with water or compressed air.

B. Dampen joints slightly before application of mortar, making sure there is no free water. Fill joints with Modified Type N pointing mortar flush with adjoining masonry.

3.5 FILLING CRACKS

A. Non-Moving Cracks: Clean cracks with water flushing or compressed air. Dampen contact surfaces. Fill cracks with Modified Type N pointing mortar flush with adjoining masonry.
   1. Enlarge cracks 1/8 inch or less in width to 1/4 inch wide by minimum 3/8 inch deep prior to cleaning and filling. Use masonry saw or power chisel.

B. Moving Cracks: Cut out cracks more than 1/8 inch in width (for sealant) as required to provide joint configuration shown on the Drawings. Use masonry saw or power chisel. Clean and dry the contact surfaces.

3.6 PATCHING MASONRY SURFACES

A. Remove all loose and deteriorated material. Prepare substrate surface. Remove paint, oil, grease, and salt deposits from surface to be restored. Use cleaning agent, recommended by manufacturer of patching mortar, where required. Fill the depressed area or void with Type C-1 patching mortar. Provide a uniform wood float finish, flush and even with the adjacent existing surfaces. If necessary, apply the patching mortar in layers to fill the depression. Comply with manufacturer's printed instructions.

3.7 CLEANING

A. As the Work proceeds and after completion of Work, remove excess mortar, droppings, smears, stains, and other soiling substances resulting from the Work of this Section. Remove misplaced materials from surfaces immediately.

END OF SECTION 04121

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Steel Roof deck.

B. Related Sections include the following:

1. Division 9 painting Sections for repair painting.

1.3 SUBMITTALS

A. Product Data: For each type of deck, accessory, and product indicated.

B. Shop Drawings: Show layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.

C. Product Certificates: For each type of steel deck, signed by product manufacturer.

D. Welding certificates.

E. Field quality-control test and inspection reports.

F. Research/Evaluation Reports: For steel deck.

1.4 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."

B. Fire-Test-Response Characteristics: Where indicated, provide steel deck units identical to those tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.

1. Fire-Resistance Ratings: Indicated by design designations of applicable testing and inspecting agency.
2. Steel deck units shall be identified with appropriate markings of applicable testing and inspecting agency.

C. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

D. FMG Listing: Provide steel roof deck evaluated by FMG and listed in its "Approval Guide, Building Materials" for Class 1 fire rating and Class 1-90 windstorm ratings.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

2.2 ROOF DECK

A. Steel Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 30, and with the following:

1. Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade 80 (550) minimum, shop primed with manufacturer's standard baked-on, rust-inhibitive primer.

    a. Color: Manufacturer's standard Gray top and underside surfaces.

2. Deck Profile: Match existing.
3. Profile Depth: Match existing.
4. Span Condition: Triple span or more.
5. Side Laps: Overlapped seam.

2.3 ACCESSORIES

A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 (4.8-mm) minimum diameter.

D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi (230 MPa), not less than 0.0359-inch (0.91-mm) design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

F. Column Closures, End Closures, Z-Closures, and Cover Plates: Steel sheet, of same material, finish, and thickness as deck, unless otherwise indicated.

G. Recessed Sump Pans: Single-piece steel sheet, 0.0747 inch (1.90 mm) thick, of same material and finish as deck, with 3-inch- (76-mm-) wide flanges and sloped recessed pans of 1-1/2-inch (38-mm) minimum depth. For drains, cut holes in the field.

H. Galvanizing Repair Paint: ASTM A 780 SSPC-Paint 20 or DOD-P-21035, with dry film containing a minimum of 94 percent zinc dust by weight].

I. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

3.2 INSTALLATION, GENERAL

A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 30, manufacturer's written instructions, and requirements in this Section.

B. Install temporary shoring before placing deck panels, if required to meet deflection limitations.

C. Locate deck bundles to prevent overloading of supporting members.

D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.

F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.

H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

3.3 ROOF DECK INSTALLATION

A. Fasten roof-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated or arc seam welds with an equal perimeter that is not less than 1-1/2 inches (38 mm) long, and as follows:

1. Weld Diameter: 5/8 inch (16 mm), nominal.
2. Weld Spacing: Weld edge and interior ribs of deck units with a minimum of two welds per deck unit at each support. Space welds at a rate to match the existing attachment interval.

B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of 1/2 of the span or 18 inches (450 mm) and as follows:

1. Mechanically fasten with self-drilling, No. 10 (4.8-mm-) diameter or larger, carbon-steel screws.

C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches (38 mm), with end joints as follows:

1. End Joints: Lapped 2 inches (51 mm) minimum.

D. Roof Sump Pans and Sump Plates: Install over openings provided in roof deck and mechanically fasten flanges to top of deck. Space mechanical fasteners not more than 12 inches (305 mm) apart with at least one fastener at each corner. Flatten arched edges.

E. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld or mechanically fasten to substrate to provide a complete deck installation.

1. Weld cover plates at changes in direction of roof-deck panels, unless otherwise indicated.

3.4 DECK REPAIR

A. Regulation:

1. Comply with:

a. Specifications of material manufacturer.

2. Where indicated by Quality Compliance Inspector.

B. Metal decking:

1. Removal:

   a. Debris and loose material shall be removed from deck surface prior to removal. Provide temporary support to prevent deck or pieces of deck from falling to the interior.
   b. Deck shall be replaced in full sheet widths and in full span increments between joists.
   c. Deck shall be cut utilizing hand or power shears, nibblers or similar cutting devices. Cutting tool shall minimize sparks and spread of scrap or debris on the interior. Cut edges to remain shall be smooth, clean and free of burrs or deformation.
   d. Deck removal is required where full penetration corrosion is found or where metal loss has compromised structural capacity of deck.

2. Surface Preparation:

   a. No Visible Corrosion:

      1) Remove all loose debris, dust, insulation scraps from all exposed deck surfaces. All surfaces shall be "broom clean" and shall be vacuumed of residual dust prior to installation of new materials. Do not utilize mechanical wire brushes.
      2) Minimize infiltration of debris to the interior.
      3) Basic cleaning shall be included in Contractor's Base Bid and applicable Alternate Bids.

   b. Light to Moderate Corrosion - Visible Red Rust:

      1) Remove all loose debris, dust, insulation scraps, facers, and surface corrosion.
      2) Clean deck surfaces to Steel Structures Painting Council Standard SSPC-SP2 or SSPC-SP3. Residual paint may remain if securely adhered.
      3) Remove debris and dust by vacuum. Blowers shall not be utilized. Minimize spread of dust on adjacent roof areas or surfaces. Minimize infiltration of debris to the interior.
      4) Complete all cleaning and removals prior to painting. Furnish temporary closures at penetrations in deck to prevent dust and paint from entering interior of building.
      5) Paint all prepared decking as specified in Section 09900.
      6) Work shall be performed on a time and material basis, but shall not exceed the unit cost schedule amount for this portion of the roof deck remediation Work.

   c. Heavy Corrosion:

      1) Clean deck surfaces to Steel Structures Painting Council Standard SSPC-SP2 or SSPC-SP3. Residual paint may remain if securely adhered.
      2) Remove debris and dust by vacuum. Blowers shall not be utilized. Minimize spread of dust on adjacent roof areas or surfaces. Minimize infiltration of debris to the interior.

3) Complete all cleaning and removals prior to painting. Furnish temporary closures at penetrations in deck to prevent dust and paint from entering interior of building.
4) Paint all prepared decking as specified in Section 09900.
5) Overlay existing prepared and painted deck with new roof deck mechanically fastened to the structural frame in accordance with the deck manufacturer's requirements.
6) Work shall be performed on a time and material basis, but shall not exceed the unit cost schedule amount for this portion of the roof deck remediation Work.

d. Painting of Corrosion on Interior Surfaces:

1) Where visible corrosion and staining has occurred on exposed interior structural steel frame and walls, rust, dust, and loose paint shall be prepared to Steel Structures Painting Council SSPC-SP2 and painted.
2) Work shall be performed on a time and material basis, but shall not exceed the unit cost schedule amount for this portion of the roof deck remediation Work.

3. Side lap fasteners:

a. Work shall be performed on a time and material basis, but shall not exceed the unit cost schedule amount for this individual component of the Work.
b. On spans less than six feet: One fastener, mid-span.
c. On spans of six feet or more: Fasteners on 24 inch centers.

4. Evaluation for patching:

a. Isolated, cut-out, uncorroded hole or short gash.
b. Maximum dimension, 12 inches.
c. Remove deck section having multiple holes, holes caused by corrosion, a hole over 12 inches in any dimension, or a cut which penetrates two or more adjacent top flanges.

5. Hole patching:

a. Work shall be performed on a time and material basis, but shall not exceed the unit cost schedule amount for this individual component of the Work.
b. Provide patch with 3 inch overlap on contiguous flanges.
c. Provide patch with full overlap on adjacent flanges.
d. Fasten corners.
e. Fasten sides 3 inches on center.
f. Patch shall be flat with top flanges.

6. Section replacement:

a. Work shall be performed on a time and material basis, but shall not exceed the unit cost schedule amount for this portion of the roof deck remediation Work.
b. Replace entire sections only.
c. Install ends over structural steel members.
d. Install sections to cover minimum 3 spans.

e. Provide minimum 2 inch end laps.
f. Provide side lap fasteners.
g. Fasten ends to structural steel members.
h. Fasten ribs to structural steel members.

END OF SECTION 05310

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Rooftop equipment bases and support curbs.
2. Wood blocking and nailers.
3. Wood stanchions.
4. Plywood backing panels.

B. Related Sections include the following:

1. Division 1 Sections 00100, 00110, 00410, 00430, 00440, 00450, 00520, 00530, 00540, 00550, 00700, 01001, and Drawings.
2. Division 7 Section "Membrane Reroofing Preparation" for preparation procedures prior to installation of the specified roofing system.
3. Division 7 Sections "Thermoplastic Membrane Roofing" for roofing membrane, base flashings, roof insulation, cover boards, and roofing accessories.
4. Division 7 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.

C. Unit Prices: Refer to Division 1 Section "Unit Prices" for description of Work in this Section affected by unit prices.

1.3 DEFINITIONS

A. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.

B. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NLGA: National Lumber Grades Authority.
3. SPIB: The Southern Pine Inspection Bureau.
4. WWPA: Western Wood Products Association.

1.4 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:

1. Preservative-treated wood.
2. Fire-retardant-treated wood.
3. Expansion anchors.

1.5 QUALITY ASSURANCE

A. Forest Certification: For the following wood products, provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria":

1. Miscellaneous lumber.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
3. Provide dressed lumber, S4S, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA C2**,** except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat all miscellaneous carpentry, unless otherwise indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, stanchions, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Comply with performance requirements in AWPA C20 (lumber) and AWPA C27 (plywood).

1. Use treatment that does not promote corrosion of metal fasteners.
2. Use Exterior type for exterior locations and where indicated.

B. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.

C. Application: Treat all miscellaneous carpentry, unless otherwise indicated.

2.4 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Utility pipe support stanchions.
4. Rooftop equipment bases and support curbs.

B. For items of dimension lumber size, provide Construction or No. 2 Standard, Stud, or No. 3 grade lumber with 19 percent maximum moisture content of any species.

1. Hem-fir (north); NLGA.

2. Mixed southern pine; SPIB.
3. Spruce-pine-fir; NLGA.
4. Hem-fir; WCLIB, or WWPA.
5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
6. Western woods; WCLIB or WWPA.
7. Northern species; NLGA.

C. For exposed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Eastern white pine, Idaho white, lodgepole, ponderosa, or sugar pine; Premium or 2 Common (Sterling)] grade; NeLMA, NLGA, WCLIB, or WWPA.
2. Mixed southern pine, No. 2 grade; SPIB.
3. Hem-fir or hem-fir (north), Select Merchantable or No. 1 Common Construction or No. 2 Common grade; NLGA, WCLIB, or WWPA.
4. Spruce-pine-fir (south) or spruce-pine-fir, Select Merchantable or No. 1 Common Construction or No. 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.

D. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine, No. 2 grade; SPIB.
2. Hem-fir or hem-fir (north), Construction or 2 Common grade; NLGA, WCLIB, or WWPA.
3. Spruce-pine-fir (south) or spruce-pine-fir, Construction or 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
4. Eastern softwoods, No. 2 Common grade; NELMA.
5. Northern species, No. 2 Common grade; NLGA.
6. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

E. For blocking not used for attachment of other construction Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

F. For blocking, nailers, and stanchions used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.5 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Wood Screws: ASME B18.6.1.

C. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

D. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).

E. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

F. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

2.6 MISCELLANEOUS MATERIALS

A. Adhesives for Gluing Furring or Stanchions to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Metal Framing Anchors: Install metal framing to comply with manufacturer's written instructions.

D. Do not splice structural members between supports, unless otherwise indicated.

E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches (406 mm) o.c.

F. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:

1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches (2438 mm) o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.

2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches (2438 mm) o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal- (38-mm actual-) thickness.

G. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

H. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

I. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

3.2 WOOD STANCHION, BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

C. Blocking and nailers to conform to FM 1-49 attachment requirements.

3.3 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06105

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Adhered membrane roofing system.
2. Roof insulation.

B. Related Sections include the following:

1. Division 4 Section "Masonry Restoration" for repair of brick wall surfaces.
2. Division 5 Section "Steel Roof Deck" for roof deck repair and replacement.
3. Division 6 Section Miscellaneous Carpentry for wood nailers, curbs, and blocking and for wood-based, structural-use roof deck panels.
4. Division 7 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
5. Division 7 Section "Joint Sealants."

C. Unit Prices: Refer to Division 1 Section "Unit Prices" for description of Work in this Section affected by unit prices.

1.3 DEFINITIONS

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

B. Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," before multiplication by a safety factor.

C. Factored Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," after multiplication by a safety factor.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

C. Roofing System Design: Provide a membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist the factored design uplift pressures calculated according to SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems."

D. FMG Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system and that are listed in FMG's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FMG markings.

1. Fire/Windstorm Classification: Class 1A-90.
2. Hail Resistance: SH.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.

1. Base flashings and membrane terminations.
2. Tapered insulation, including slopes.
3. Insulation fastening patterns.

C. Samples for Verification: For the following products:

1. 12-by-12-inch (300-by-300-mm) square of sheet roofing, of color specified, including T-shaped side and end lap seam.
2. 12-by-12-inch (300-by-300-mm) square of roof insulation.
3. 10 lb (4.5 kg) of aggregate ballast in color and gradation indicated.
4. Full-size concrete roof paver in each color and texture required.
5. 12-by-12-inch (300-by-300-mm) square of walkway pads or rolls.
6. 12-inch (300-mm) length of metal termination bars.
7. 12-inch (300-mm) length of battens.
8. Six insulation fasteners of each type, length, and finish.
9. Six roof cover fasteners of each type, length, and finish.

D. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

E. Qualification Data: For Installer and manufacturer.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.

G. Research/Evaluation Reports: For components of membrane roofing system.

H. Maintenance Data: For roofing system to include in maintenance manuals.

I. Warranties: Special warranties specified in this Section.

J. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that has UL Class A listing for membrane roofing system identical to that used for this Project.

B. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

C. Source Limitations: Obtain components for membrane roofing system from or approved by roofing membrane manufacturer.

D. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.

E. Preinstallation Conference: Conduct conference at Project site. Comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT CONDITIONS

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

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.

1. Special warranty includes roofing membrane, base flashings, roofing membrane, accessories, roof insulation, fasteners, cover boards, walkway products and other components of membrane roofing system.
2. Warranty Period: 20-years from date of Substantial Completion.

B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering Work of this Section, including all components of membrane roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:

1. Warranty Period: 2-years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 Articles where titles below introduce lists, the following requirements apply for product selection:

1. Products: Subject to compliance with requirements, provide one of the products specified.
2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 THERMOPLASTIC POLYOLEFIN ROOFING MEMBRANE

A. Fabric-Reinforced Fleece-back Thermoplastic Polyolefin Sheet: Uniform, flexible sheet formed from a thermoplastic polyolefin, internally fabric or scrim reinforced, and as follows:

1. Manufacturers:

    a. Carlisle SynTec Systems Incorporated.
    b. Firestone Building Products Company.
    c. GAF Materials Corporation.
    d. GenFlex Roofing Systems.
    e. Johns Manville International, Inc.
    f. Sarnafil Inc.
    g. Versico Inc.
    h. Mule Hide

2. Thickness: 60 mils (1.5 mm), nominal with bonded polyester fleece-backing.
3. Exposed Face Color: White.
4. Physical Properties:

    a. Breaking Strength: 225 lbf (1 kN); ASTM D 751, grab method.
    b. Elongation at Break: 15 percent; ASTM D 751.
    c. Tearing Strength: 55 lbf (245 N) minimum; ASTM D 751, Procedure B.
    d. Brittleness Point: Minus 22 deg F (30 deg C).
    e. Ozone Resistance: No cracks after sample, wrapped around a 3-inch- (75-mm-) diameter mandrel, is exposed for 166 hours to a temperature of 104 deg F (40 deg C) and an ozone level of 100 pphm (100 mPa); ASTM D 1149.
    f. Resistance to Heat Aging: 90 percent minimum retention of breaking strength, elongation at break, and tearing strength after 166 hours at 240 deg F (116 deg C); ASTM D 573.
    g. Water Absorption: Less than 4 percent mass change after 166 hours' immersion at 158 deg F (70 deg C); ASTM D 471.
    h. Linear Dimension Change: Plus or minus 2 percent; ASTM D 1204.

2.3 AUXILIARY MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.

B. Sheet Flashing: Manufacturer's standard unreinforced thermoplastic polyolefin sheet flashing, 60 mils (1.5 mm) thick, minimum, of same color as sheet membrane.

C. Bonding Adhesive: Manufacturer's standard foam-adhesive or solvent-based TPO bonding adhesive for field membrane, and Cav-Grip III or solvent-based TPO bonding adhesive for base flashings.

D. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.

E. Metal Battens: Manufacturer's standard aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch (25 mm) wide by 0.05 inch (1.3 mm) thick, prepunched.

F. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

G. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, termination reglets, cover strips, and other accessories.

2.4 ROOF INSULATION

A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.

1. Manufacturers:

a. Carlisle Syn-Tec Systems Incorporated.
b. Firestone Building Products Company.
c. GAF Materials Corporation.
d. GenFlex Roofing Systems.
e. Hunter Panels, LLC.
f. Johns Manville International, Inc.

C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches, unless otherwise indicated.

D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes of 1/2 inch per 12 inches where indicated for sloping to drain. Fabricate to slopes indicated.

2.5 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

B. Fasteners: Factory-coated steel fasteners and metal plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

C. Spray-Foam Adhesive: Manufacturer's standard spray-foam adhesive formulated to adhere roof insulation and fleece-back membrane to substrate.

2.6 WALKWAYS

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, solid TPO, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch (5 mm) thick, and acceptable to membrane roofing system manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
3. Verify that minimum concrete (mortar) drying period recommended by roofing system manufacturer has passed.
4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General:

1. Install temporary interior protection (where necessary) to prevent damage, contamination, disruption, and/or injury, to interior contents, operations, and building occupants.
2. Follow the project specific and roofing manufacturer written installation guidelines and practices for application of a new fully adhered fleece-back 60 mil TPO roofing system.
3. Conform to roofing manufacturer and other trade written installation guidelines, repair guidelines, and typical practices.
4. Renovate masonry wall surfaces receiving roofing system materials prior to beginning roofing operations to provide a stable and acceptable surface for the installation of the new roofing system and keep the tie-in between the existing roof and new roof in a watertight condition at all times.

5. Clean all substrates free of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions and remove sharp projections.
6. Demolish and dispose of the existing garage roof chimney cap and install a new like and kind poured-in-place concrete chimney cap in its place.
7. Perform masonry repairs to perimeter wall exterior surfaces, around the west garage entrance doorway, and on the exterior surfaces of the garage roof chimney.

B. Garage Roof (Area A):
1. Remove all loose debris from the surface of the existing roof and prepare it as required by the roofing system manufacturer to receive the specified foam-adhered membrane roofing system.
2. Remove and properly dispose of designated curbs, housings, and related mechanical features from the project site and cover deck openings with like and kind decking with approved attachment to match existing deck.
3. Remove membrane curb and wall flashings, fasteners, all sheet metal, and accessory materials, down to the top surface of the existing roof field membrane and substrates.
4. Completely remove all existing membrane flashings and cant insulation strips from the base of all curbs, walls, and penetration flashing surfaces.
5. Core sample the existing insulation system every 100 sf. for moisture and/or physical damage and replace damaged materials with like, kind, and size insulation to the level of the existing roof membrane.
6. Repair or replace substandard decking determined by Consultant to have unacceptable deterioration or structural damage with like and kind decking with approved attachment to the structure on a unit cost basis.
7. Remove the first four feet of membrane, insulation, gutter, and wood blocking along the entire west gutter edge of the building.
8. Install 1/4 inch per foot tapered insulation along the entire gutter edge of the building to promote water flow into the gutter system.
9. Fasten new wood blocking to meet FMG 1-49 performance standards along the gutter edge to match the reduced elevation of the new tapered insulation.
10. Install 1/2 inch per foot tapered polyisocyanurate insulation on the high side of large mechanical unit curbs.
11. Replace substandard wood blocking to the elevation of the existing roof membrane surface, and attach all blocking to resist 400 pounds per square inch of pullout force in any direction, in order to provide a suitable surface for the installation of new sheet-metal edging.

C. Office Roof (Area B):

1. Completely remove the existing roofing membrane system, including field membrane, cover board, insulation, membrane flashings, fasteners, all sheet metal, and accessory materials, down to the surface of the concrete roof deck.
2. Remove and properly dispose of designated curbs, housings, and related mechanical features from the project site and cover deck openings with like and kind decking with approved attachment to match existing deck.
3. Completely remove all existing membrane flashings and cant insulation strips from the base of all curbs, walls, and penetration flashing surfaces.
4. Repair or replace decking determined by Consultant to have unacceptable deterioration or structural damage with like and kind decking with approved attachment to the structure on a unit cost basis.

5. Replace substandard wood blocking, install new wood blocking to the elevation of the new insulation system, and attach all blocking to resist 400 pounds per square inch of pullout force in any direction where necessary along perimeter edges and at other locations in order to provide a suitable surface and elevation for the installation of new sheet-metal edging. Properly prepare the existing roof deck with primer according to the roofing manufacturer requirements and install a single layer of the roofing manufacturer's 160 mil thick smooth surface APP modified bitumen vapor barrier membrane system.

D. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

E. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecasted. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSULATION INSTALLATION

A. General:
1. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
2. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.

B. Garage Roof (Area A):
1. Install tapered insulation over the exposed 4 foot wide open metal roof deck along the west perimeter gutter edge and under other areas of roofing to conform to slopes indicated on drawings.
   a. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
2. Mechanically Attached Insulation:
   a. Attach insulation according to requirements in FMG's "Approval Guide" for specified FMG 1-90 Windstorm Resistance Classification.

C. Office Roof (Area B):
1. Install one or more layers of insulation over vapor barrier membrane and under area of new roofing to achieve required R=30 thickness. Stagger the new 2.6 inch thick insulation layer over preceding with joints of each succeeding layer staggered from joints of previous layers a minimum of 12 inches (300 mm) in each direction.
2. Trim surface of insulation where necessary at roof drains (if present) so completed surface is flush and does not restrict flow of water.
3. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
   a. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
4. Foam-Adhered Insulation: Install 2-layers of insulation set in the roofing manufacturer's foam adhesive over the vapor barrier membrane and preceding insulation layers.
   a. Adhere insulation according to requirements in FMG's "Approval Guide" for specified FMG 1-90 Windstorm Resistance Classification.

3.4 ADHERED ROOFING MEMBRANE INSTALLATION

A. Install roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow it to relax a minimum of 1/2 hour before installing.

B. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

C. Membrane Adhesive: Apply foam-adhesive or solvent-based bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry or set-up before installing roofing membrane. Do not apply adhesive to splice area of roofing membrane.

D. Mechanically or adhesively fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.

E. Apply roofing membrane with side laps shingled with slope of roof deck where possible.

F. Seams: Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane.
2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
3. Repair tears, voids, and lapped seams in roofing membrane that does not meet requirements.

G. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.

H. Install roofing membrane and auxiliary materials to tie in to existing roofing.

3.5 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply Cav-Grip III, solvent-based TPO bonding adhesive, or approved equal adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with sheet flashing.

D. Clean seam areas and overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.6 WALKWAY INSTALLATION

A. Flexible Walkways: Install TPO walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.7 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.

B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.

1. Notify Consultant and Owner 48 hours in advance of date and time of inspection.

C. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.

D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.8 PROTECTING AND CLEANING

A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates, and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.9 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: **2-years.**

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 55 mph;
    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 and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, 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 07540

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Partial roof tear-off.
2. Temporary roofing membrane.
3. Roof re-cover preparation.
4. Removal of base flashings.
5. Protection of existing roofing system that is not reroofed.

B. Related Sections include the following:

1. Division 1 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for reroofing preparation.
2. Division 5 Section "Steel Deck" for steel deck replacement.
3. Division 6 Section "Miscellaneous Carpentry" for wood nailers, cants, curbs, and blocking.
4. Division 7 Section "Thermoplastic Membrane Roofing System" for roofing membrane, base flashings, roof insulation, cover boards, and roofing accessories.
5. Division 7 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
6. Division 15 Section "Plumbing Specialties" for replacement roof drains.

C. Allowances: Refer to Division 1 Section "Allowances" for description of Work in this Section affected by allowances.

D. Unit Prices: Refer to Division 1 Section "Unit Prices" for description of Work in this Section affected by unit prices.

1.3 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.4 DEFINITIONS

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

B. Existing Membrane Roofing System: Roofing field and flashing membrane, surfacing, and components and accessories between deck and roofing membrane.

C. Substrate Board: Rigid board or panel products placed over the roof deck that serve as thermal barriers, provide a smooth substrate, or serve as a component of a fire-resistance-rated roofing system.

D. Roof Re-Cover Preparation: Existing roofing membrane that is to remain and be prepared for reuse.

E. Roof Tear-Off: Removal of existing membrane roofing system from deck.

F. Partial Roof Tear-Off: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system.

G. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.

H. Existing to Remain: Existing items of construction that are not indicated to be removed.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Temporary Roofing: Include Product Data and description of temporary roofing system. If temporary roof will remain in place, submit surface preparation requirements needed to receive permanent roof, and submit a letter from roofing membrane manufacturer stating acceptance of the temporary membrane, and that its inclusion will not adversely affect the roofing system's resistance to fire and wind or its FMG rating.

C. Fastener pull-out test report.

D. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, that might be misconstrued as having been damaged by reroofing operations. Submit before Work begins.

E. Landfill Records: Indicate receipt and acceptance of hazardous wastes, such as asbestos-containing material, by a landfill facility licensed to accept hazardous wastes.

F. Qualification Data: For Installer including certificate that Installer is licensed to perform asbestos abatement and is approved by warrantor of existing roofing system.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Installer of new membrane roofing system, licensed to perform asbestos abatement in the State or jurisdiction where Project is located and approved by warrantor of existing roofing system to work on existing roofing.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning membrane roofing removal. Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Reroofing Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:

1. Meet with Owner; Consultant; Owner's insurer if applicable; testing and inspecting agency representative; roofing system manufacturer's representative; deck Installer; roofing Installer including project manager, superintendent, and foreman; and installers whose work interfaces with or affects reroofing including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to reroofing preparation, including membrane roofing system manufacturer's written instructions.
3. Review temporary protection requirements for existing roofing system that is to remain, during and after installation.
4. Review roof drainage during each stage of reroofing and review roof drain plugging and plug removal procedures.
5. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
6. Review existing deck removal procedures and Owner notifications.
7. Review procedures to determine condition and acceptance of existing deck for reuse.
8. Review structural loading limitations of deck during reroofing.
9. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect reroofing.
10. Review HVAC shutdown and sealing of air intakes.
11. Review shutdown of fire-suppression, -protection, and -alarm and -detection systems.
12. Review procedures for asbestos removal or unexpected discovery of asbestos-containing materials.
13. Review governing regulations and requirements for insurance and certificates if applicable.
14. Review existing conditions that may require notification of Consultant before proceeding.

1.7 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately below reroofing area. Conduct reroofing so Owner's operations will not be disrupted. Provide Owner with not less than **72** hours' notice of activities that may affect Owner's operations.

1. Coordinate work activities daily with Owner so Owner can place protective dust or water leakage covers over sensitive equipment or furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below the work area if desired.
2. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below the affected area. Verify that occupants below the work area have been evacuated prior to proceeding with work over the impaired deck area.

B. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.

C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

D. Owner assumes no responsibility for condition of areas to be reroofed.

1. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.

E. Limit construction loads on roof to prevent damage to existing construction and interior when rooftop equipment wheel loads and distributed loads are present.

F. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.

G. Hazardous Materials: It is not expected that hazardous materials such as asbestos-containing materials will be encountered in the Work.

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Consultant and Owner. Hazardous materials will be removed by Owner under a separate contract.

1.8 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during reroofing, by methods and with materials so as not to void existing roofing system warranty. Notify warrantor before proceeding.

1. Notify warrantor of existing roofing system on completion of reroofing, and obtain documentation verifying that existing roofing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

PART 2 - PRODUCTS

2.1 AUXILIARY REROOFING MATERIALS

A. General: Auxiliary reroofing preparation materials recommended by roofing system manufacturer for intended use and compatible with components of new membrane roofing system.

B. Base Sheet Fasteners: Capped head, factory-coated steel fasteners, listed in FMG's "Approval Guide."

C. Metal Flashing Sheet: Metal flashing sheet is specified in Division 7 Section "Sheet Metal Flashing and Trim."

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate with Owner to shut down air intake equipment in the vicinity of the Work. Cover air intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.

B. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

C. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.

1. If roof drains will be temporarily blocked or unserviceable due to roofing system removal or partial installation of new membrane roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

D. Verify that rooftop utilities and service piping have been shut off before commencing Work.

3.2 ROOF TEAR-OFF

A. General: Notify Owner each day of extent of roof tear-off proposed and obtain authorization to proceed.

B. Roof Tear-Off: Remove existing roofing membrane and other membrane roofing system components down to the surface of the existing concrete roof deck.

1. Remove the existing roof membrane system in its entirety down to the surface of the concrete roof deck.
2. Remove all membrane flashings.
3. Remove all sheet metal flashings.
4. Remove all unsuitable perimeter wood blocking.

3.3 PARTIAL ROOF TEAR-OFF

A. Garage Roof (Area A):
1. Remove all loose debris from the surface of the existing roof and prepare it as required by the roofing system manufacturer to receive the specified foam-adhered membrane roofing system.
2. Remove and properly dispose of designated curbs, housings, and related mechanical features from the project site and cover deck openings with like and kind decking with approved attachment to match existing deck.
3. Remove membrane curb and wall flashings, fasteners, all sheet metal, and accessory materials, down to the top surface of the existing roof field membrane and substrates.

4. Completely remove all existing membrane flashings and cant insulation strips from the base of all curbs, walls, and penetration flashing surfaces.
5. Core sample the existing insulation system every 100 sf. for moisture and/or physical damage and replace damaged materials with like, kind, and size insulation to the level of the existing roof membrane.
6. Repair or replace substandard decking determined by Consultant to have unacceptable deterioration or structural damage with like and kind decking with approved attachment to the structure on a unit cost basis.
7. Remove the first four feet of membrane, insulation, gutter, and wood blocking along the entire west gutter edge of the building.
8. Install 1/4 inch per foot tapered insulation along the entire gutter edge of the building to promote water flow into the gutter system.
9. Fasten new wood blocking to meet FMG 1-49 performance standards along the gutter edge to match the reduced elevation of the new tapered insulation.
10. Install 1/2 inch per foot tapered polyisocyanurate insulation on the high side of large mechanical unit curbs.
11. Replace substandard wood blocking to the elevation of the existing roof membrane surface, and attach all blocking to resist 400 pounds per square inch of pullout force in any direction, in order to provide a suitable surface for the installation of new sheet-metal edging.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecasted. Remove and discard temporary seals before beginning work on adjoining roofing.

3.4 PARTIAL ROOF TEAR-OFF

A. Office Roof (Area B):

1. Completely remove the existing roofing membrane system, including field membrane, cover board, insulation, membrane flashings, fasteners, all sheet metal, and accessory materials, down to the surface of the concrete roof deck.
2. Remove and properly dispose of designated curbs, housings, and related mechanical features from the project site and cover deck openings with like and kind decking with approved attachment to match existing deck.
3. Completely remove all existing membrane flashings and cant insulation strips from the base of all curbs, walls, and penetration flashing surfaces.
4. Repair or replace decking determined by Consultant to have unacceptable deterioration or structural damage with like and kind decking with approved attachment to the structure on a unit cost basis.
5. Replace substandard wood blocking, install new wood blocking to the elevation of the new insulation system, and attach all blocking to resist 400 pounds per square inch of pullout force in any direction where necessary along perimeter edges and at other locations in order to provide a suitable surface and elevation for the installation of new sheet-metal edging. Properly prepare the existing roof deck with primer according to the roofing manufacturer requirements and install a single layer of the roofing manufacturer's 160 mil thick smooth surface APP modified bitumen vapor barrier membrane system.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecasted. Remove and discard temporary seals before beginning work on adjoining roofing.

3.5 DECK PREPARATION

A. Inspect deck after partial tear-off of membrane roofing system and moisture contaminated and/or physically damaged existing insulation.

B. If deck surface is not suitable for receiving new roofing, or if structural integrity of deck is suspect, immediately notify Consultant. Do not proceed with installation until directed by Consultant.

C. Provide additional deck securement as indicated on Drawings.

D. Repair or replace deck where necessary. Replacement deck is specified in Division 5 Section 05310 "Steel Roof Deck."

E. Repair concrete roof deck where necessary to provide a suitable surface for roofing application. Concrete roof deck repair is specified in Division 3, Section 03930 "Concrete Rehabilitation".

3.6 EXISTING BASE FLASHINGS

A. Remove existing base flashings around parapets, curbs, walls, and penetrations.

1. Clean substrates of contaminants such as asphalt, sheet materials, dirt, and debris.

B. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish.

C. Inspect parapet sheathing for deterioration and damage. If parapet sheathing has deteriorated, immediately notify Consultant.

3.7 FASTENER PULL-OUT TESTING

A. Perform fastener pull-out tests according to SPRI FX-1, and submit test report to Consultant before installing new membrane roofing system.

1. Obtain Consultant’s approval to proceed with specified fastening pattern. Consultant may furnish revised fastening pattern commensurate with pull-out test results.

3.8 DISPOSAL

A. Collect and place demolished materials in containers. Promptly dispose of demolished materials. FDo not allow demolished materials to accumulate on-site.

1. Storage or sale of demolished items or materials on-site will not be permitted.

B. Transport demolished materials off Owner's property and legally dispose of them.

END OF SECTION 07591

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following sheet metal flashing and trim:
   1. Formed low-slope roof flashing and trim.
   2. Formed steep-slope roof flashing and trim.
   3. Formed wall flashing and trim.
   4. Formed equipment support flashing.

B. Related Sections include the following:

   1. Division 1 Sections 00100, 00110, 00410, 00430, 00440, 00450, 00520, 00530, 00540, 00550, 00700, 01001, and Drawings.
   2. Division 7 Section "Membrane Reroofing Preparation" for preparation procedures prior to installation of the specified roofing system.
   3. Division 7 Section for roofing membrane, base flashings, and roofing accessories.

C. Unit Prices: Refer to Division 1 Section "Unit Prices" for description of Work in this Section affected by unit prices.

1.3 PERFORMANCE REQUIREMENTS

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

B. Fabricate and install roof edge flashing capable of resisting the following forces according to recommendations in FMG Loss Prevention Data Sheet 1-49:
   1. Wind Zone 1: For velocity pressures of 21 to 30 lbf/sq. ft. (1.00 to 1.44 kPa): 60-lbf/sq. ft. (2.87-kPa) perimeter uplift force, 90-lbf/sq. ft. (4.31-kPa) corner uplift force, and 30-lbf/sq. ft. (1.44-kPa) outward force.

C. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

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

1.4 SUBMITTALS

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

B. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop- and field-assembled work. Include the following:

1. Identify material, thickness, weight, and finish for each item and location in Project.
2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.
4. Details of expansion-joint covers, including showing direction of expansion and contraction.

C. Samples for Initial Selection: For each type of sheet metal flashing and trim indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:

1. Sheet Metal Flashing: 12 inches (300 mm) long. Include fasteners, cleats, clips**,** closures, and other attachments.
2. Trim: 12 inches (300 mm) long. Include fasteners and other exposed accessories.
3. Accessories: Full-size Sample.

1.5 QUALITY ASSURANCE

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

B. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1.

1. Meet with Owner, Consultant, Owner's insurer if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof-mounted equipment.
2. Review methods and procedures related to sheet metal flashing and trim.

3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
4. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.6 DELIVERY, STORAGE, AND HANDLING

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

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

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

1.7 WARRANTY

A. Provide manufacturer's sheet metal system guaranty with single source coverage and no monetary limitation (NDL) where the manufacturer agrees to repair or replace components in the sheet metal system, which corrode, deform, detach, or cause a leak due to a failure in materials or workmanship.

1. Duration: 20-year from the date of substantial completion.

1.8 COORDINATION

A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leak-proof, secure, and noncorrosive installation.

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. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 SHEET METALS

1. High-Performance Organic Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to

exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

a. Fluoropolymer 2-Coat System: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2604 or 2605.

1) Color: As selected by Consultant from manufacturer's full range.

2.3 UNDERLAYMENT MATERIALS

A. Polyethylene Sheet: 10-mil- (0.15-mm-) thick polyethylene sheet complying with ASTM D 4397.

B. Felts: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, non-perforated.

C. Slip Sheet: Rosin-sized paper, minimum 3 lb/100 sq. ft. (0.16 kg/sq. m).

2.4 MISCELLANEOUS MATERIALS

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

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.

1. Cleat Nails: Hot dipped galvanized ring shank, 0.109 inch (2.8 mm) minimum and not less than 1.25 inch long, barbed with large head.
2. Exposed Fasteners: Heads matching color of sheet metal by means of plastic caps or factory-applied coating.
3. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.
4. Blind Fasteners: High-strength aluminum or stainless-steel rivets.
5. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
6. Aluminum Compression Bar: Type and size as recommended by the roofing membrane manufacturer, but not less than 1/8 inch thick by 1 1/8 inches wide, in longest appropriate lengths available.

C. Sealing Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealing tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.

D. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
1. Color: Match adjoining metal color.

2.5 FABRICATION, GENERAL

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

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

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

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

E. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with elastomeric sealant concealed within joints.

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

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

1. Thickness: As recommended by SMACNA's "Architectural Sheet Metal Manual" and FMG Loss Prevention Data Sheet 1-49 for application but not less than thickness of metal being secured.

2.6 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof Edge Flashing and Fascia Caps:

1. Components as provided fabricated by Firestone Building Products.
2. Install according to manufacturer installation requirements.

B. Roof Edge Flashing (Gravel Stop) and Fascia Caps: Fabricate in minimum 96-inch- (2400-mm-) long, but not exceeding 10-foot- (3-m-) long, sections. Furnish with continuous cleats to support edge of external leg and fasten horizontal flange to blocking as shown on drawings.

1. Joint Style: Butt, with 12-inch- (300-mm-) wide concealed backup plate.

C. Copings: Fabricate in minimum 96-inch- (2400-mm-) long, but not exceeding 10-foot- (3-m-) long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and drill holes for fasteners on interior leg. Miter corners, seal, and solder or weld watertight.

1. Joint Style: Butt, with 12-inch- (300-mm-) wide concealed backup plate.
2. Fabricate copings from the following material:
   a. Prepainted Galvanized Steel: 24 gauge thick.

D. Cleats: Fabricate from the following material:

1. Galvanized Steel: 22 gauge thick.

E. Counterflashing: Fabricate from the following material:

1. Prepainted Galvanized Steel: 24 gauge thick.

F. Roof-Penetration Flashing: Fabricate from the following material:

1. Prepainted Galvanized Steel: 24 gauge thick.

2.7 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

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

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

PART 3 - EXECUTION

3.1 EXAMINATION

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

1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Torch cutting of sheet metal flashing and trim is not permitted.

B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.

1. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene underlayment.

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

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

E. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

1. Space cleats not more than 1 inch (25 mm) apart. Anchor each cleat with fastener spacing as shown on detail drawing. Bend tabs over fasteners.

F. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with elastomeric sealant concealed within joints.

G. Fasteners: Use fasteners of sizes that will penetrate substrate not less than 1-1/4 inches (32 mm) for nails and not less than 1 inch (25 mm) for wood screws.

1. Galvanized or Prepainted, Metallic-Coated Steel: Use stainless-steel fasteners.
2. Aluminum: Use aluminum or stainless-steel fasteners.
3. Stainless Steel: Use stainless-steel fasteners.

H. Seal joints with elastomeric sealant as required for watertight construction.

1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch (25 mm) into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F (4 deg C).

I. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm) except where pretinned surface would show in finished Work.

1. Do not solder prepainted sheet.
2. Do not use open-flame torches for soldering. Heat surfaces to receive solder and flow solder into joints. Fill joints completely. Completely remove flux and spatter from exposed surfaces.

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

3.3 ROOF FLASHING INSTALLATION

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

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

1. Interlock bottom edge of roof edge flashing with continuous cleats anchored to substrate at 6 inch centers or as recommended by the material manufacturer to achieve the specified warranty.

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

1. Interlock bottom edge of roof edge flashing with continuous cleats anchored to substrate at 6 inch centers or as recommended by the material manufacturer to achieve the specified warranty.
2. Anchor interior leg of coping with screw fasteners and sealing washers at 18-inch (450-mm) centers maximum.

D. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending a minimum of 4 inches (100 mm) over base flashing. Install stainless-steel draw band and tighten.

E. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing behind existing counterflashings, in reglets, receivers, or behind wall panels and fit tightly to base flashing. Extend counterflashing 4 inches (100 mm) over base flashing. Lap counterflashing joints a minimum of 4 inches (100 mm) and bed with elastomeric sealant. Form according to Drawing Details.

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

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

G. Termination Bars: Coordinate installation of termination bars with installation of roof flashing. Install bar as follows:

1. Place at the top edge of flashing membrane.
2. Attach to substrate at 6 inch on center with appropriate fasteners.
3. Provide continuous compression to create a watertight seal between surfaces.
4. Apply a continuous bead of polyurethane sealant over the top edge of the bar.

5. Tool sealant to ensure secure contact with bar and substrate.

3.4 WALL FLASHING INSTALLATION

A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

B. Openings, Flashing in Frame Construction: Install continuous head, sill, jamb, and similar flashings to extend 4 inches (100 mm) beyond wall openings.

3.5 MISCELLANEOUS FLASHING INSTALLATION

A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to equipment support member.

3.6 CLEANING AND PROTECTION

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

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

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

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

END OF SECTION 07620

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes joint sealants for the following applications:
   1. Exterior joints in the following surfaces:

      a. Control and expansion joints in unit masonry.
      b. Joints in dimension stone cladding.
      c. Joints in glass unit masonry assemblies.
      d. Joints between metal panels.
      e. Joints between different materials listed above.
      f. Perimeter joints between materials listed above and frames of doors windows and louvers.
      g. Other joints as indicated.

1.3 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.

E. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.

F. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

G. Field Test Report Log: For each elastomeric sealant application.

H. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.

I. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

B. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

1. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: 2 years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

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

C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:

1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
2. Disintegration of joint substrates from natural causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. VOC Content of Interior Sealants: Provide interior sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

C. Colors of Exposed Joint Sealants: As selected by Consultant from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Single-Component Nonsag Urethane Sealant:

1. Products:

a. Sika Corporation, Inc.; Sikaflex - 1a.
b. Sonneborn, Division of ChemRex Inc.; Ultra.

c. Sonneborn, Division of ChemRex Inc.; NP 1.
d. Tremco; Vulkem 116.
e. Or equal, as approved by Consultant.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

a. Use O Joint Substrates: Galvanized steel, brick, granite, wood, and other O substrates.

2.4 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable

of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

a. Concrete.
b. Masonry.

3. Remove laitance and form-release agents from concrete.
4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

a. Metal.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.

3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide flush joint configuration where indicated per Figure 5B in ASTM C 1193.

    a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed elastomeric sealant joints as follows:

    a. Perform two tests for the first several feet of joint length for each type of elastomeric sealant and joint substrate.

2. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.
3. Inspect tested joints and report on the following:

    a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
    b. Whether sealants filled joint cavities and are free of voids.
    c. Whether sealant dimensions and configurations comply with specified requirements.

4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07920

PART 1 - GENERAL

1.1 SCOPE

A. Paint all work, which is identified on the drawings or specified herein. Painting work specified here includes:
   1. New Steel Deck - Interior Side.
   2. Existing Steel Deck -Exterior Side.

B. Painting shall be done on a unit cost basis. The unit price shall assume that others shall supply the paint materials for the deck repairs Work. The unit price shall include the receipt, material handling, storage application, disposal of residual products, and record keeping required by the paint supplier.

1.2 QUALITY ASSURANCE

A. Paint manufacturer's representative shall inspect application of all materials when requested by Consultant.

B. Deliver paint materials to site in manufacturer's sealed containers. Container shall be labeled by the manufacturer; labels shall give manufacturer's name, type of paint, color of paint and instructions for reducing. Materials shall be mixed, thinned, modified and applied only as specified by the manufacturer's directions.

C. Only skilled mechanics shall be employed. Application may be by brush, rollers or spraying as recommended for the coating material and as required for the best appearance and performance.

1.3 RELATED WORK

A. Section 01500 "Temporary Facilities and Controls".

B. Section 07591 "Membrane Roofing Preparation".

1.4 SUBMITTALS

A. Submit manufacturer's literature, in accordance with Division 1 requirements, to the Consultant for review.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Soiled or used rags, waste and trash must be removed from the building every night, and every precaution taken to avoid the danger of fire.

B. Materials shall be kept from freezing or excessively high temperatures and shall be stored in an adequately heated and ventilated storage area.

1.6 JOB CONDITIONS

A. Provide adequate ventilation to prevent the build-up and spread of odors.

B. Ensure that interior protection is in place and that adjacent HVAC equipment is turned off, when possible, in work area prior to commencement.

PART 2 - PART 2 - PRODUCTS

2.1 MATERIALS

A. New Roof Deck - Interior Side:

1. Series 15 Uni-Bond as manufactured by the Tnemec Company, Inc. or equal.
2. Color shall match existing interior coating.
3. Coating thickness - 2.5 mils D.F.T. (4.5 mils W.F.T.)

B. Existing Steel Deck -Exterior Side:

1. Manufacturers:

   a. ERSystems Polyurethane 300 Aromatic Base Coating.
   b. Amerlock 400 as manufactured by Ameron Protective Coating Systems, Inc.
   c. SigmaCover 1500 as manufactured by Sigma Coatings.
   d. DTM Acrylic Coating as manufactured by Sherwin Williams.
   e. Rust-Oleum Commercial Grade primer and urethane coating.

2. Color shall be white, dark gray or black.
3. Coating thickness - 10 to 12 mils D.F.T. (12 to 14 mils W.F.T.)
4. All paint materials shall comply with applicable VOC and environmental regulations.
5. Lead, chrome or mercury content is prohibited.
6. Furnish paint with all necessary thinners, solvents, cleaners, additives and primers recommended or required by the manufacturer for the intended application.

PART 3 - PART 3 - EXECUTION

3.1 SPECIAL PROCEDURES

A. Contractor shall receive paint supplied by others on the Project site.

B. Contractor shall complete and submit a receipt for paint upon its arrival on the site and shall be responsible for the storage and security of the paint furnished.

C. Contractor shall maintain a log of paint quantities utilized and shall submit it with the weekly deck repair logs in accordance with Division 1 requirements

3.2 INSPECTION

A. Inspect surfaces to receive paint.

B. Correct deficiencies before the application of coating materials.

C. Proceeding with finish work covered by this Section, signifies that the applicator accepts the surfaces as being satisfactory and ready to receive the material specified.

D. Those areas, in which rough or irregularly finished surfaces appear, regardless of the cause, will be rejected and shall be corrected and be refinished at no additional cost to the Owner.

3.3 PREPARATION

A. All surfaces shall be properly prepared following applicable surface preparation specifications.

B. Clean and prepare surfaces to be finished.

C. Surfaces shall be cleaned just prior to painting and necessary steps taken to remove loose dirt and prevent dust in the area during the painting and drying period.

D. Do not proceed with the painting of any surface when weather conditions or progress of other trades is not suitable to permit work.

E. Prepare existing surfaces to SSPC-SP2 or SSPC-SP3 standards.

F. Surface shall be free of moisture, loose material and oil.

G. All corrosion products shall be removed from all deck surfaces including areas that will not receive paint coating.

H. Wipe deck surface just prior to application with alcohol base solvent when excessive moisture is present.

I. Follow paint manufacturer's recommendations for surface preparation on new and existing surfaces.

3.4 APPLICATION METHODS AND RATES

A. Paint shall be mixed and strained just prior to application. Wet film thickness shall be measured during application and application rate adjusted to provide proper DFT.

B. Application rates establish maximum coverage and should not be utilized to estimate expected rate of coverage. The material schedule identifies minimum dry film thickness (DFT) where applicable.

C. The materials specified are formulated for spray application. Where application is by brush or roller, a second, or additional coat may be required for complete coverage, and the Contractor shall provide the additional coat to achieve the dry film thickness.

D. Paint shall be allowed to dry to touch or a minimum of 1 hour after application before installing roof insulation. Utilize care to avoid damage to paint film if insulation is installed over paint that is not cured.

3.5 FIELD QUALITY CONTROL

A. Where incompatibility is encountered between coatings, or coatings fail to provide satisfactory coverage, or adhesion to substrate is poor, the Consultant shall be notified immediately to determine corrective action.

B. Painting work deemed unsatisfactory by the Consultant shall be refinished at the Contractor's expense.

3.6 PROTECT AND CLEAN

A. Protect surfaces adjacent to work areas.

B. Immediately clean all spills and spatters with manufacturer recommended cleaner before paint cures. Repair and refinish building surfaces damaged by paint spills to match condition prior to start of construction.

END OF SECTION 09000

LIST OF DRAWINGS

NOTES:

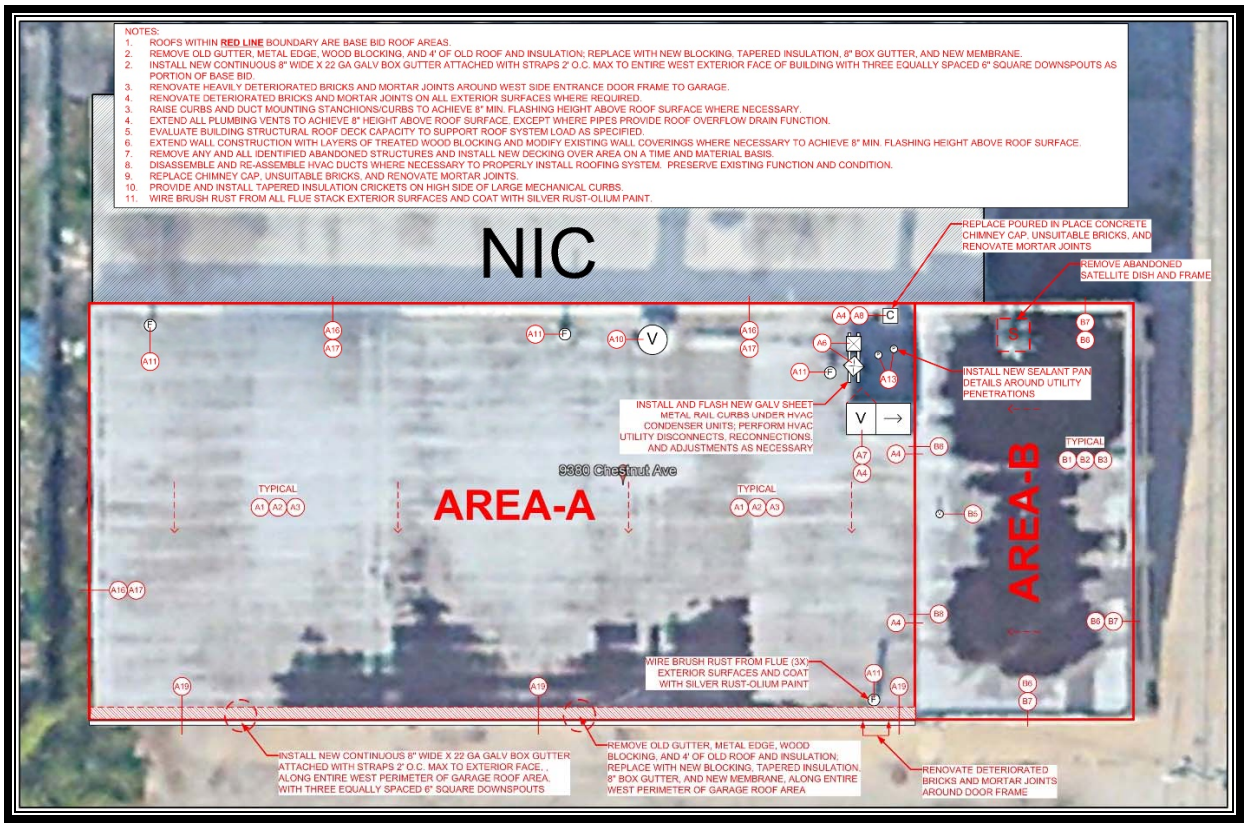
1. The Sketches and/or photos included in the Contract depict only the concept of the Work.
2. No scale is provided; none shall be inferred or assumed. Component proportions are not necessarily as depicted. Measurements and area size calculations are estimated and are NOT to be relied on for bidding purposes.
3. Notes on the Sketches and/or photos are supplemental to the specifications and are a portion of the Work.
4. Structural and connecting conditions may differ from those depicted; Contractor shall verify field conditions.

ROOF DRAWINGS/PHOTOS:

1. Roof Sketch (Aerial Photo) - RS-1
2. Key Pages and Detail Drawings as provided in the Project Manual

ROOF SKETCH:

1. Re-Roof and Roof Replacement, 9380 Chestnut Ave, Franklin Park, IL 60131



END OF SECTION

A. MEMBRANE:

1. WHITE REINFORCED 60 MIL (FB110) FLEECE-BACK TPO FIELD MEMBRANE, ADHERED TO ADJOINING INSULATION OR OTHER APPROVED SUBSTRATE WITH ROOFING MANUFACTURER'S FOAM ADHESIVE OR APPROVED EQUAL CONTINUOUS BEADS/ RIBBONS SET AT 6" O.C. IN THE FIELD AND ALONG FM DEFINED PERIMETER MARGINS AND 4" O.C. WITHIN FM DEFINED CORNER ZONES, AS REQUIRED BY MANUFACTURER TO ACHIEVE PROJECT WIND UPLIFT REQUIREMENTS AND TO QUALIFY FOR SPECIFIED WARRANTY
2. WHITE REINFORCED 60 MIL TPO FLASHING MEMBRANE, FULLY ADHERED WITH MANUFACTURER'S "CAV-GRIP" SPRAY-APPLIED ADHESIVE OR APPROVED EQUAL TO PREPARED SUBSTRATE SURFACES AS REQUIRED BY MANUFACTURER TO ACHIEVE PROJECT WIND UPLIFT REQUIREMENTS AND TO QUALIFY FOR SPECIFIED WARRANTY
3. WHITE NON-REINFORCED 60 MIL TPO FLASHING MEMBRANE, FULLY ADHERED WITH MANUFACTURER'S "CAV-GRIP" SPRAY-APPLIED ADHESIVE OR APPROVED EQUAL TO PREPARED SUBSTRATE SURFACES AS REQUIRED BY MANUFACTURER TO ACHIEVE PROJECT WIND UPLIFT REQUIREMENTS AND TO QUALIFY FOR SPECIFIED WARRANTY
4. PREFABRICATED TPO INSIDE/OUTSIDE CORNER FLASHING
5. PREFABRICATED TPO PIPE FLASHING
6. PREFABRICATED TPO SQUARE TUBING WRAPS
7. 45 MIL NON-REINFORCED CURED EPDM MEMBRANE, SEALED TOGETHER WITH 3" WIDE BUTYL SEAM TAPE ADHESIVE AT SEAM OVERLAPS AND WITH ROOFING MANUFACTURER'S BONDING ADHESIVE TO APPROVED SUBSTRATES
8. ROOFING MANUFACTURER'S TPO WALKPAD, HEAT WELDED TO TPO FIELD MEMBRANE ACCORDING TO ROOFING MANUFACTURER'S REQUIREMENTS
9. CARLISLE VAPAIR SEAL 725TR AIR AND VAPOR BARRIER/TEMPORARY ROOF OR APPROVED EQUAL, FULLY ADHERED TO PREPARED ROOF DECK OR OTHER SUITABLE SUBSTRATE
10. 160 MIL SMOOTH SURFACE APP MODIFIED BITUMEN MEMBRANE VAPOR BARRIER/TEMPORARY ROOF OR APPROVED EQUAL, FULLY ADHERED TO PREPARED ROOF DECK OR OTHER SUITABLE SUBSTRATE

B. INSULATION/COVER BOARD/SUBSTRATE BOARD:

1. 2.6" THICK 20 PSI DENSITY POLYISOCYANURATE THERMAL INSULATION, LAID IN A RUNNING BOND PATTERN WITH 50% STAGGER BETWEEN ROWS AND OFFSET 12" MINIMUM BETWEEN LAYERS, FOAM-ADHERED TO VAPOR BARRIER MEMBRANE, ADJOINING INSULATION, OR OTHER APPROVED SUBSTRATE WITH CARLISLE "FAST 100" FOAM ADHESIVE OR APPROVED EQUAL CONTINUOUS BEADS/RIBBONS SET AT 12" O.C. IN THE FIELD, 6" O.C. ALONG FM DEFINED PERIMETER MARGINS, AND 4" O.C. WITHIN FM DEFINED CORNER ZONES AS REQUIRED BY MANUFACTURER TO ACHIEVE PROJECT WIND UPLIFT REQUIREMENTS AND TO QUALIFY FOR SPECIFIED WARRANTY
2. 1/2" PER FOOT OR GREATER, 20 LBS DENSITY POLYISOCYANURATE TAPERED INSULATION, FULLY ADHERED TO ADJOINING INSULATION OR OTHER APPROVED SUBSTRATE WITH CARLISLE "FAST 100" FOAM ADHESIVE OR APPROVED EQUAL CONTINUOUS BEADS/RIBBONS SET AT 12" O.C. IN THE FIELD, 6" O.C. ALONG FM DEFINED PERIMETER MARGINS, AND 4" O.C. WITHIN FM DEFINED CORNER ZONES AS REQUIRED BY MANUFACTURER TO ACHIEVE PROJECT WIND UPLIFT REQUIREMENTS AND TO QUALIFY FOR SPECIFIED WARRANTY
3. 0"-1.5" X 12" X 4' TAPERED HIGH DENSITY WOOD FIBERBOARD INSULATION, ADHERED TO SUBSTRATE WITH MANUFACTURER APPROVED ADHESIVE TO ACHIEVE PROJECT WIND UPLIFT SPECIFICATION REQUIREMENTS
4. UN-FACED ROCKWOOL BATT INSULATION, TIGHTLY PACKED AND FILLED SOLID WITHIN EPDM MEMBRANE CONTAINMENT LOOP OR UTILITY PORTAL
5. ROOFING MANUFACTURER APPROVED SPRAY-FOAM INSULATION, INJECTED INTO GAPS BETWEEN INSULATION BOARDS, BETWEEN INSULATION BOARDS EDGES AND ADJOINING BUILDING MATERIALS, OR WITHIN GAPS BETWEEN OTHER BUILDING MATERIALS WHERE SPECIFIED BY THE ARCHITECT
6. 1/4" PER FOOT OR GREATER, 20 LBS DENSITY POLYISOCYANURATE TAPERED INSULATION, MECHANICALLY FASTENED THROUGH ADJOINING INSULATION OR OTHER APPROVED SUBSTRATE INTO ROOF DECK OR OTHER SUBSTRATE TO ACHIEVE FMG 1-90 WIND UPLIFT PERFORMANCE REQUIREMENTS WITHIN FMG DEFINED FIELD, PERIMETER, AND CORNER ZONES OR AS REQUIRED BY MANUFACTURER TO ACHIEVE PROJECT WIND UPLIFT REQUIREMENTS AND TO QUALIFY FOR SPECIFIED WARRANTY
7. 1/2" THICK 109 PSI HIGH DENSITY POLYISOCYANURATE THERMAL INSULATION, LAID IN A RUNNING BOND PATTERN WITH 50% STAGGER BETWEEN ROWS AND OFFSET 12" MINIMUM BETWEEN LAYERS, MECHANICALLY FASTENED THROUGH ADJOINING INSULATION OR OTHER APPROVED SUBSTRATE INTO ROOF DECK OR OTHER SUBSTRATE TO ACHIEVE FMG 1-90 WIND UPLIFT PERFORMANCE REQUIREMENTS WITHIN FMG DEFINED FIELD, PERIMETER, AND CORNER ZONES OR AS REQUIRED BY MANUFACTURER TO ACHIEVE PROJECT WIND UPLIFT REQUIREMENTS AND TO QUALIFY FOR SPECIFIED WARRANTY

C. WELD/ADHESIVE/PRIMER:

1. 1.5" MIN WIDE CONTINUOUS AUTOMATIC HEAT WELDED SEAM
2. 2.0" MIN WIDE CONTINUOUS HAND-WELDED HEAT WELDED SEAM
3. ROOFING MANUFACTURER'S FOAM ADHESIVE OR APPROVED EQUAL
4. ROOFING MANUFACTURER'S TPO BONDING ADHESIVE OR APPROVED EQUAL
5. ROOFING MANUFACTURER'S CONTACT ADHESIVE/PRIMER OR APPROVED EQUAL
6. ROOFING MANUFACTURER'S "CAV-GRIP" ADHESIVE OR APPROVED EQUAL
7. ROOFING MANUFACTURER'S ASPHALT PRIMER OR APPROVED EQUAL

D. FASTENER:

1. 3.0" DIA METAL PLATE AND APPROVED FASTENER ASSEMBLY, MECHANICALLY ATTACHED TO ROOF DECK, ADJOINING BLOCKING, OR SUITABLE SUBSTRATE PER FM GLOBAL 1-90 LAYOUT AND DENSITY
2. APPROVED FASTENER AND 2" DIA METAL SEAM PLATE ASSEMBLY, MECHANICALLY ATTACHED TO ROOF DECK, ADJOINING BLOCKING, OR SUITABLE SUBSTRATE AT 12" O.C. MAXIMUM
3. APPROVED FASTENER ASSEMBLY, MECHANICALLY ATTACHED TO ROOF DECK, ADJOINING BLOCKING, OR SUITABLE SUBSTRATE PER FM GLOBAL 1-49 LAYOUT AND DENSITY

PATTERSON CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #: 20-850
	DATE: 01/15/20
TITLE: DRAWING CALLOUT KEY - PAGE A	SCALE: NTS
	DETAIL: KEY-A

4. HOT-DIPPED GALV. OR STAINLESS STEEL RING SHANK ROOFING NAIL, 6" O.C. MAX. SPACING, 1.25" MIN. EMBEDMENT
5. HOT-DIPPED GALV. OR STAINLESS STEEL RING SHANK ROOFING NAIL, 12" O.C. MAX. SPACING, 1.25" MIN. EMBEDMENT
6. HOT-DIPPED GALV. OR STAINLESS STEEL RING SHANK ROOFING NAIL, 18" O.C. MAX. SPACING, 1.25" MIN. EMBEDMENT
7. ACCEPTABLE ROOFING MANUFACTURER FASTENER OR FASTENER ASSEMBLY, 6" O.C. MAX.
8. ACCEPTABLE ROOFING MANUFACTURER FASTENER OR FASTENER ASSEMBLY, 12" O.C. MAX.
9. ACCEPTABLE ROOFING MANUFACTURER FASTENER OR FASTENER ASSEMBLY, 18" O.C. MAX.
10. HEX HEAD STAINLESS STEEL FASTENER WITH EPDM WASHER SEAL, 6" O.C. MAX.
11. HEX HEAD STAINLESS STEEL FASTENER WITH EPDM WASHER SEAL, 12" O.C. MAX
12. HEX HEAD STAINLESS STEEL FASTENER WITH EPDM WASHER SEAL, 24" O.C. MAX
13. 3/16" DIA. ZINC ALLOY OR APPROVED EQUAL DRIVE-PIN FASTENER, SET 12" O.C. MAX, 1.25" MIN. EMBEDMENT
14. 1/4" DIA. ZINC ALLOY OR APPROVED EQUAL DRIVE-PIN FASTENER, SET 12" O.C. MAX, 1.25" MIN. EMBEDMENT
15. 1/4" DIA. CROOKED SPIKE, DRIVE-PIN, SPIRAL FLUTED NAIL, TAPCON, OR APPROVED EQUAL FASTENER, SET PER FM GLOBAL 1-49 LAYOUT AND DENSITY, 1.25" MIN. EMBEDMENT
16. 2.0" DIA METAL SEAM PLATE
17. 3.0" DIA METAL PRESSURE PLATE
18. #8 STAINLESS STEEL, PAN HEAD, TRIM FASTENER: 18" O.C. MAX, LENGTH AS REQUIRED TO PENETRATE THROUGH FASTENED MATERIALS
19. 1" MASONRY CUT NAIL, 18" O.C. MAX
20. 1" MASONRY CAP NAIL, 6" O.C. MAX
21. 1" MASONRY CAP NAIL, 12" O.C. MAX
22. 3/6" MIN DIA PAN-HEAD OR FLAT-HEAD HOT-DIPPED GALV WOOD SCREW, 12" O.C MAX, 1.5" MIN EMBEDMENT INTO ADJOINING WOOD MEMBER

E. BLOCKING/STANCHION:

1. PRESERVATIVE TREATED WOOD BLOCKING, SIZE AND LAYERS AS REQUIRED OR SHOWN, ATTACH TO SUBSTRATE ACCORDING TO FM GLOBAL 1-49 LAYOUT AND DENSITY; BOTTOM LAYER SET IN CONTINUOUS 4" O.C. SERPENTINE PATTERN OF PL-400 CONSTRUCTION ADHESIVE OR EQUAL
2. PRESERVATIVE TREATED WOOD BLOCKING STANCHION, 4" X 4" X 18" LONG MIN OR AS SHOWN, 5' O.C. FOR PIPES UP TO 1" DIA., 10' O.C. FOR PIPES EXCEEDING 1" DIA.
3. PRESERVATIVE TREATED WOOD BLOCKING STANCHION, 6" X 6" X 18" LONG MIN OR AS SHOWN, 5' O.C. FOR PIPES UP TO 1" DIA., 10' O.C. FOR PIPES EXCEEDING 1" DIA.

F. SHEET METAL:

1. 24 GA. PRE-FINISHED METAL COPING, SLOPED TO INTERIOR, PROFILE AS SHOWN, COLOR SELECTION BY OWNER
2. 24 GA. PRE-FINISHED COUNTERFLASHING, PROFILE AS SHOWN, COLOR SELECTION BY OWNER
3. 24 GA. PRE-FINISHED FASCIA COVER, PROFILE AS SHOWN, COLOR SELECTION BY OWNER
4. 24 GA. PRE-FINISHED COUNTERFLASHING RECEIVER, PROFILE AS SHOWN, COLOR SELECTION BY OWNER
5. 24 GA. PRE-FINISHED RAIN COLLAR, PROFILE AS SHOWN, COLOR SELECTION BY OWNER
6. 22 GA. G-90 GALVANIZED CLEAT, PROFILE AS SHOWN
7. 22 GA. G-90 GALVANIZED CANT DAM CLEAT, 2" TALL PERIMETER CANT, PROFILE AS SHOWN
8. 22 GA. G-90 GALVANIZED RETAINING CLEAT, PROFILE AS SHOWN
9. 24 GA. X 4" TALL G-90 GALVANIZED SHEET METAL SEALANT PAN, 1" MIN. BETWEEN PIPES AND PERIMETER OF PAN
10. 24 GA. X 8" TALL G-90 GALVANIZED SHEET METAL CONE VENT, 1" MIN. BETWEEN PIPES AND PERIMETER OF CONE
11. 24 GA. PRE-FINISHED METAL EXPANSION JOINT ASSEMBLY, SLOPED TO INTERIOR, PROFILE AS SHOWN, MATCH EXISTING SIZE, COLOR SELECTION BY OWNER
12. HICKMAN OR METAL-ERA 24 GA. PRE-FINISHED METAL COPING, SLOPED TO INTERIOR, PROFILE AS SHOWN, COLOR SELECTION BY OWNER
13. HICKMAN OR METAL-ERA 22 GA. G-90 GALVANIZED CLEAT, PROFILE AS SHOWN
14. HICKMAN OR METAL-ERA JOINT COVER
15. MANUFACTURER'S PROPRIETARY 24 GA. PRE-FINISHED FASCIA COVER, PROFILE AS SHOWN, COLOR SELECTION BY OWNER
16. MANUFACTURER'S PROPRIETARY EXTRUDED ALUMINUM CLEAT
17. 24 GA. TPO COATED SCUPPER LINER/SLEEVE, PROFILE AND POSITION AS SHOWN, MECHANICALLY ATTACHED TO WOOD BLOCKING AND ADHERED/SEALED WITH SPECIFIED SEALANT
18. 24 GA. PRE-FINISHED, SHEET METAL SCUPPER FRAME, FABRICATED FROM A SINGLE PIECE, PROFILE AS SHOWN, COLOR SELECTION BY OWNER
19. 22 GA. G-90 GALVANIZED SHEET METAL COPING COVER WITH FULLY WELDED CORNERS, PROFILE AS SHOWN
20. 24 GA. X 8" TALL G-90 GALVANIZED SHEET METAL CYLINDER, 1" MIN. BETWEEN PIPES AND PERIMETER OF CYLINDER
21. 24 GA. TPO COATED RIGHT-ANGLE DRIP EDGE FASCIA, PROFILE AND POSITION AS SHOWN, LOWER EDGE CRIMPED 2' O.C. TO CLEAT
22. 22 GA. CONTINUOUS G-90 GALVANIZED SHEET METAL GUTTER; ATTACHED TO FASCIA WITH (D5) STAINLESS STEEL SCREWS 24" O.C. INTO HEAVY GAUGE G-90 GALVANIZED SHEET METAL STRAPS, PROFILE AS SHOWN
23. 18 GA. G-90 GALVANIZED SHEET METAL GUTTER STRAPS; ATTACHED TO FASCIA WITH (D5) STAINLESS STEEL SCREWS SET 24" O.C. THROUGH EDGE METAL AND INTO WOOD BLOCKING OR OTHER SUBSTRATE

PATTERSON CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #: 20-850
	DATE: 01/15/20
TITLE: DRAWING CALLOUT KEY - PAGE B	SCALE: NTS
	DETAIL: KEY-B

G. DECKING:

1. STEEL ROOF DECK, TYPE AND GAUGE AS SPECIFIED BY ARCHITECT, INSTALLED ACCORDING TO SPECIFICATION REQUIREMENTS
2. CONCRETE ROOF DECK, THICKNESS AND PSI STRENGTH AS REQUIRED TO PERFORM ACCORDING TO SPECIFICATION REQUIREMENTS

H. SEALANT:

1. CONTINUOUS NP-1 OR ARCHITECT APPROVED EQUAL POLYURETHANE SEALANT, TOOL OR PRESS IN PLACE TO INSURE FULL CONTACT WITH SUBSTRATE
2. CONTINUOUS WATER CUT-OFF MASTIC
3. CONTINUOUS CUT EDGE SEALANT WHERE MEMBRANE MANUFACTURED EDGE IS CUT AND REINFORCING SCRIM IS EXPOSED
4. POURABLE SEALER, SLOPED TOP SURFACE TO ASSURE WATER EVACUATION, 2" THICKNESS MIN.
5. SOLID BED CHEMLINK M-1 UNIVERSAL ADHESIVE/SEALANT
6. NO SEALANT, SCUPPER FRAME BOTTOM EDGE OPEN FOR WATER EGRESS
7. CONTINUOUS PL-400 OR EQUAL CONSTRUCTION ADHESIVE BETWEEN SURFACES

I. ACCESSORIES:

1. 1" DIA COMPRESSIBLE FOAM ROD
2. 3" DIA SOLID FOAM ROD
3. STAINLESS STEEL WORM-GEAR CLAMP, SIZE AS REQUIRED, TRIM EXCESS TAIL
4. 1/8" X 1.13" ALUMINUM COMPRESSION BAR
5. EXTERIOR GRADE G-90 HOT DIPPED GALVANIZED HEAVY DUTY PIPE CLAMP & LAG BOLT, 1 PER PIPE FOR EACH STANCHION
6. CAST IRON DRAIN STRAINER COVER
7. DRAIN CLAMPING RING AND BOLTS
8. DRAIN BOWL CASTING
9. PRE-FABRICATED TPO PIPE FLASHING, BASE FLANGE HEAT WELDED TO FIELD MEMBRANE
10. PRE-FABRICATED RUBBER PORTAL COVER
11. ALUMINUM UTILITY PORTAL
12. HVAC HOUSING
13. UNIT COUNTERFLASHING
14. SKYLIGHT DOME AND FRAME
15. ROOF HATCH ASSEMBLY
16. METAL SIDING
17. PIPE/TUBE
18. MASONRY WALL
19. ARCHITECT SPECIFIED PIPE STANCHION BLOCK
20. ARCHITECT SPECIFIED STRUCTURAL ELEMENT

J. TERMINATION:

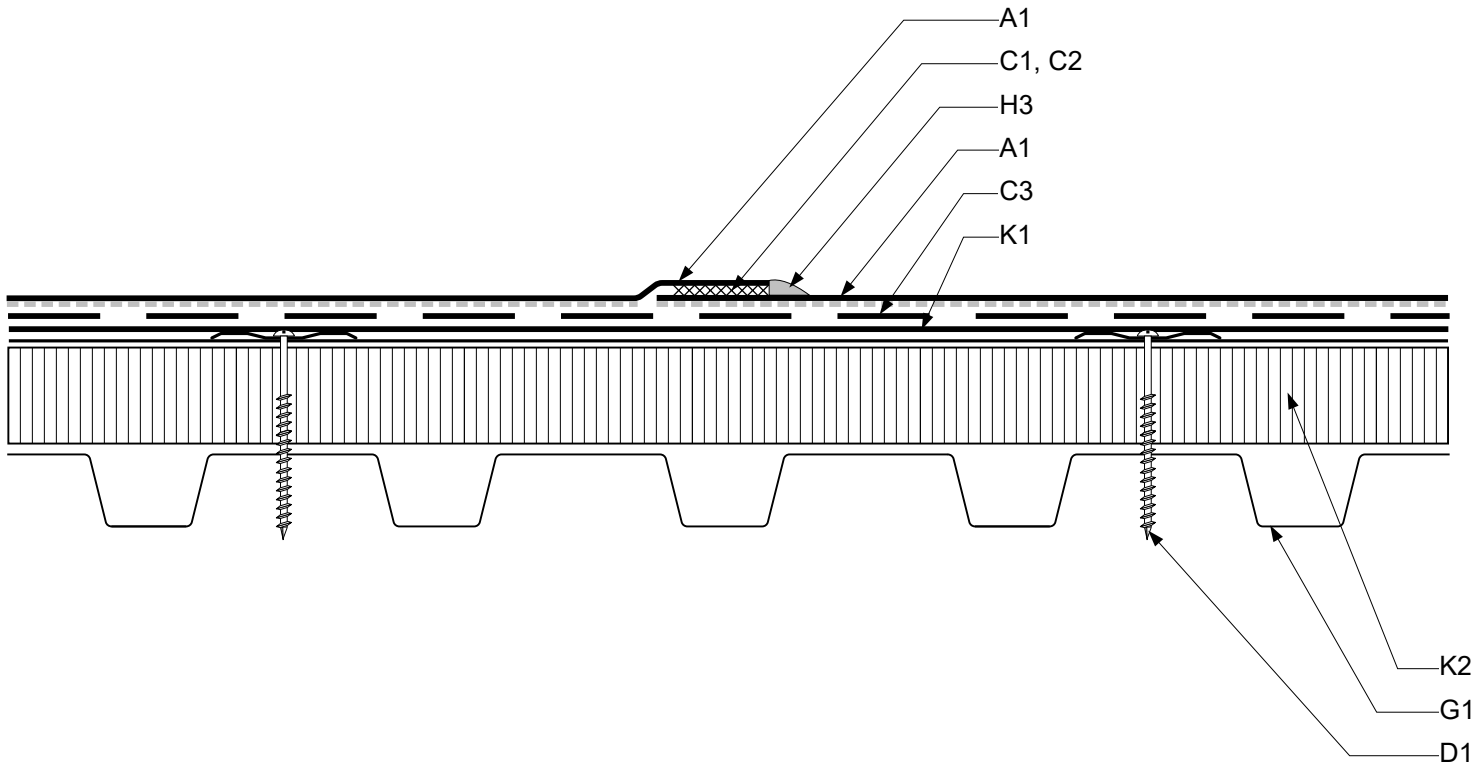
1. ACCEPTABLE TOP EDGE TERMINATION DETAIL
2. ACCEPTABLE BASE FLASHING TERMINATION DETAIL

K. EXISTING BUILDING MATERIALS

1. EXISTING ALUMINUM PAINTED MODIFIED SMOOTH SURFACE APP BITUMEN MEMBRANE ROOFING SYSTEM, PROPERLY PREPARED AS REQUIRED BY ROOFING SYSTEM MANUFACTURER FOR ADHESION OF NEW FLEECE-BACKED TPO MEMBRANE ROOFING SYSTEM
2. EXISTING 2.0 INCH THICK RIGID POLYISOCYANURATE THERMAL INSULATION; INSPECTED WITH CORE CUTS EVERY 100 SF. TO DETERMINE SUITABILITY AND REPLACED AS NECESSARY WITH LIKE AND KIND INSULATION WITH NO GAP GREATER THAN 1/4" AND ROOFING MEMBRANE MATERIALS
3. EXISTING “J” VENT GALVANIZED SHEET METAL HOUSING

PATTERSON CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #: 20-850
	DATE: 01/15/20
TITLE: DRAWING CALLOUT KEY - PAGE A	SCALE: NTS
	DETAIL: KEY-C

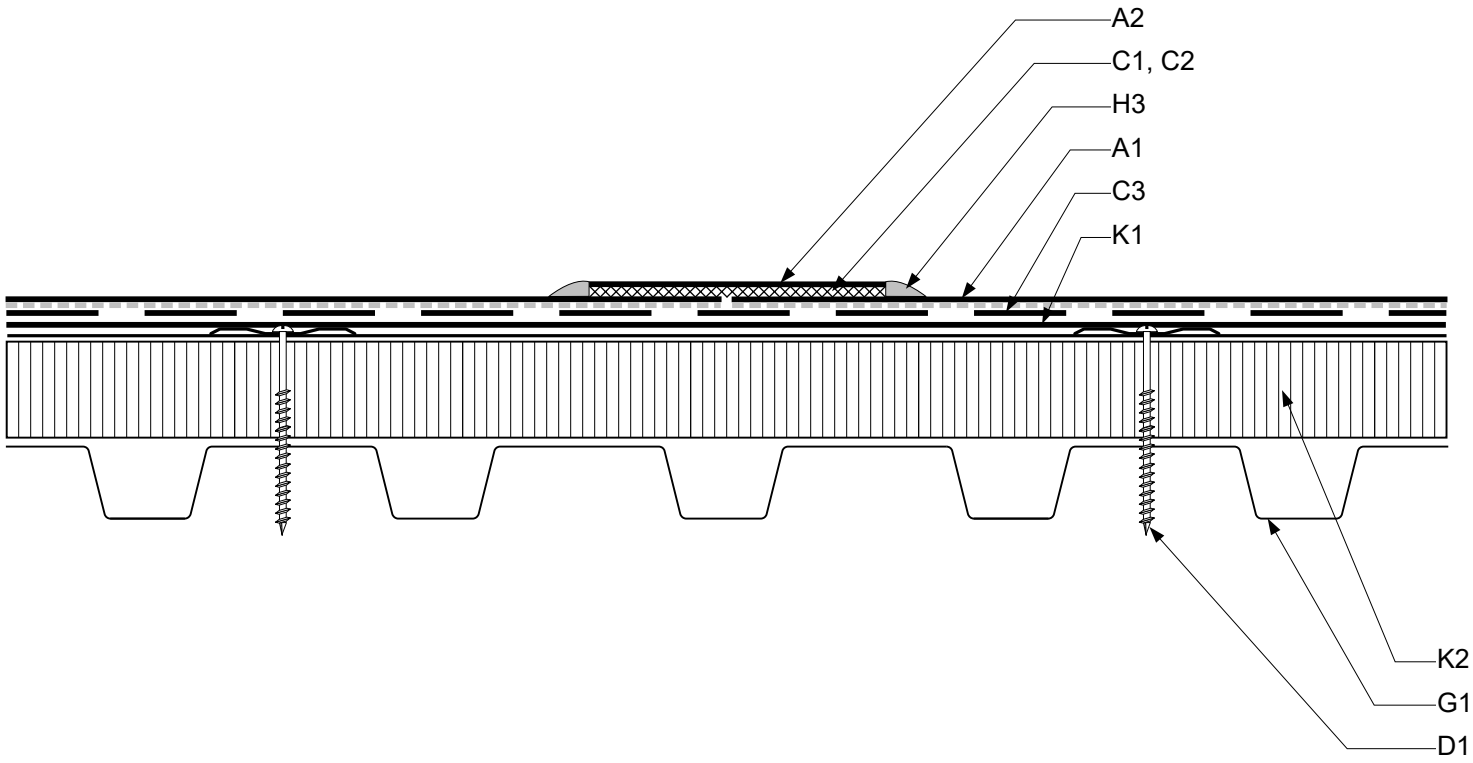


PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT:
VILLAGE OF FRANKLIN PARK ILLINOIS
9380 CHESTNUT AVE
FRANKLIN PARK, IL 60131

TITLE:
FIELD SEAM FLASHING DETAIL (OPTION A, OVERLAP)

PROJ. #:	20-850
DATE:	01/15/20
SCALE:	NTS
DETAIL:	A1

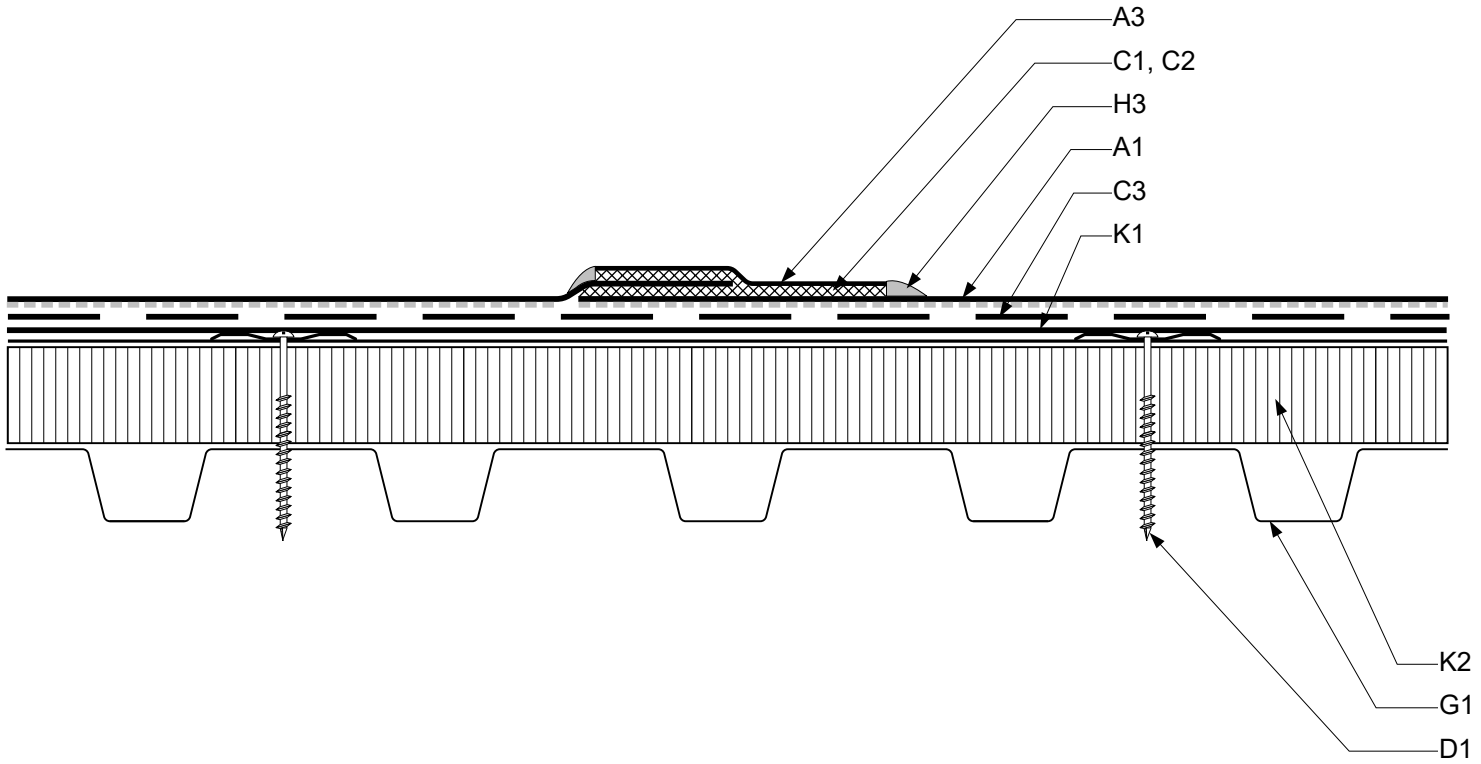


PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT:
VILLAGE OF FRANKLIN PARK ILLINOIS
9380 CHESTNUT AVE
FRANKLIN PARK, IL 60131

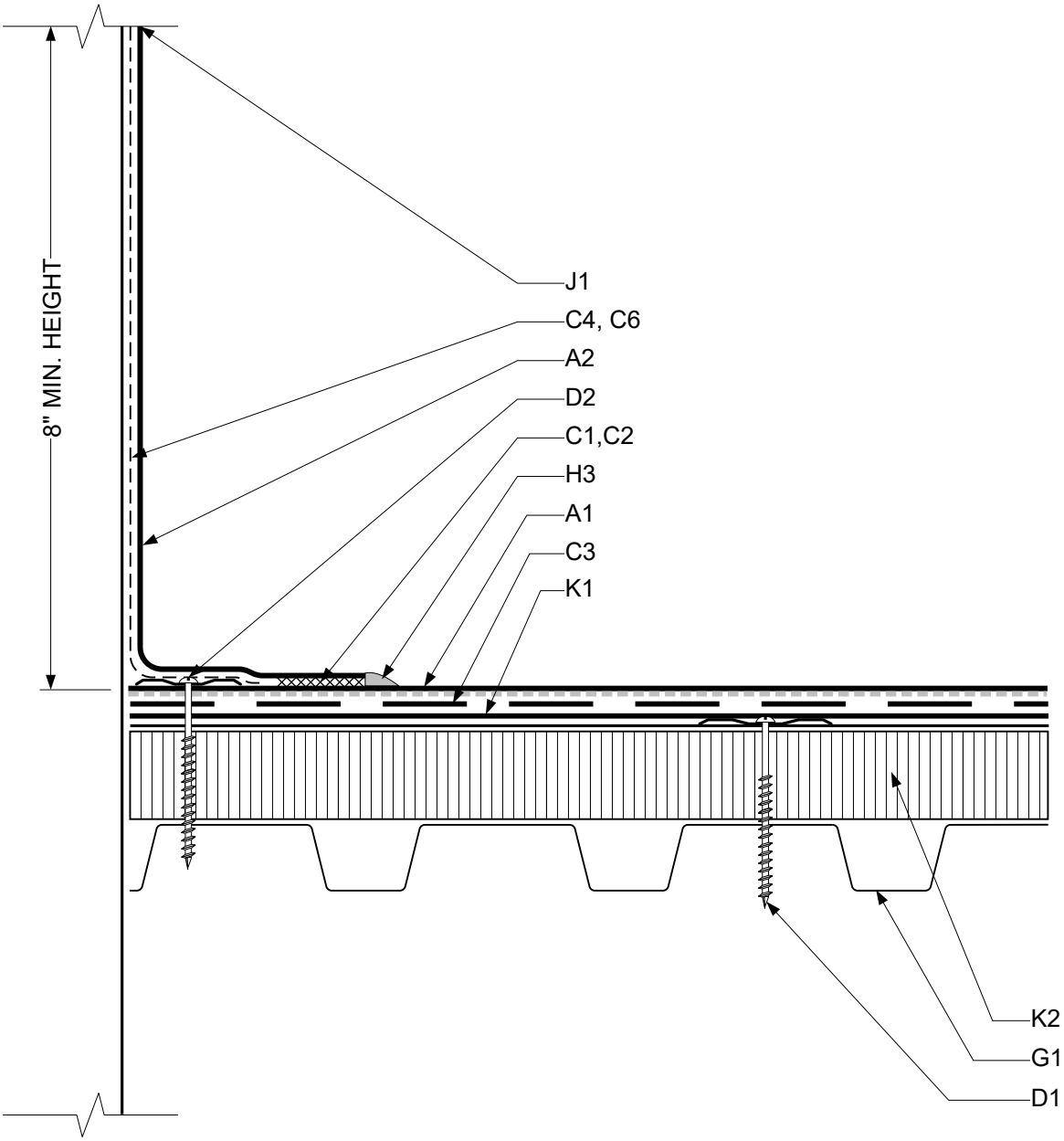
TITLE:
FIELD SEAM FLASHING DETAIL (OPTION B, BUTT)

PROJ. #:	20-850
DATE:	01/15/20
SCALE:	NTS
DETAIL:	A2



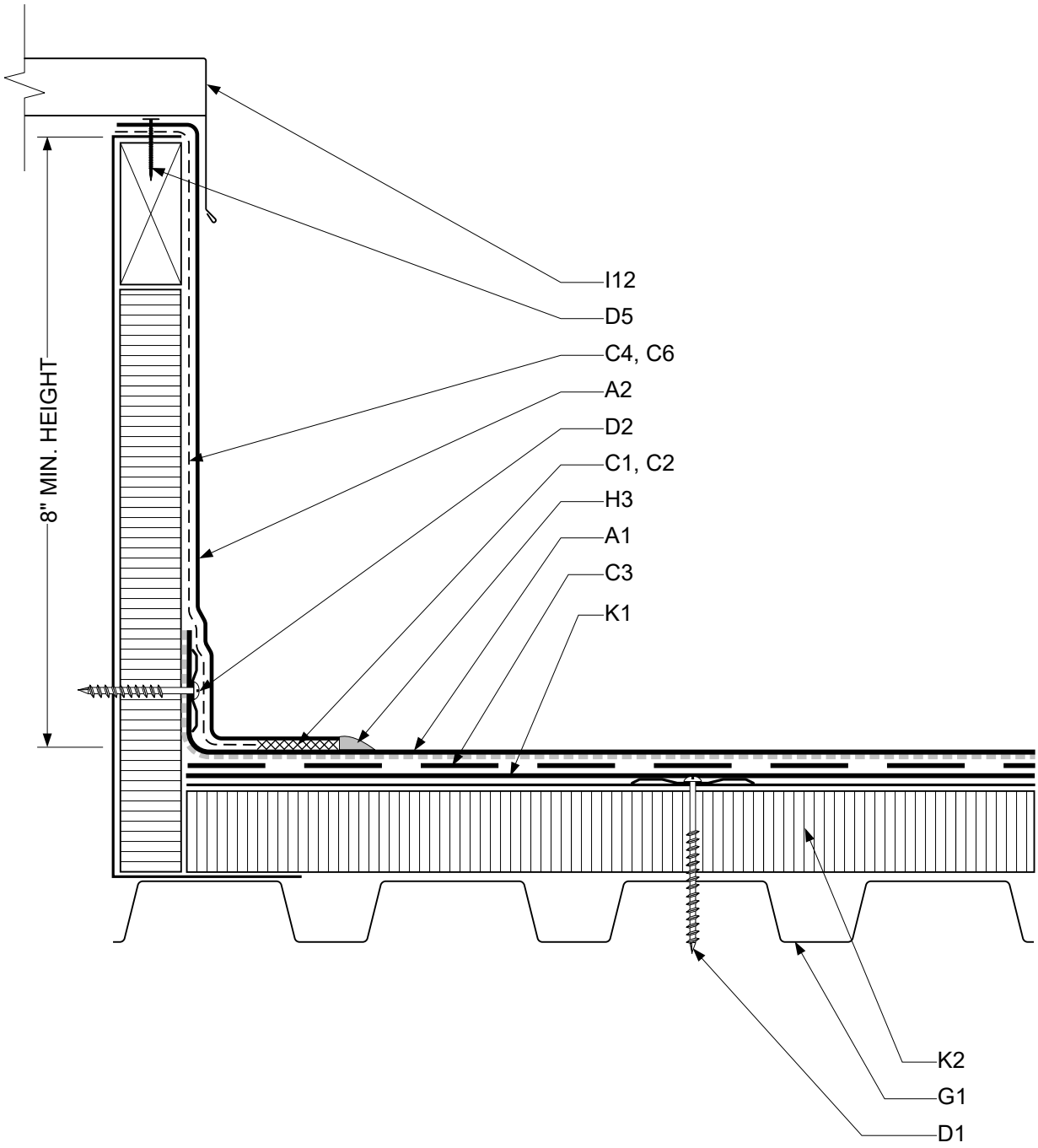
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: T-JOINT SEAM FLASHING DETAIL	SCALE:	NTS
	DETAIL:	A3



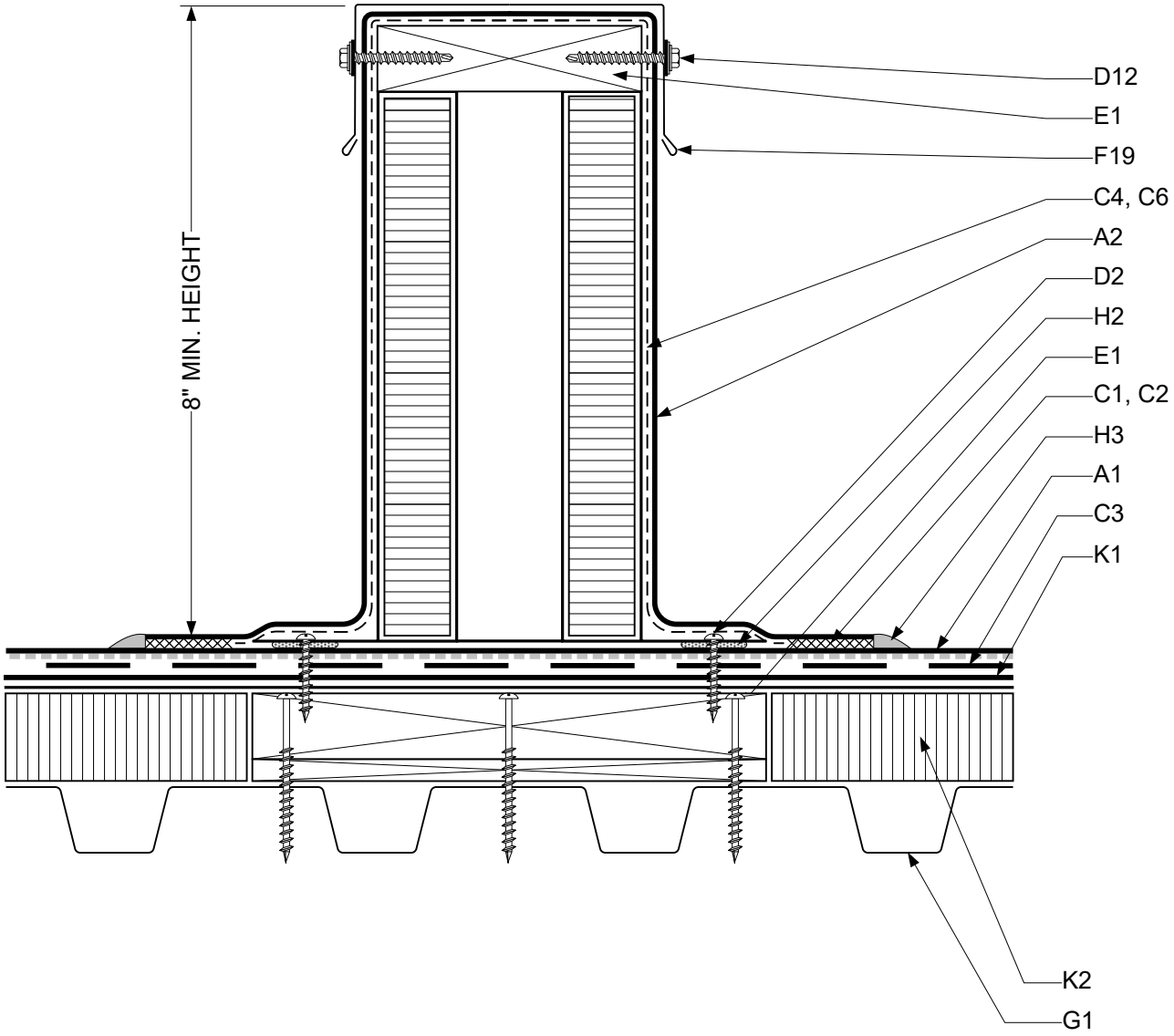
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: WALL BASE FLASHING DETAIL (OPTION B)	SCALE:	NTS
	DETAIL:	A4



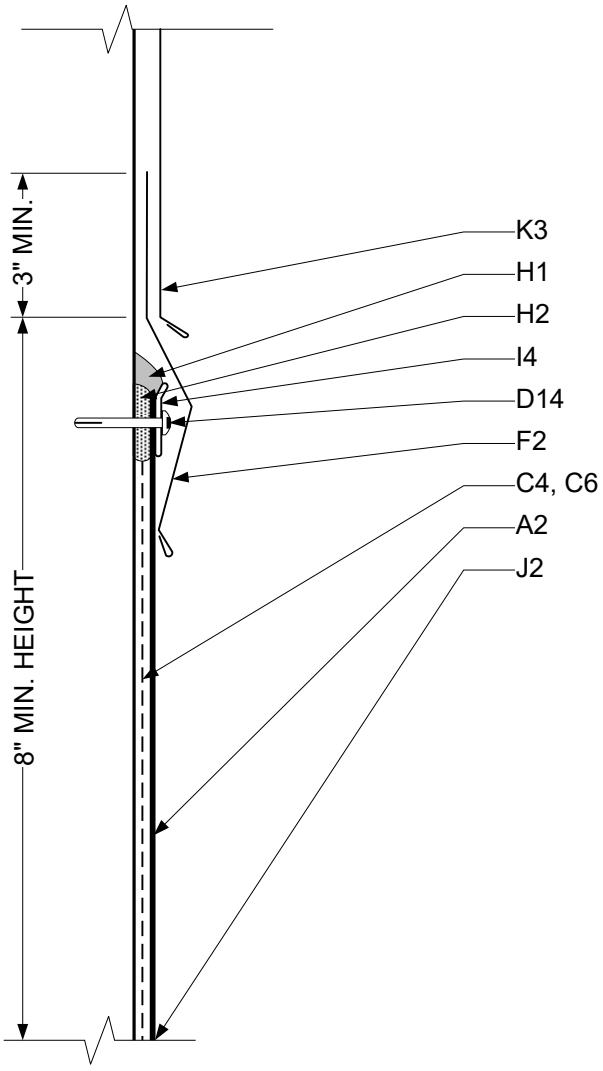
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: CURB FLASHING DETAIL (OPTION A)	SCALE:	NTS
	DETAIL:	A5



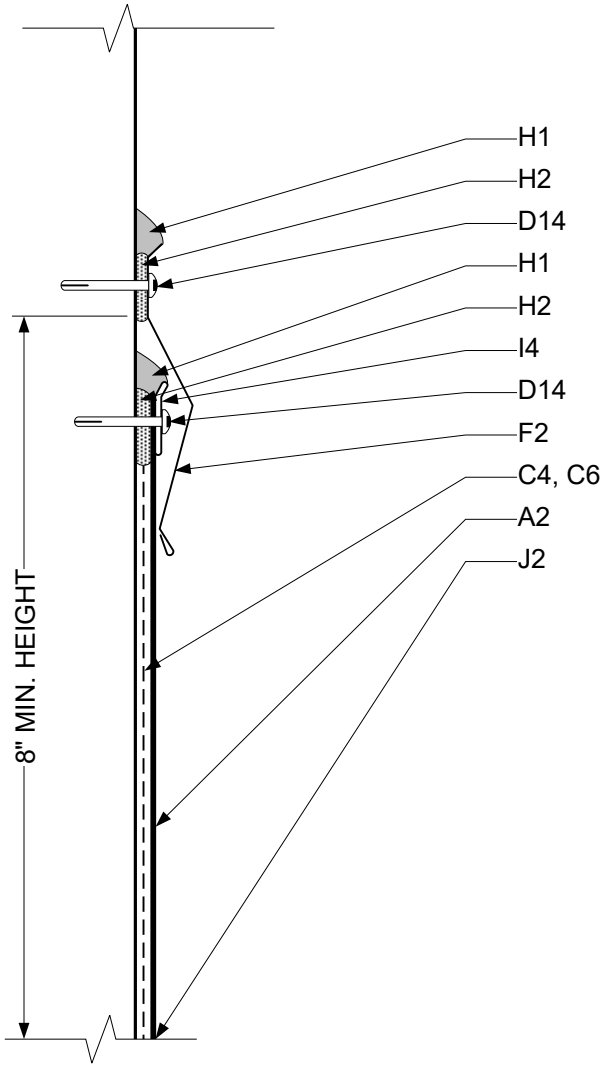
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #: 20-850
	DATE: 01/15/20
TITLE: RAIL CURB FLASHING DETAIL	SCALE: NTS
	DETAIL: A6



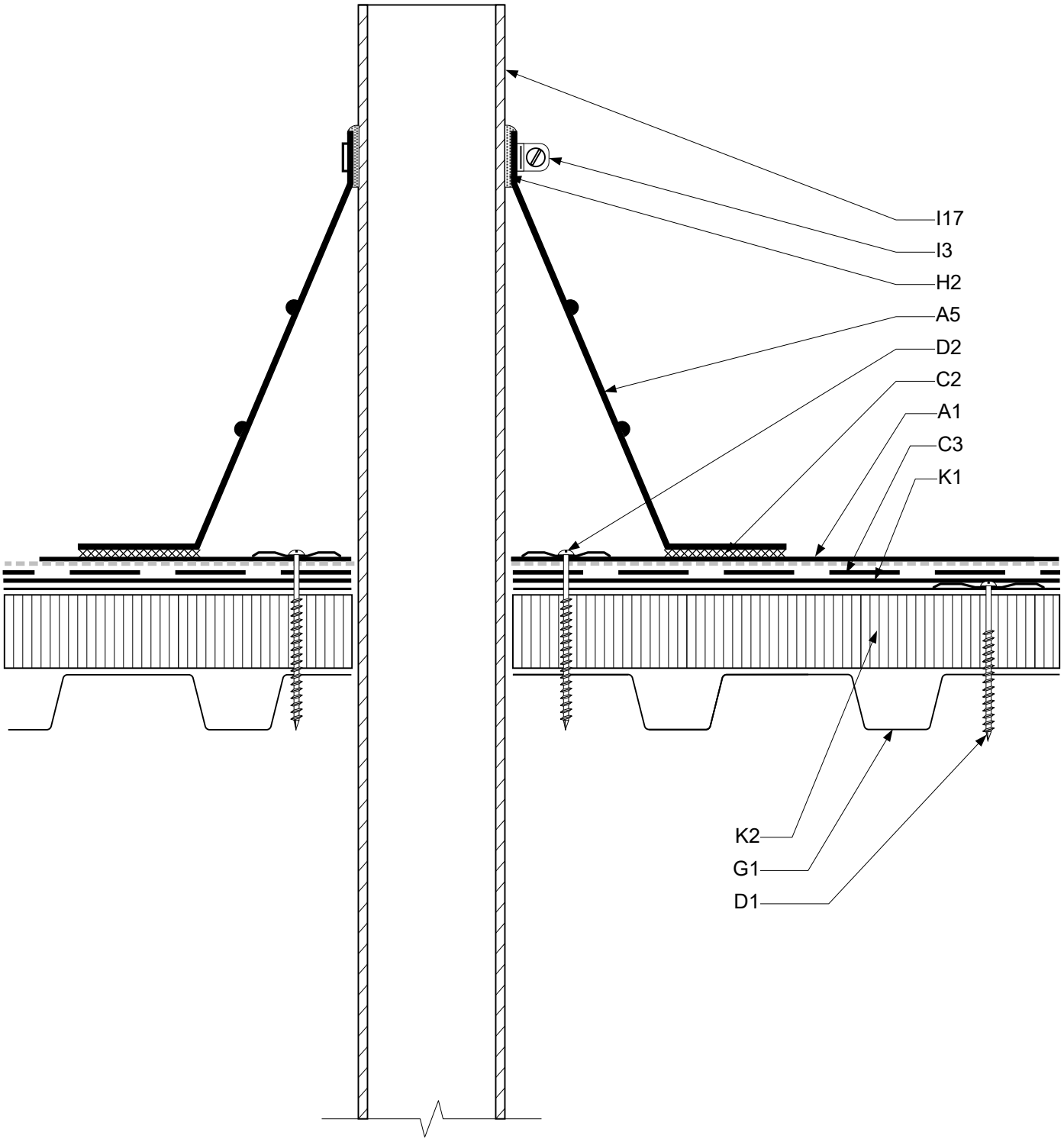
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: WALL TERMINATION FLASHING DETAIL (METAL SIDING)	SCALE:	NTS
	DETAIL:	A7



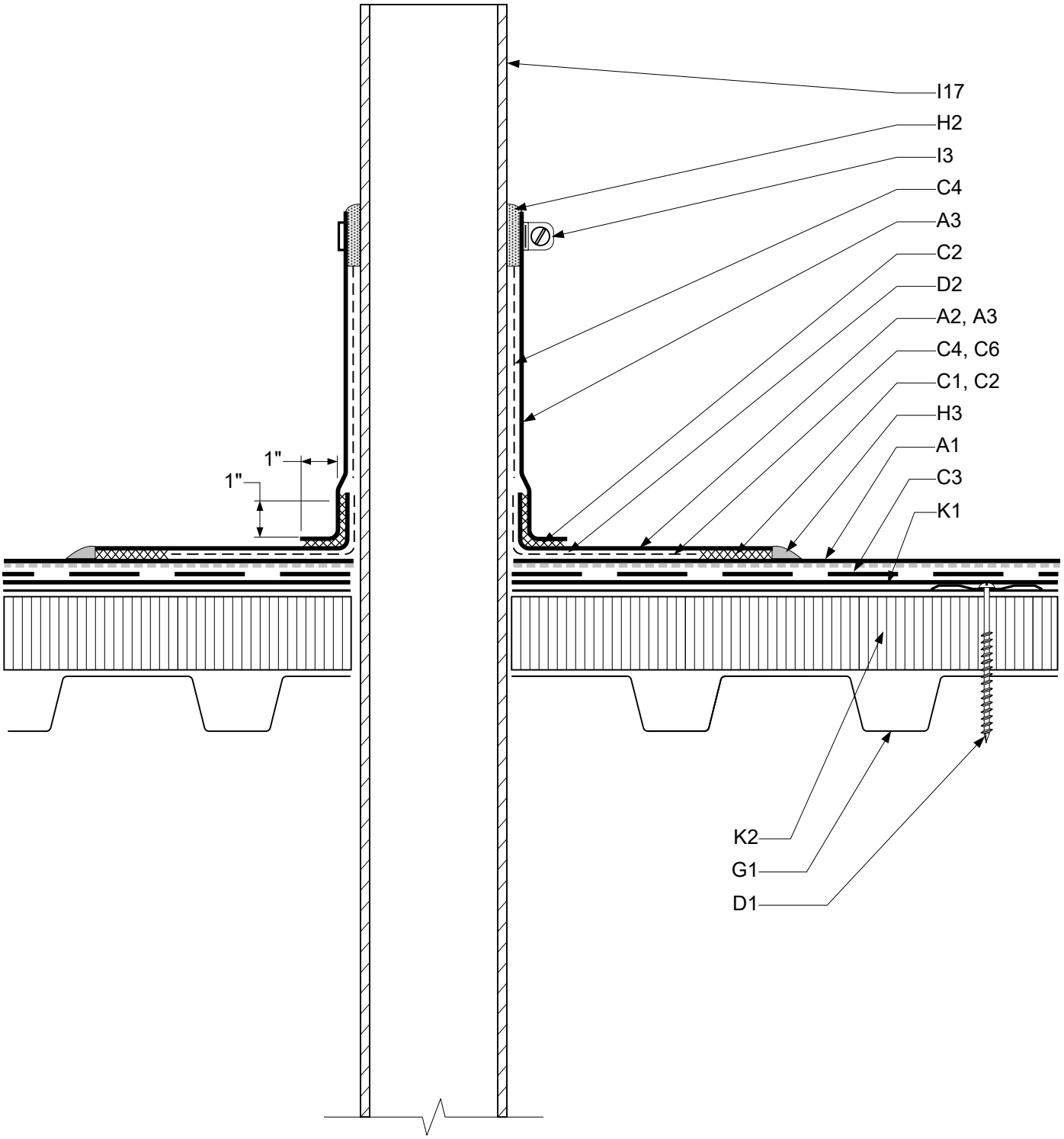
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: WALL TERMINATION FLASHING DETAIL (SURFACE MOUNT)	SCALE:	NTS
	DETAIL:	A8



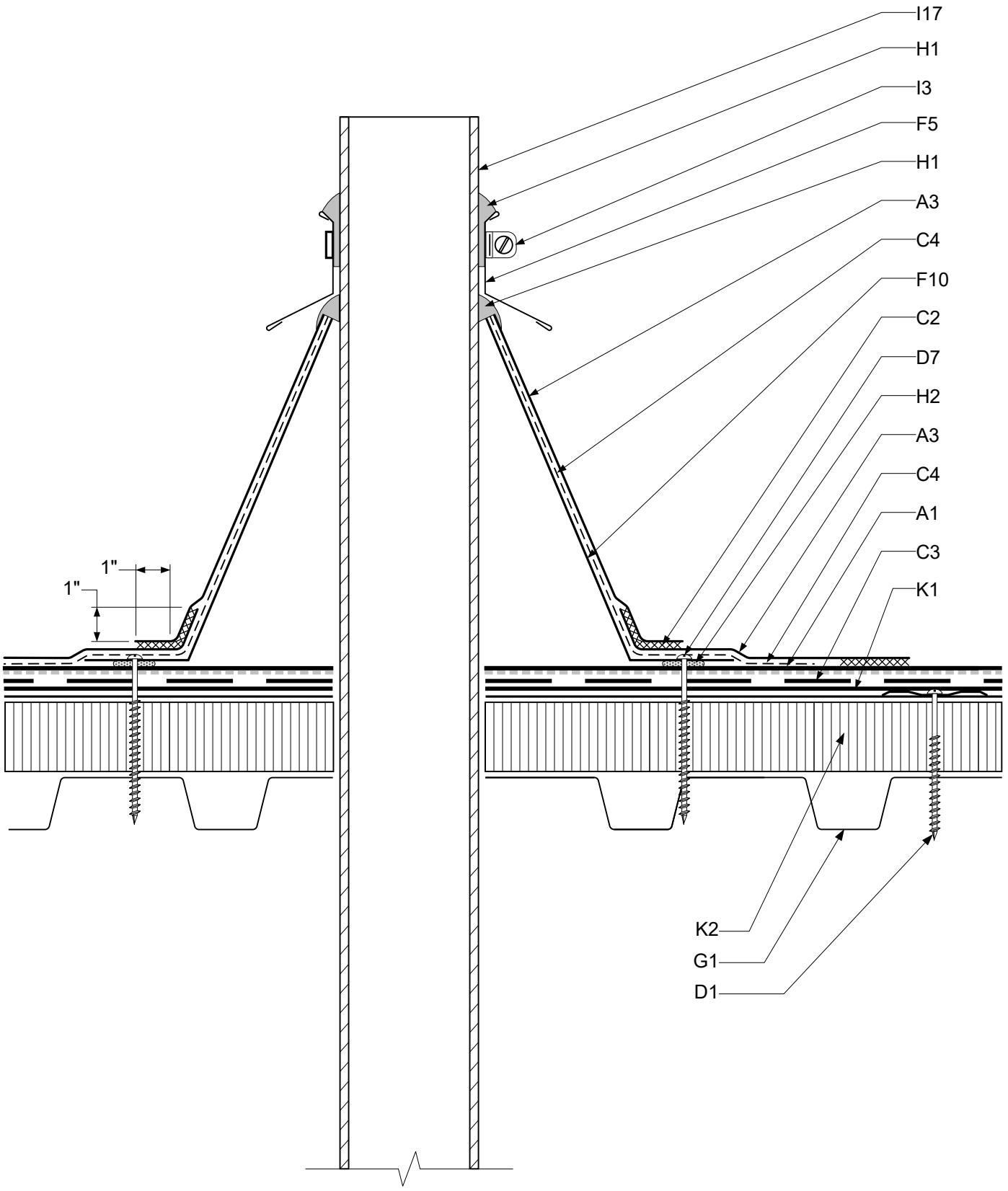
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: PIPE/TUBE FLASHING DETAIL (PRE-FABRICATED)	SCALE:	NTS
	DETAIL:	A9



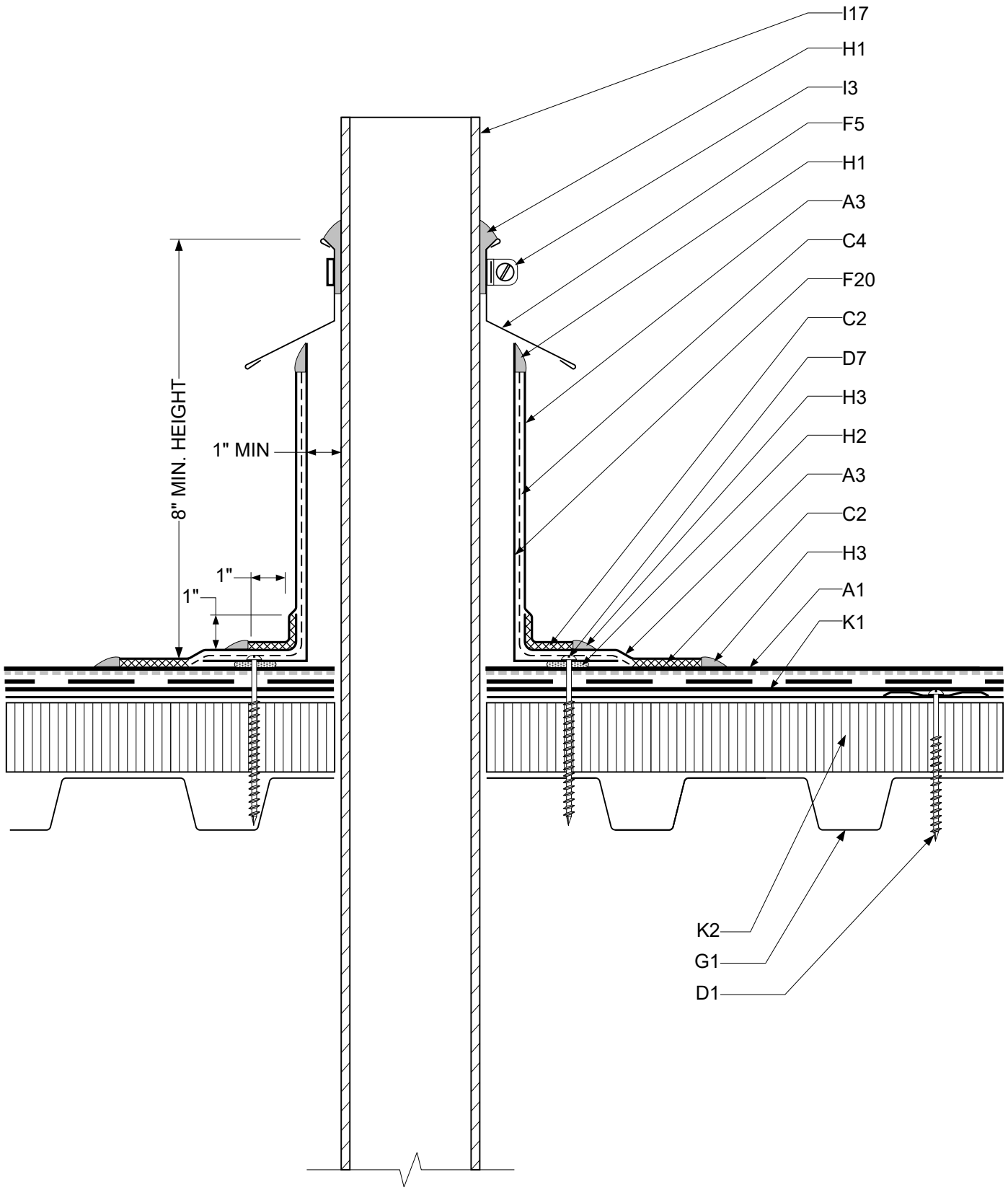
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: PIPE/TUBE FLASHING DETAIL (FIELD-FABRICATED)	SCALE:	NTS
	DETAIL:	A10



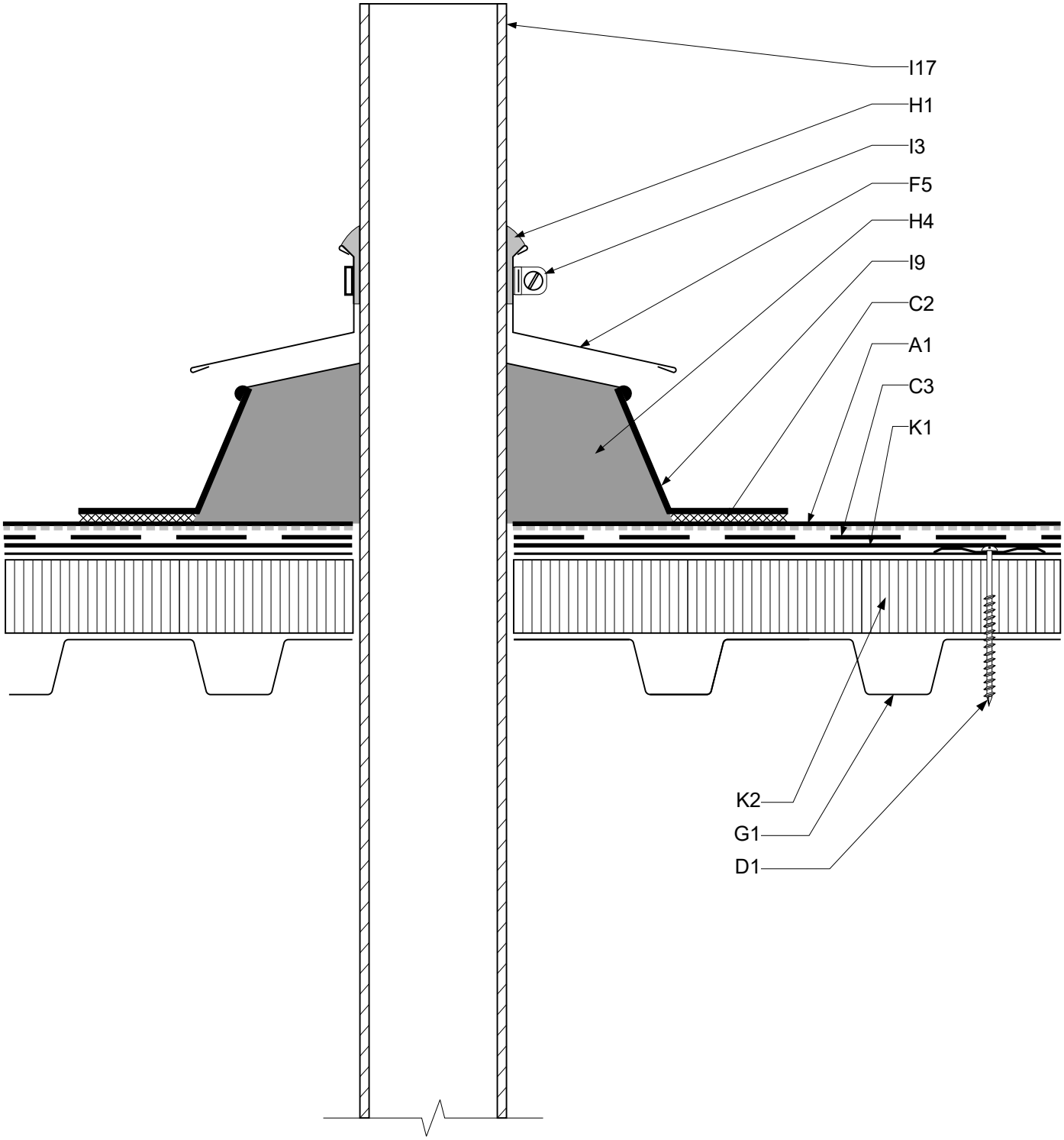
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: TALL CONE FLASHING DETAIL	SCALE:	NTS
	DETAIL:	A11



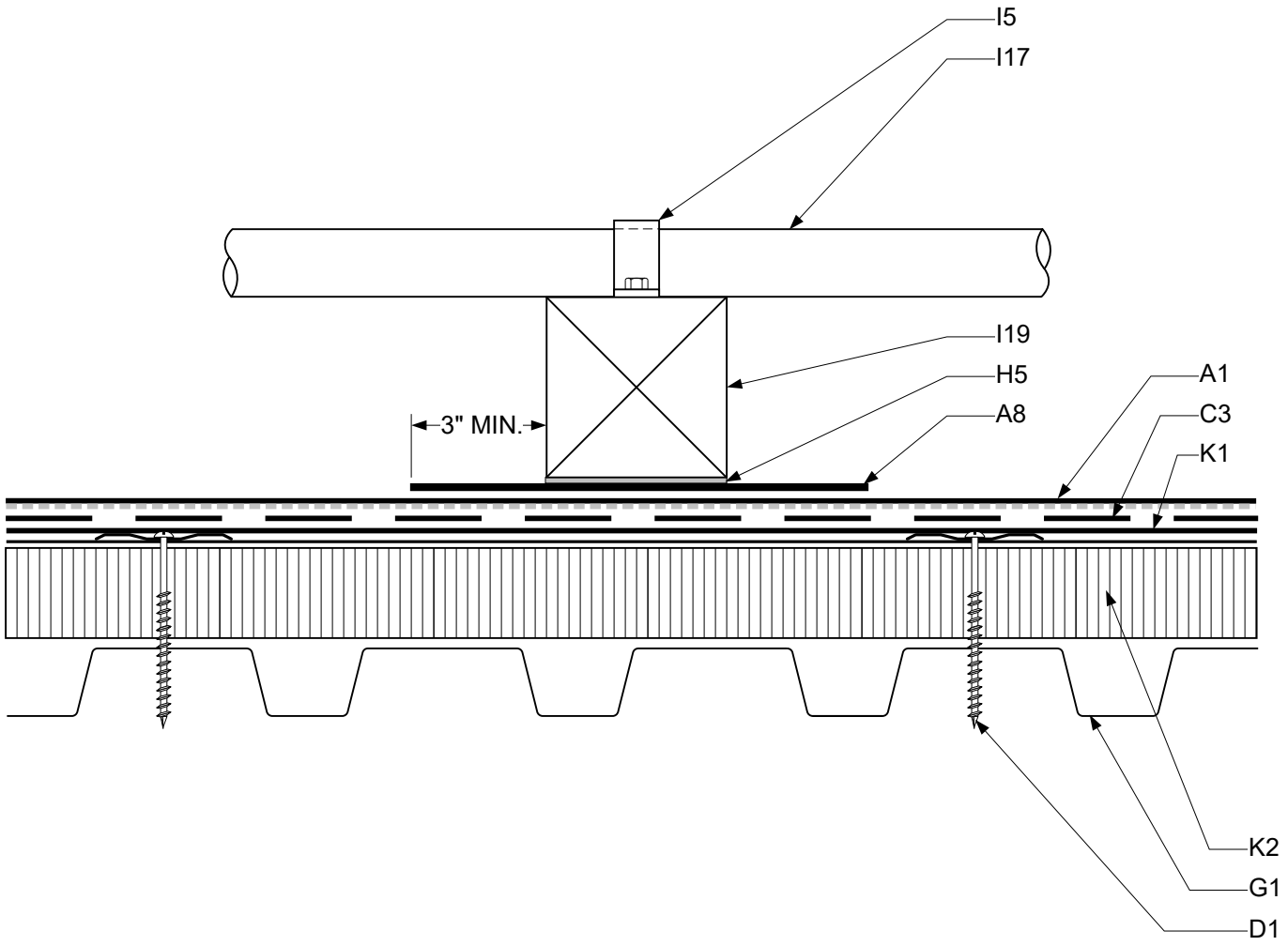
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #: 20-850
	DATE: 01/15/20
TITLE: HOT PIPE FLASHING DETAIL	SCALE: NTS
	DETAIL: A12



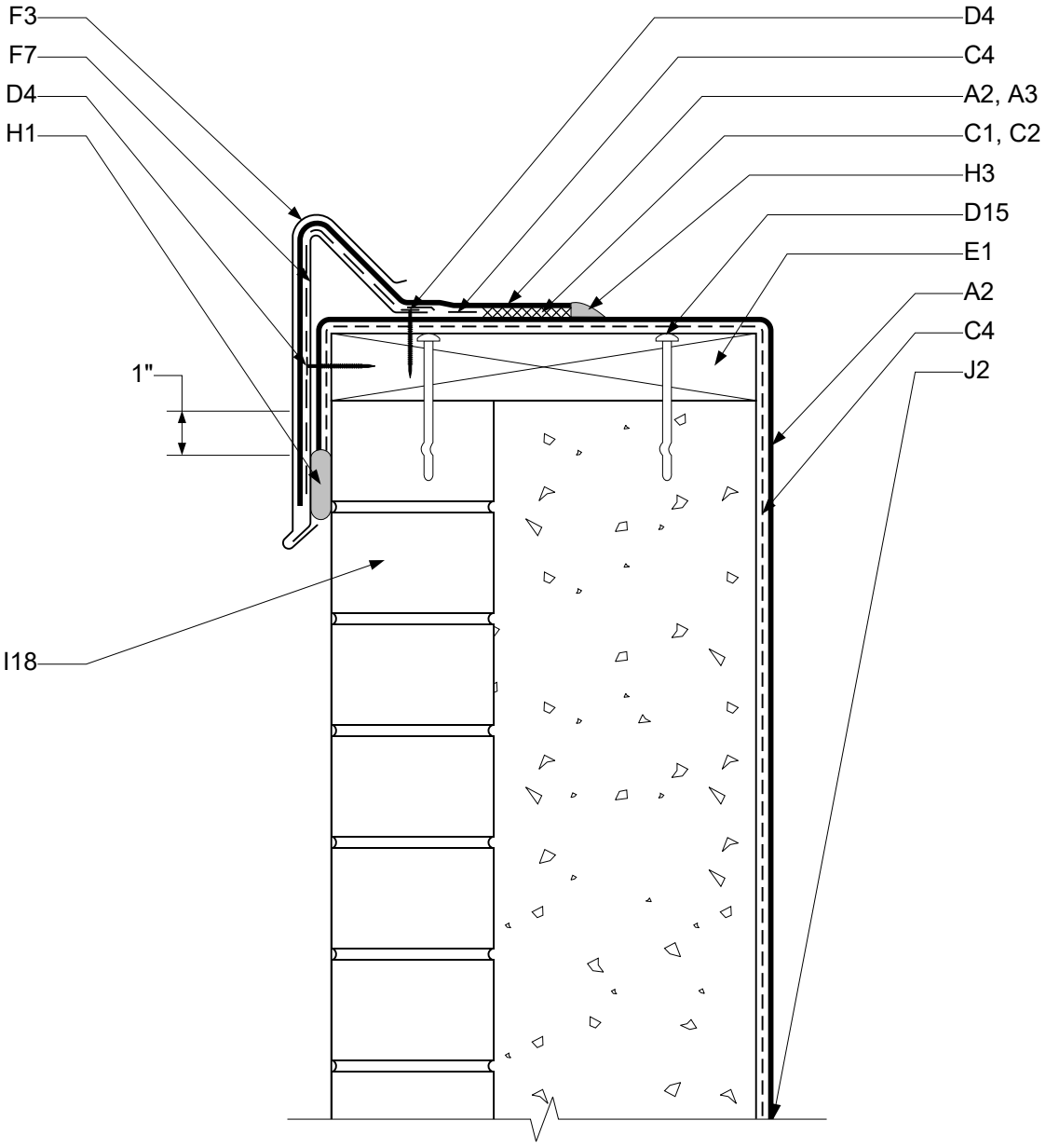
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: SEALANT PAN FLASHING DETAIL	SCALE:	NTS
	DETAIL:	A13



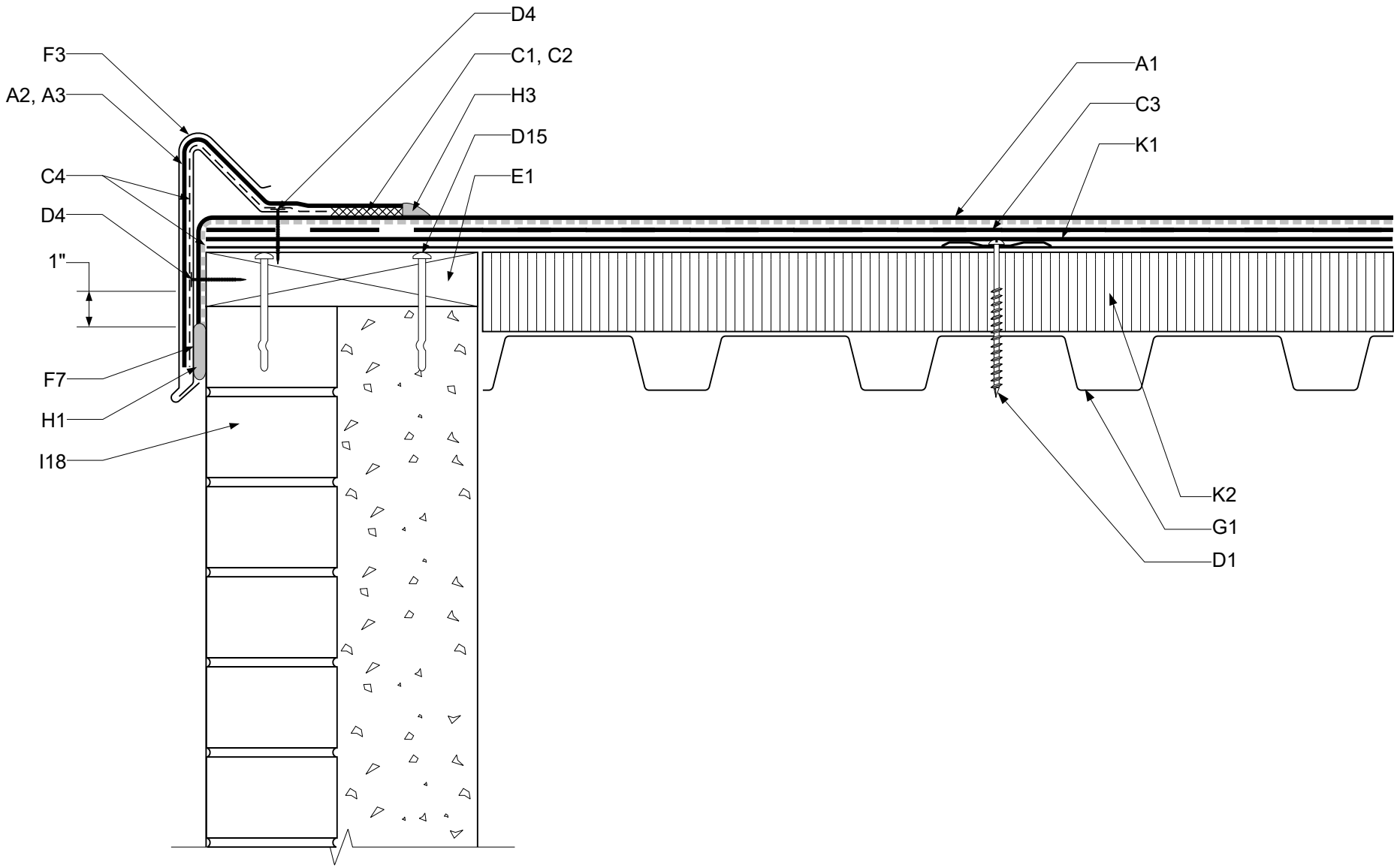
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: PIPE STANCHION FLASHING DETAIL	SCALE:	NTS
	DETAIL:	A14



PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: PARAPET CANT DAM GRAVEL STOP EDGE FLASHING DETAIL (OPTION A)	SCALE:	NTS
	DETAIL:	A15

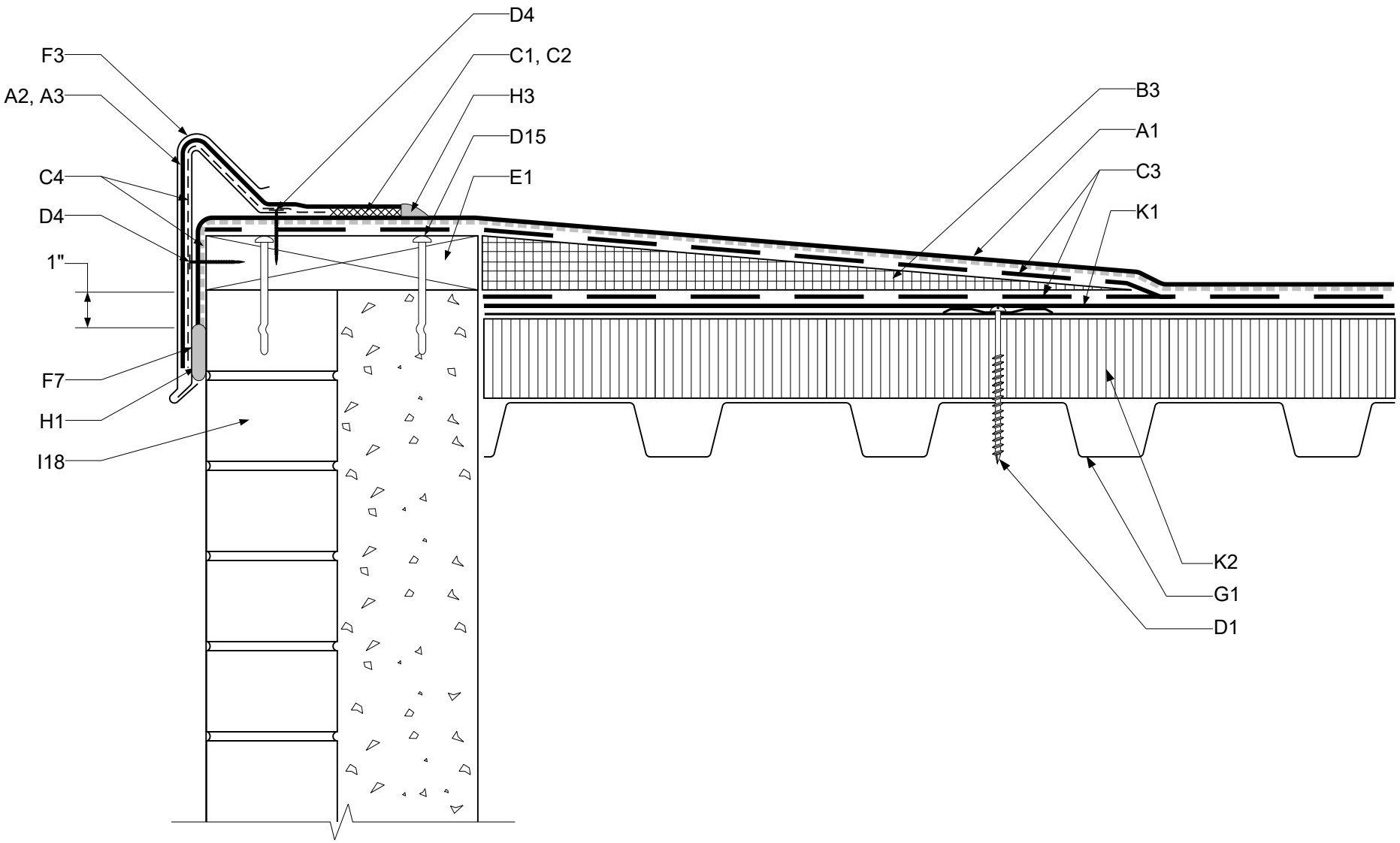


PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT:
VILLAGE OF FRANKLIN PARK ILLINOIS
9380 CHESTNUT AVE
FRANKLIN PARK, IL 60131

TITLE:
PERIMETER CANT DAM GRAVEL STOP EDGE FLASHING DETAIL

PROJ. #:	20-850
DATE:	01/15/20
SCALE:	NTS
DETAIL:	A16



PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT:
VILLAGE OF FRANKLIN PARK ILLINOIS
9380 CHESTNUT AVE
FRANKLIN PARK, IL 60131

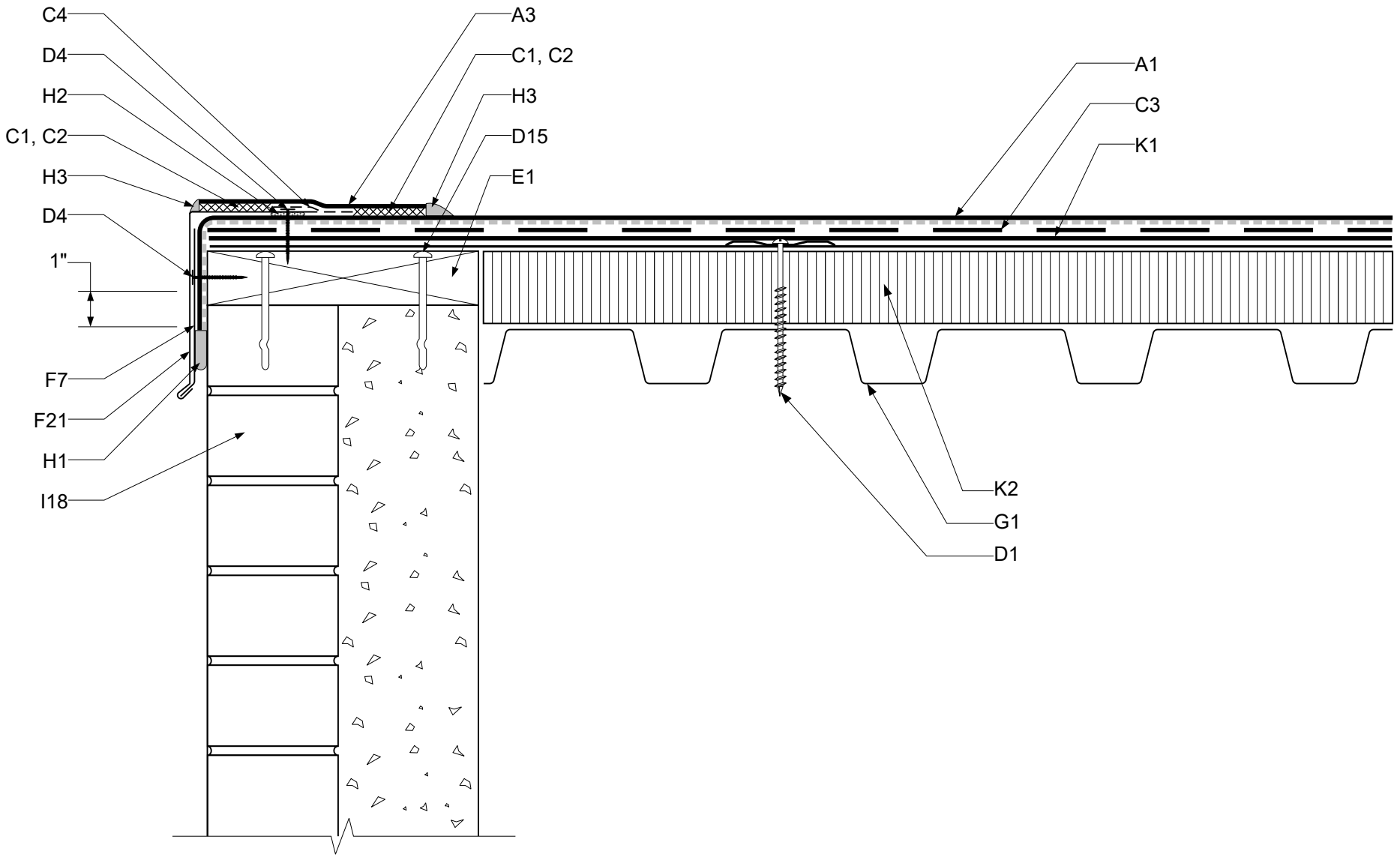
PROJ. #: 20-850

DATE: 01/15/20

TITLE:
RAISED PERIMETER CANT DAM GRAVEL STOP EDGE FLASHING DETAIL

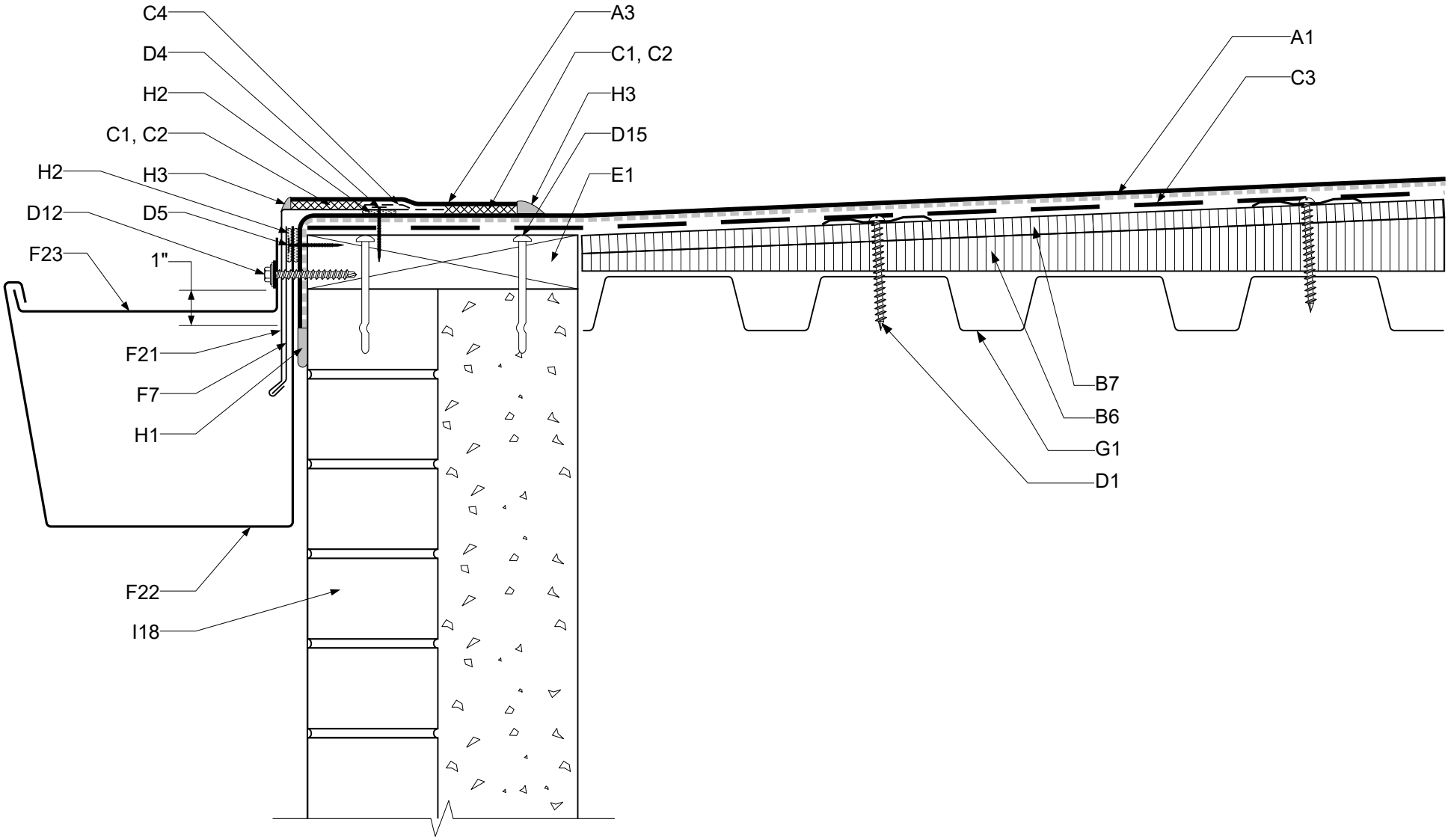
SCALE: NTS

DETAIL: A17



PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT:	VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #: 20-850 DATE: 01/15/20
TITLE:	DRIP EDGE FLASHING DETAIL	SCALE: NTS DETAIL: A18

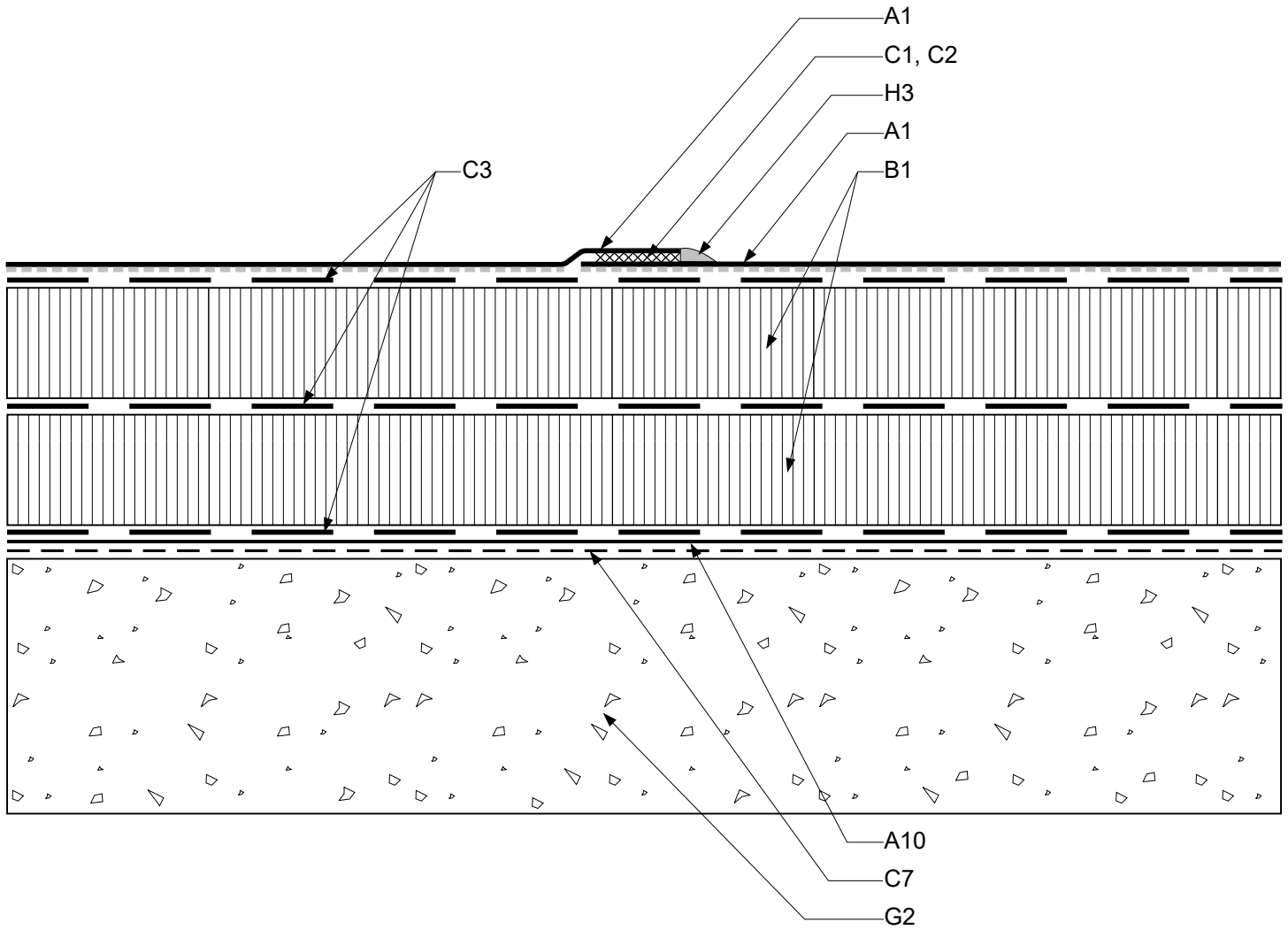


PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT:
VILLAGE OF FRANKLIN PARK ILLINOIS
9380 CHESTNUT AVE
FRANKLIN PARK, IL 60131

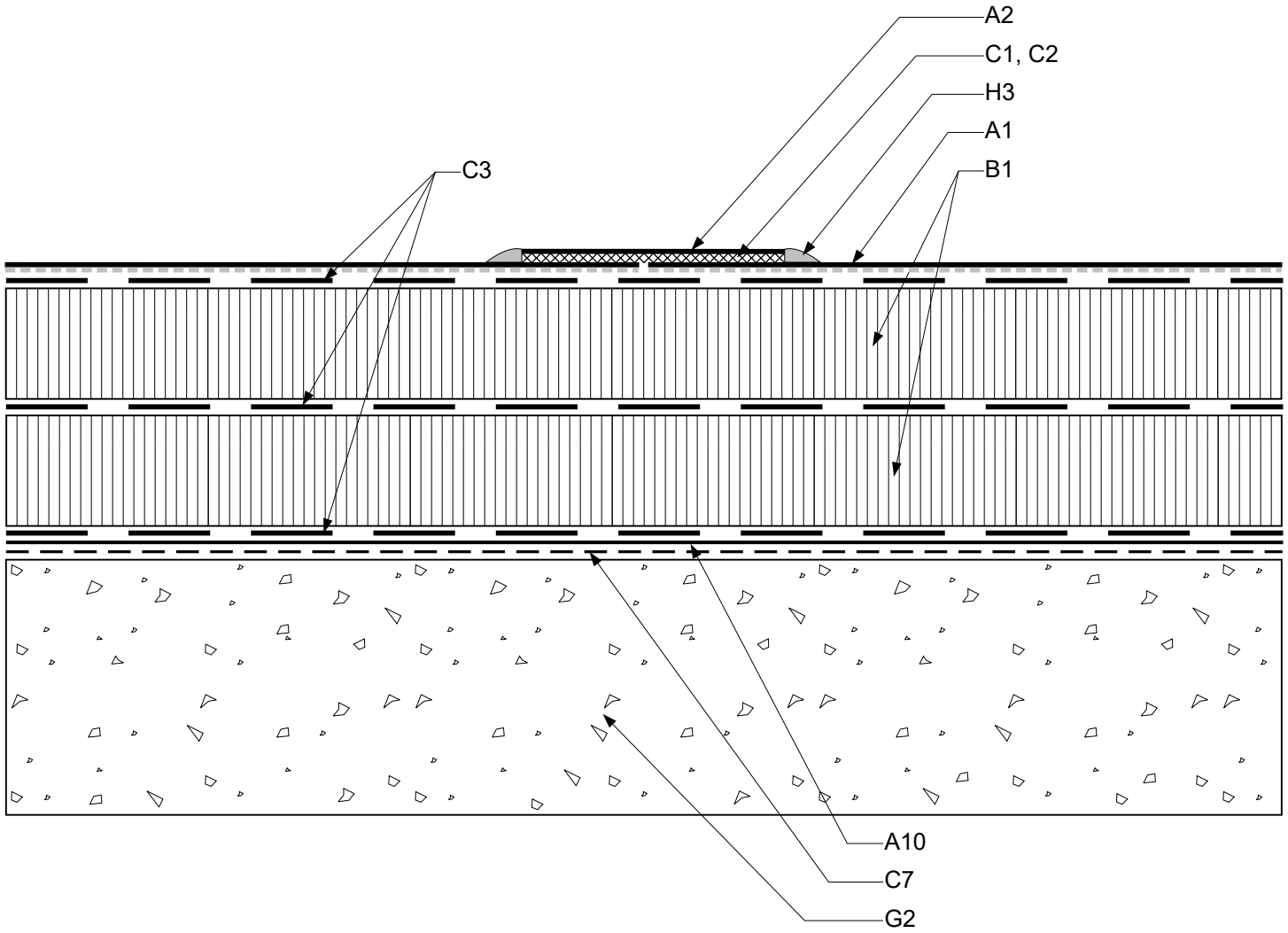
TITLE:
GUTTER EDGE FLASHING DETAIL

PROJ. #:	20-850
DATE:	01/15/20
SCALE:	NTS
DETAIL:	A19



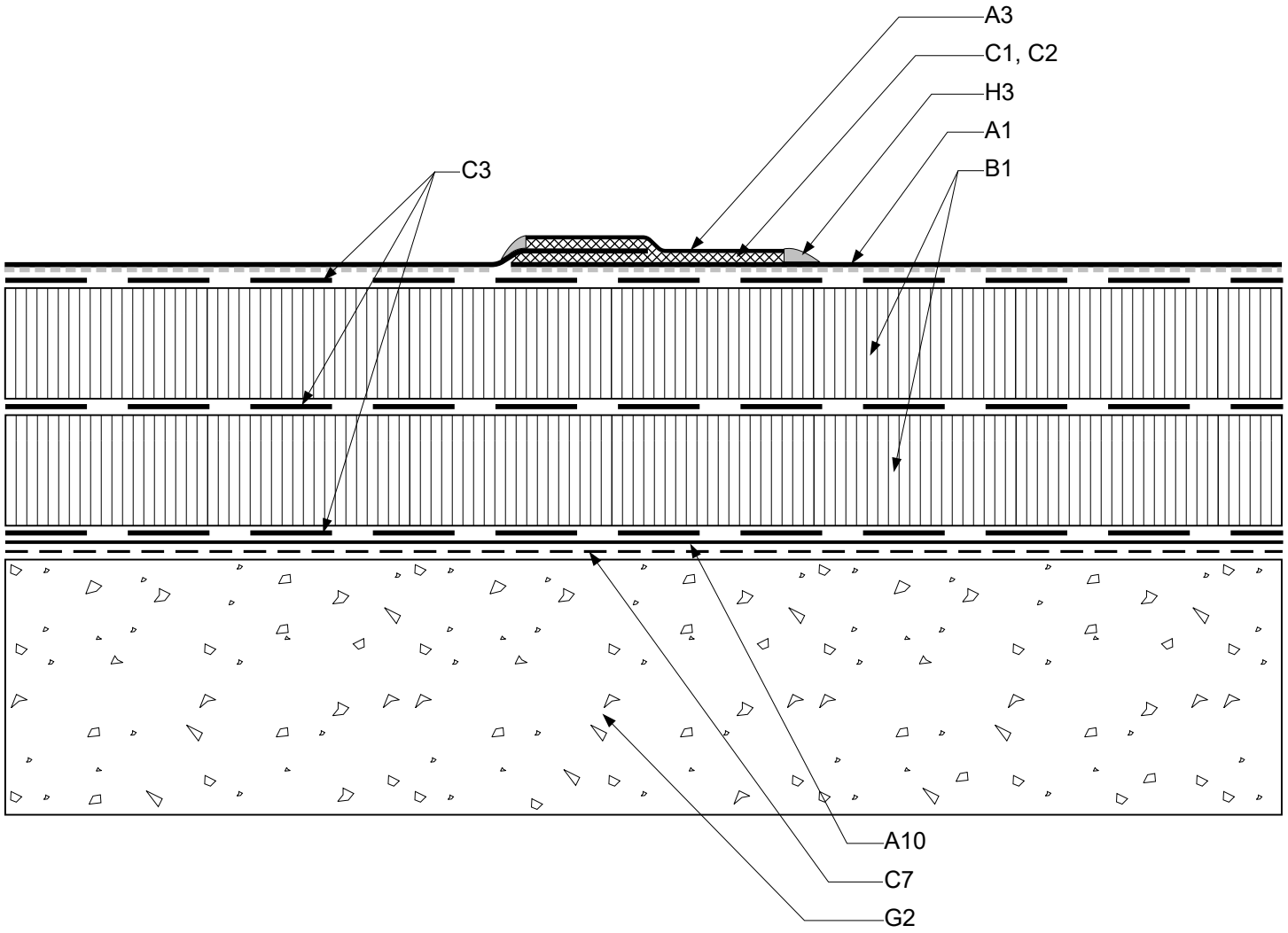
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT:	VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #: 20-850 DATE: 01/15/20
TITLE:	FIELD SEAM FLASHING DETAIL (OVERLAP)	SCALE: NTS DETAIL: B1



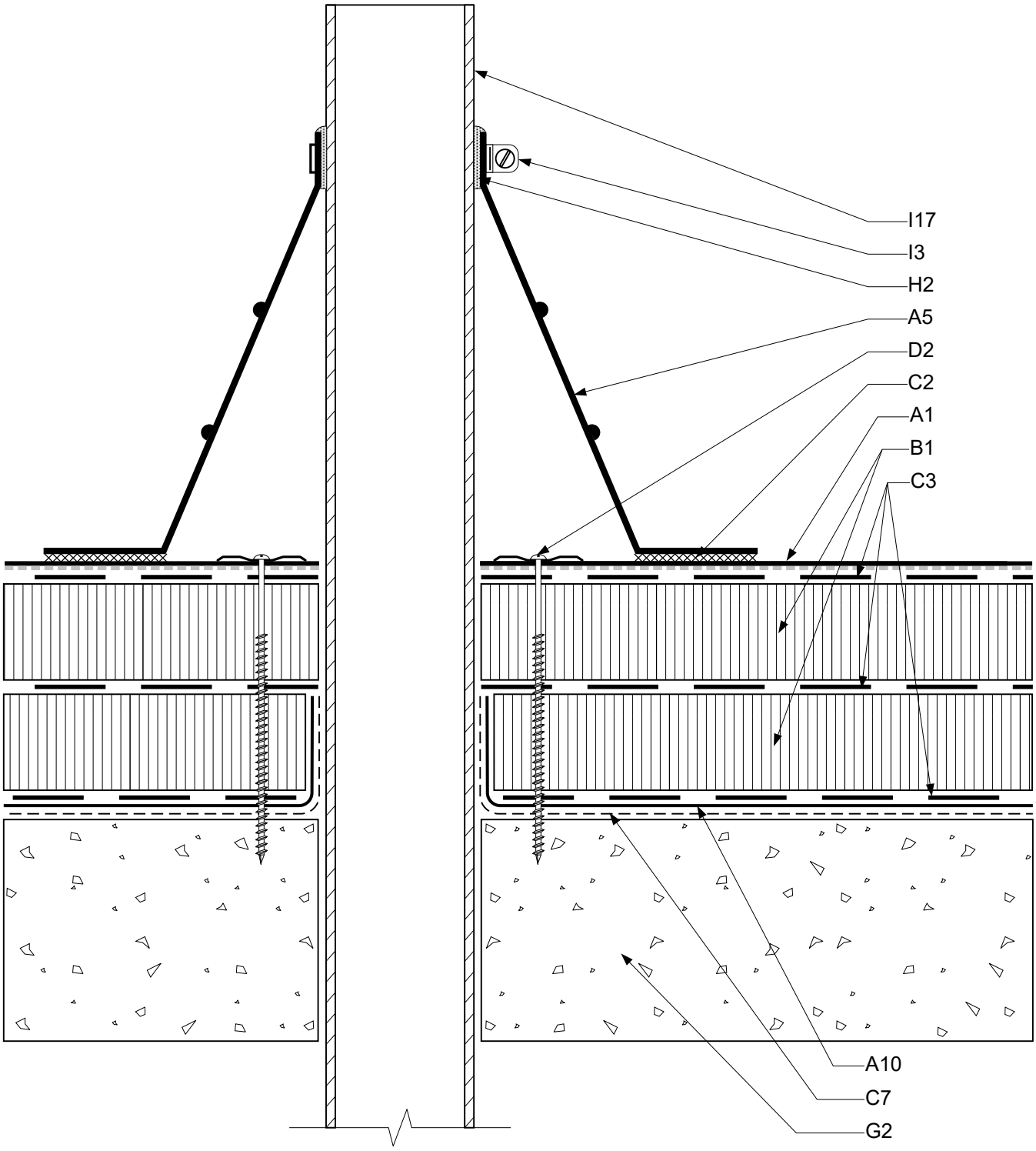
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: FIELD SEAM FLASHING DETAIL (BUTT)	SCALE:	NTS
	DETAIL:	B2



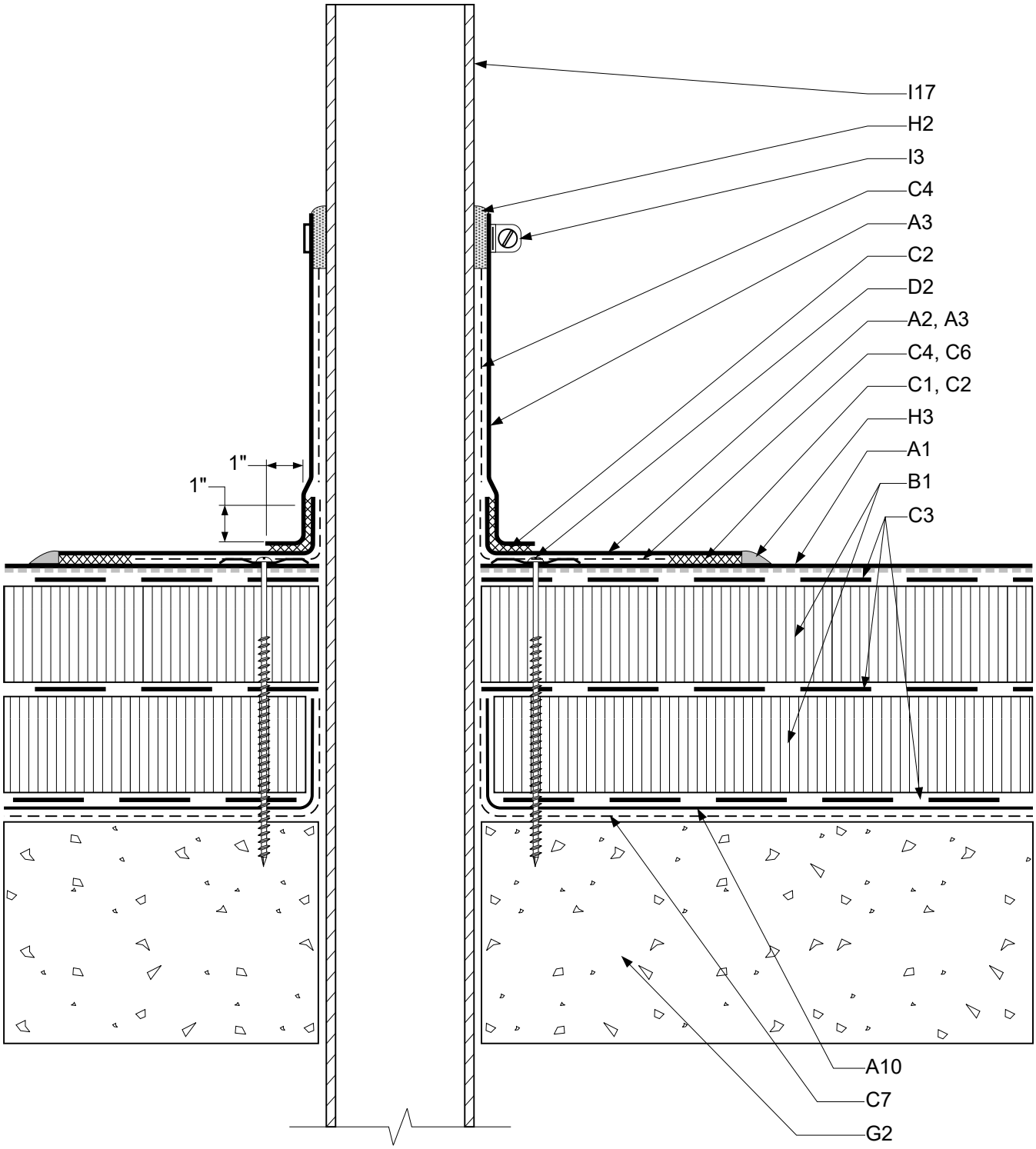
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT:	VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #: 20-850 DATE: 01/15/20
TITLE:	T-JOINT SEAM FLASHING DETAIL	SCALE: NTS DETAIL: B3



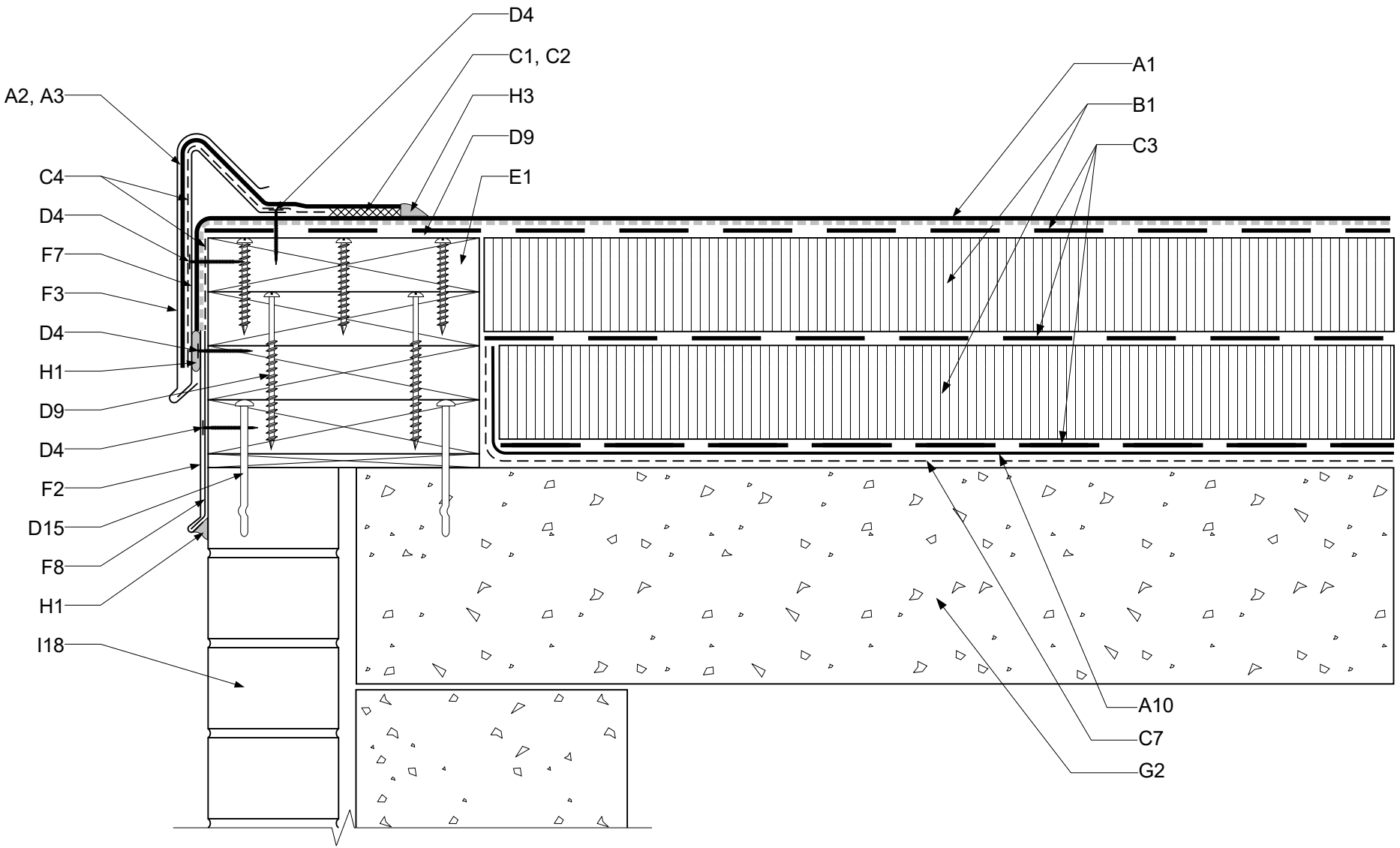
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: PIPE/TUBE FLASHING DETAIL (OPTION A, PRE-FABRICATED)	SCALE:	NTS
	DETAIL:	B4



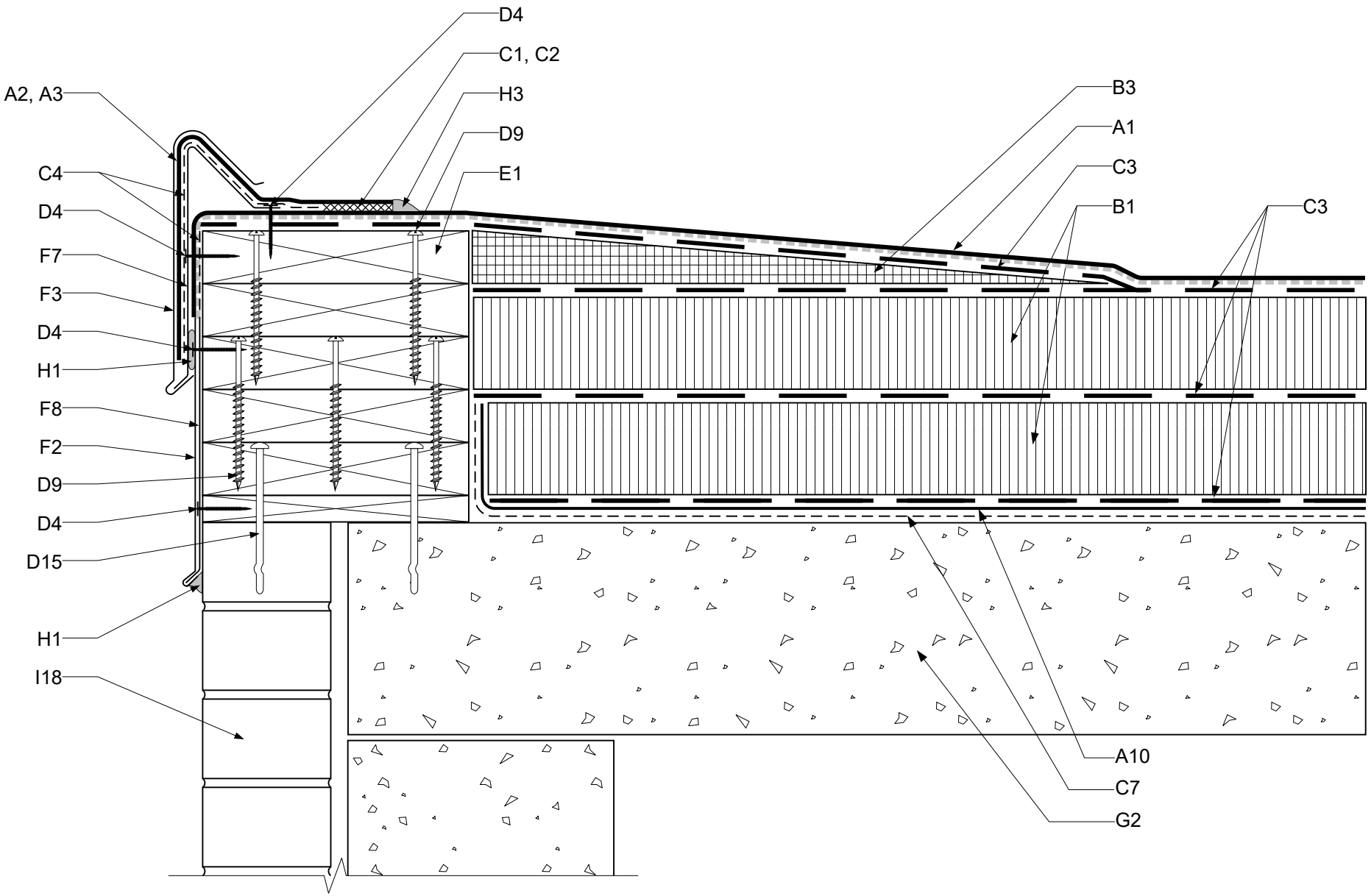
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #:	20-850
	DATE:	01/15/20
TITLE: PIPE/TUBE FLASHING DETAIL (OPTION A, FIELD-FABRICATED)	SCALE:	NTS
	DETAIL:	B5



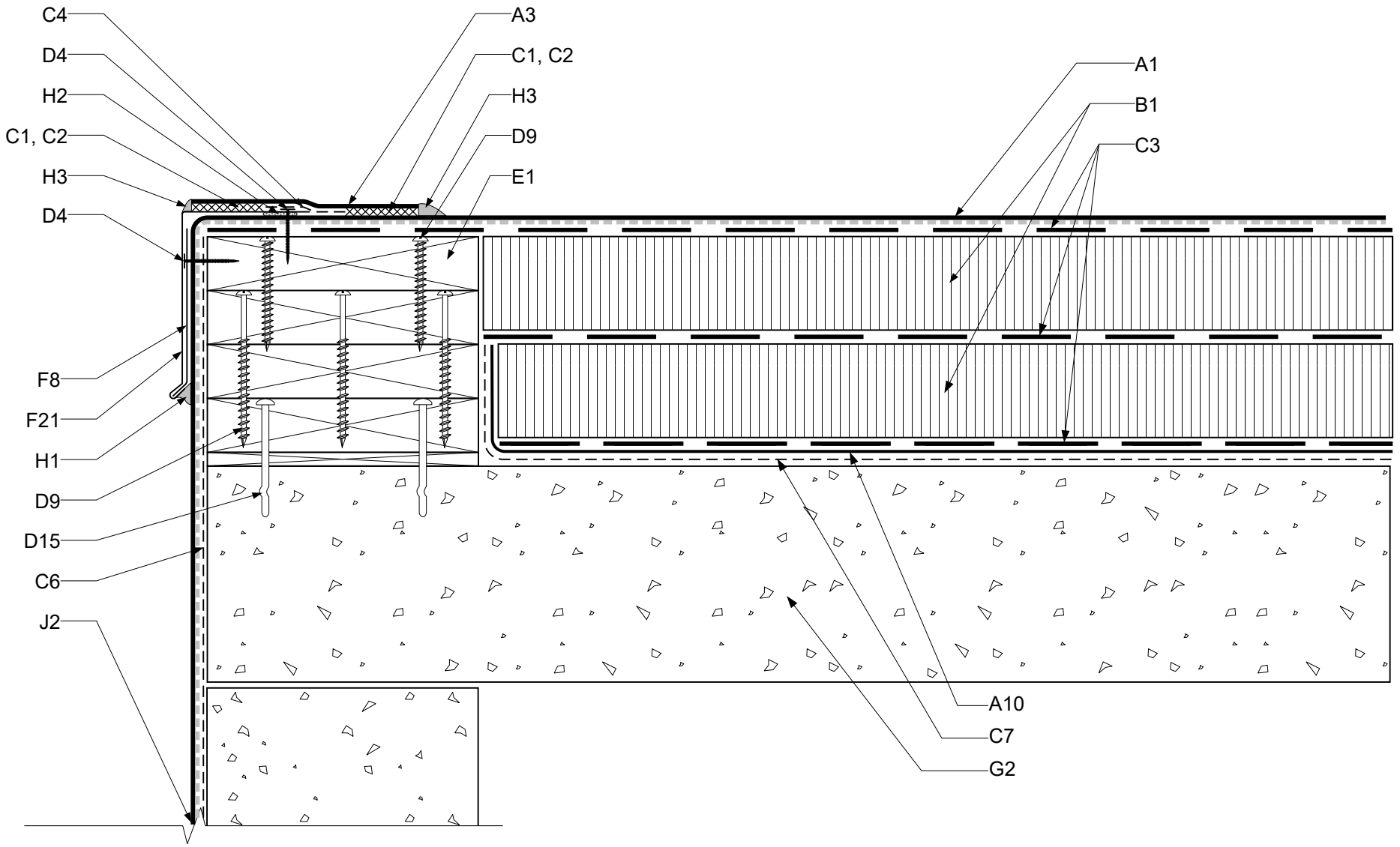
PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT:	VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #: 20-850 DATE: 01/15/20
TITLE:	PERIMETER CANT DAM GRAVEL STOP EDGE FLASHING DETAIL (OPTION A)	SCALE: NTS DETAIL: B6



PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT:	VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #: 20-850 DATE: 01/15/20
TITLE:	RAISED PERIMETER CANT DAM GRAVEL STOP EDGE FLASHING DETAIL (OPTION A)	SCALE: NTS DETAIL: B7



PATTERSON
CONSULTING
Phone: 630-844-0110 • Fax: 630-844-0330
2112 W. Galena Blvd, Ste 8-433 • Aurora, IL 60506

PROJECT:	VILLAGE OF FRANKLIN PARK ILLINOIS 9380 CHESTNUT AVE FRANKLIN PARK, IL 60131	PROJ. #: 20-850
		DATE: 01/15/20
TITLE:	DRIP EDGE FLASHING DETAIL	SCALE: NTS
		DETAIL: B8

NOTES:

1. ROOFS WITHIN **RED LINE** BOUNDARY ARE BASE BID ROOF AREAS.
2. REMOVE OLD GUTTER, METAL EDGE, WOOD BLOCKING, AND 4' OF OLD ROOF AND INSULATION; REPLACE WITH NEW BLOCKING, TAPERED INSULATION, 8" BOX GUTTER, AND NEW MEMBRANE.
2. INSTALL NEW CONTINUOUS 8" WIDE X 22 GA GALV BOX GUTTER ATTACHED WITH STRAPS 2' O.C. MAX TO ENTIRE WEST EXTERIOR FACE OF BUILDING WITH THREE EQUALLY SPACED 6" SQUARE DOWNSPOUTS AS PORTION OF BASE BID.
3. RENOVATE HEAVILY DETERIORATED BRICKS AND MORTAR JOINTS AROUND WEST SIDE ENTRANCE DOOR FRAME TO GARAGE.
4. RENOVATE DETERIORATED BRICKS AND MORTAR JOINTS ON ALL EXTERIOR SURFACES WHERE REQUIRED.
3. RAISE CURBS AND DUCT MOUNTING STANCHIONS/CURBS TO ACHIEVE 8" MIN. FLASHING HEIGHT ABOVE ROOF SURFACE WHERE NECESSARY.
4. EXTEND ALL PLUMBING VENTS TO ACHIEVE 8" HEIGHT ABOVE ROOF SURFACE, EXCEPT WHERE PIPES PROVIDE ROOF OVERFLOW DRAIN FUNCTION.
5. EVALUATE BUILDING STRUCTURAL ROOF DECK CAPACITY TO SUPPORT ROOF SYSTEM LOAD AS SPECIFIED.
6. EXTEND WALL CONSTRUCTION WITH LAYERS OF TREATED WOOD BLOCKING AND MODIFY EXISTING WALL COVERINGS WHERE NECESSARY TO ACHIEVE 8" MIN. FLASHING HEIGHT ABOVE ROOF SURFACE.
7. REMOVE ANY AND ALL IDENTIFIED ABANDONED STRUCTURES AND INSTALL NEW DECKING OVER AREA ON A TIME AND MATERIAL BASIS.
8. DISASSEMBLE AND RE-ASSEMBLE HVAC DUCTS WHERE NECESSARY TO PROPERLY INSTALL ROOFING SYSTEM. PRESERVE EXISTING FUNCTION AND CONDITION.
9. REPLACE CHIMNEY CAP, UNSUITABLE BRICKS, AND RENOVATE MORTAR JOINTS.
10. PROVIDE AND INSTALL TAPERED INSULATION CRICKETS ON HIGH SIDE OF LARGE MECHANICAL CURBS.
11. WIRE BRUSH RUST FROM ALL FLUE STACK EXTERIOR SURFACES AND COAT WITH SILVER RUST-OLIUM PAINT.

NIC

REPLACE POURED IN PLACE CONCRETE CHIMNEY CAP, UNSUITABLE BRICKS, AND RENOVATE MORTAR JOINTS

REMOVE ABANDONED SATELLITE DISH AND FRAME

INSTALL NEW SEALANT PAN DETAILS AROUND UTILITY PENETRATIONS

INSTALL AND FLASH NEW GALV SHEET METAL RAIL CURBS UNDER HVAC CONDENSER UNITS; PERFORM HVAC UTILITY DISCONNECTS, RECONNECTIONS, AND ADJUSTMENTS AS NECESSARY

9380 Chestnut Ave

AREA-A

AREA-B

TYPICAL A1 A2 A3

TYPICAL A1 A2 A3

TYPICAL B1 B2 B3

WIRE BRUSH RUST FROM FLUE (3X) EXTERIOR SURFACES AND COAT WITH SILVER RUST-OLIUM PAINT

INSTALL NEW CONTINUOUS 8" WIDE X 22 GA GALV BOX GUTTER ATTACHED WITH STRAPS 2' O.C. MAX TO EXTERIOR FACE, , ALONG ENTIRE WEST PERIMETER OF GARAGE ROOF AREA, WITH THREE EQUALLY SPACED 6" SQUARE DOWNSPOUTS

REMOVE OLD GUTTER, METAL EDGE, WOOD BLOCKING, AND 4' OF OLD ROOF AND INSULATION; REPLACE WITH NEW BLOCKING, TAPERED INSULATION, 8" BOX GUTTER, AND NEW MEMBRANE, ALONG ENTIRE WEST PERIMETER OF GARAGE ROOF AREA

RENOVATE DETERIORATED BRICKS AND MORTAR JOINTS AROUND DOOR FRAME

LEGEND

- DRAIN
- VENT
- FLUE
- HATCH
- R.T.U.
- PORTAL
- SKYLIGHT
- TEST CUT
- DETAIL

ROOF SKETCH

DRAWING: RS-1

TITLE:

SCALE: N.T.S

PROJECT: VILLAGE OF FRANKLIN PARK ILLINOIS
9380 CHESTNUT AVE
FRANKLIN PARK, IL 60131

DATE: 01/15/2020

PROJECT #: 20-855

PATTERSON CONSULTING
2112 W. GALENA BLVD • SUITE 8-433
AURORA, IL 60506 • pattcon@comcast.net
PHONE: 630-844-0110 • FAX: 630-844-0330