

SECTION 00 01 01
PROJECT TITLE PAGE

PROJECT MANUAL

FOR



COUNTY OF DAVIDSON, NC
925 NORTH MAIN STREET,
LEXINGTON, NORTH CAROLINA 27292

WEST CAMPUS GYM ROOF REPLACEMENT
555-C/D WEST CENTER STREET EXTENSION,
LEXINGTON, NORTH CAROLINA 27292
REI PROJECT NO. 024CLT-128

12-02-2024

PREPARED BY:



1927 J.N. PEASE PLACE, SUITE 201, CHARLOTTE, NC 28262
NORTH CAROLINA FIRM LICENSE C-1520

SECTION 00 01 07

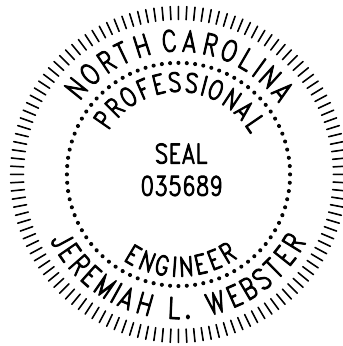
SEALS PAGE

PART 1 GENERAL

1.1 SUMMARY

- A. Design Firm for West Campus Gym Roof Replacement with Project Manual dated 12-02-2024:
1. REI Engineers, Inc., 1927 J.N. Pease Place, Suite 201, Charlotte, NC 28262.
 2. North Carolina Firm License C-1520

Professional Engineer



END OF SECTION

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END OF SECTION

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LIST OF DRAWINGS

PART 1 GENERAL

1.1 SUMMARY

A. The following drawings dated 12-02-2024 are included as part of the Contract Documents:

1. G-001 Cover
2. XR101 Roof Plan
3. XR501 Roof Systems/Deck Secruement/Details

END OF SECTION

**COUNTY OF DAVIDSON, NC
REQUEST FOR PROPOSALS**

RFP #2412004

TITLE: West Campus Gym Roof Replacement

USING AGENCY: Support Services Department

ISSUE DATE: December 2, 2024

ISSUING AGENCY: Support Services Department

Sealed Proposals subject to the conditions made a part hereof will be received until **2:00 PM, December 18, 2024**, for furnishing services described herein. In the event the County is closed due to inclement weather, this opening will take place on the next business day.

SEND ALL PROPOSALS DIRECTLY TO THE ISSUING AGENCY ADDRESS AS SHOWN BELOW:

<u>DELIVERED BY US POSTAL SERVICE</u>	<u>DELIVERED BY ANY OTHER MEANS</u>
RFP #2412004 County of Davidson Support Services Department PO Box 1067 Lexington NC 27293	RFP #2412004 County of Davidson Support Services Department 925 North Main St Lexington NC 27292

Note: The County recommends using an over-night service or hand delivering the RFP response.

Note: The black-out date for questions shall be December 13, 2024, at noon.

IMPORTANT NOTE: Indicate firm name, which is County of Davidson. The RFP number, which is above, on the front of each sealed proposal envelope or package, along with the date for receipt of proposals specified above.

Direct all inquiries concerning this RFP to:

Dwayne Childress, Support Services Director, (336) 242-2030

or

Alan Harris, Capital Projects Manager, (336) 442-0692

PRE-BID CONFERENCE:

For all prospective offerors is scheduled for **2:00 PM on December 10, 2024, at West Campus Gym, 555 C/D West Center Street Extension, Lexington, North Carolina 27292**. Attendance at this conference is a prerequisite for consideration of an offeror's proposal. Copies of the bid package will be available at the pre-bid conference. Prospective offerors are encouraged to submit written questions in advance. In the event the County is closed due to inclement weather, this meeting will take place on the next business day.

It is the offeror's responsibility to assure that all addenda have been reviewed.

1. Overview:

This is a roof replacement for the West Campus Gym located at 555C/D West Center Street Extension, Lexington, North Carolina 27292. In general, the scope of work includes replacement of the existing Thermoplastic-Polyolefin roof system with a fully adhered thermoplastic (PVC) roof system on an approximate 8,650 square feet of roof area.

DAVIDSON COUNTY INFORMATION

- County Seat: Lexington, NC
- Land Area: 567 sq. miles
- Population: 168,930 (2020 Census)
- Other municipalities: Thomasville, Denton, Midway, Wallburg, High Point

2. Terms & Conditions:

Notice: The Contract with the successful offeror will contain the following Contract Terms and Conditions. Offerors intending to require additional or different language must include such language with their proposal. Failure to provide offeror's additional Contract terms may result in rejection of the proposal.

2.1 Procedures

The extent and character of the services to be performed by the Contractor shall be subject to the general control and approval of the Director or his/her authorized representative(s). The Contractor shall not comply with requests and/or orders issued by other than the Director or his/her authorized representative(s) acting within their authority for the County. Any change to the Contract must be approved in writing by the Purchasing Agent and the Contractor.

2.2 Contract Period

The Contractor hereby agrees to commence work on this project within thirty (30) days following receipt of an Executed Owner/Contractor Agreement. Date of commencement will be established in a Notice to Proceed issued to Contractor. All work to be accomplished under the Base Bid and all alternates accepted shall be within 45 calendar days from the date of commencement.

2.3 Delays

If delay is foreseen, the Contractor shall give immediate written notice to the Division of Procurement. The Contractor must keep the County advised at all times of the status of the order. Default in promised delivery (without accepted reasons) or failure to meet specifications, authorizes the Division of Procurement to purchase supplies or services elsewhere and charge full increase in cost and handling to defaulting Contractor.

2.4 Delivery Failures

Time is of the essence. Should the Contractor fail to deliver the proper services or item(s) at the time and place(s) specified, or within a reasonable period of time thereafter as determined by the Purchasing Agent, or should the Contractor fail to make a timely replacement of rejected items when so requested, the County may purchase services or items of comparable quality in the open market to replace the rejected or undelivered services or items. The Contractor shall reimburse the County for all costs in excess of the Contract price when purchases are made in the open market; or, in the event that there is a balance the County owes to the Contractor from prior transactions, an amount equal to the additional expense incurred by the County as a result of the Contractor's nonperformance shall be deducted from the balance as payment.

2.5 Payment of Taxes

All Contractors located or owning property in Davidson County shall assure that all real and personal property taxes are paid. The County will verify payment of all real and personal property taxes by the Contractor prior to the award of any Contract or Contract renewal.

2.6 Insurance

A. The Contractor shall be responsible for its work and every part thereof, and for all materials, tools, equipment, appliances, and property of any and all description used in connection therewith. The Contractor assumes all risk of direct and indirect damage or injury to the property or persons used or employed on or in connection with the work contracted for, and of all damage or injury to any person or property wherever located, resulting from any action, omission, commission or operation under the Contract.

B. The Contractor and all subcontractors shall, during the continuance of all work under the Contract provide the following:

1. Workers' compensation and Employer's Liability to protect the Contractor from any liability or damages for any injuries (including death and disability) to any and all of its employees, including any and all liability or damage which may arise by virtue of any statute or law in force within the State of North Carolina.

2. Comprehensive General Liability insurance to protect the Contractor, and the interest of the County, its officers, employees, and agents against any and all injuries to third parties, including bodily injury and personal injury, wherever located, resulting from any action or operation under the Contract or in connection with the contracted work. The General Liability insurance shall also include the Broad Form Property Damage endorsement, in addition to coverage for explosion, collapse, and underground hazards, where required.

3. Automobile Liability insurance, covering all owned, non-owned, borrowed, leased, or rented vehicles operated by the Contractor.

C. The Contractor agrees to provide the above referenced policies with the following limits. Liability insurance limits may be arranged by General Liability and Automobile policies for the full limits required, or by a combination of underlying policies for lesser limits with the remaining limits provided by an Excess or Umbrella Liability policy.

1. Workers' Compensation:

Coverage A: Statutory

Coverage B: \$100,000

2. General Liability:

Per Occurrence: \$1,000,000

Personal/Advertising Injury: \$1,000,000

General Aggregate: \$2,000,000

Products/Completed Operations: \$2,000,000 aggregate

Fire Damage Legal Liability: \$100,000

GL Coverage, excluding Products and Completed Operations, should be on a Per Project Basis

3. Automobile Liability:

Combined Single Limit: \$1,000,000

D. The following provisions shall be agreed to by the Contractor:

1. No change, cancellation, or non-renewal shall be made in any insurance coverage without a forty-five (45) day written notice to the County. The Contractor shall furnish a new certificate prior to any change or cancellation date. The failure of the Contractor to deliver a new and valid certificate will result in suspension of all payments until the new certificate is furnished.

2. Liability Insurance "Claims Made" basis:

If the liability insurance purchased by the Contractor has been issued on a "claims made" basis, the Contractor must comply with the following additional conditions. The limits of liability and the extensions to be included as described previously in these provisions, remain the same. The Contractor must either:

a. Agree to provide certificates of insurance evidencing the above coverage for a period of two (2) years after final payment for the Contract for General Liability policies. This certificate shall evidence a "retroactive date" no later than the beginning of the Contractor's work under this Contract, or

b. Purchase the extended reporting period endorsement for the policy or policies in force during the term of this Contract and evidence the purchase of this extended reporting period endorsement by means of a certificate of insurance or a copy of the endorsement itself.

3. The Contractor must disclose the amount of deductible/self-insured retention applicable to the General Liability and Automobile Liability. The County reserves the right to request additional information to determine if the Contractor has the financial capacity to meet its obligations under a deductible/self-insured plan. If this provision is utilized, the Contractor will be permitted to provide evidence of its ability to fund the deductible/self-insured retention.

4. The Contractor agrees to provide insurance issued by companies admitted within the State of North Carolina.

5. a. The Contractor will provide an original signed Certificate of Insurance and such endorsements as prescribed herein.

b. The Contractor will provide on request certified copies of all insurance coverage related to the Contract within ten (10) business days of request by the County. These certified copies will be sent to the County from the Contractor's insurance agent or representative.

c. Any certificates provided shall indicate the Contract name and number.

6. The County and REI Engineers, shall be named as an "additional insured" on the Automobile and General Liability policies and it shall be stated on the Insurance Certificate with the provision that this coverage "is primary to all other coverage the County may possess." (Use "loss payee" where there is an insurable interest).

7. Compliance by the Contractor with the foregoing requirements as to carrying insurance shall not relieve the Contractor of their liabilities provisions of the Contract.

E. Precaution shall be exercised at all times for the protection of persons (including employees) and property.

F. The Contractor is to comply with the Occupational Safety and Health Act of 1970, Public Law 91 956, as it may apply to this Contract.

G. If an "ACORD" Insurance Certificate form is used by the Contractor's insurance agent, the words "endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind upon the company" in the "Cancellation" paragraph of the form shall be deleted.

H. The Contractor agrees to waive all rights of subrogation against the County, its officers, employees, and agents.

2.7 Hold Harmless Clause

The Contractor shall, indemnify, defend, and hold harmless the County from loss from all suits, actions, or claims of any kind brought as a consequence of any negligent act or omission by the Contractor. The Contractor agrees that this clause shall include claims involving infringement of patent or copyright. For purposes of this paragraph, "County" and "Contractor" includes their employees, officials, agents, and representatives. "Contractor" also includes subcontractors and suppliers to the Contractor. The word "defend" means to provide legal counsel for the County or to reimburse the County for its attorneys' fees and costs related to the claim. This section shall survive the Contract.

2.8 Safety

All Contractors and subcontractors performing services for the County are required to and shall comply with all Occupational Safety and Health Administration (OSHA), State and County Safety and Occupational Health Standards and any other applicable rules and regulations. Also, all Contractors and subcontractors shall be held responsible for the safety of their employees and any unsafe acts or conditions that may cause injury or damage to any persons or property within and around the work site area under this Contract.

2.9 Permits

It shall be the responsibility of the Contractor to comply with County ordinances by securing any necessary permits. The County not shall waive any fees involved in securing County permits. Permits should be included in the cost proposal.

2.10 Drug-free Workplace

During the performance of this Contract, the Contractor agrees to:

- (i) provide a drug-free workplace for the Contractor's employees;
- (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition;
- (iii) state in all solicitations or advertisements for employees placed by or behalf of the Contractor that the Contractor maintains a drug-free workplace; and

For the purposes of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific Contract awarded to a Contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana during the performance of the Contract.

Local Government Conflict of Interests Act.

2.11 Employment Discrimination by Contractors Prohibited

During the performance of this Contract, the Contractor agrees as follows:

The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, status as a service disabled veteran, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

2.12 Substitutions

NO substitutions or cancellations are permitted after Contract award without written approval by the Division of Procurement. Where specific employees are proposed by the Contractor for the work, those employees shall perform the work as long as those employees work for the Contractor, either as employees or subcontractors,

unless the County agrees to a substitution. Requests for substitutions shall be reviewed and may be approved by the County at its sole discretion and in writing.

2.13 Workmanship and Inspection

All work under this Contract shall be performed in a skillful and workmanlike manner. The Contractor and its employees shall be professional and courteous at all times. The County may, in writing, require the Contractor to remove any employee from work for reasonable cause as determined by the County. Further, the County may, from time to time, make inspections of the work performed under the Contract. Any inspection by the County does not relieve the Contractor from any responsibility in meeting the Contract requirements.

2.14 Exemption from Taxes

Davidson County is not sales tax exempt. All taxes shall be itemized separately on all invoices.

2.15 Invoicing and Payment

Contractor shall submit invoices at the end of each calendar month as specified in Section 01 29 00. Invoices shall be submitted to REI Engineers.

All such invoices will be paid within thirty (30) days of receipt by the County unless any items thereon are questioned, in which event payment will be withheld pending verification of the amount claimed and the validity of the claim. The Contractor shall provide complete cooperation during any such investigation.

2.16 Assignment of Contract

The Contract may not be assigned in whole or in part without the written consent of the Purchasing Agent.

2.17 Termination

Subject to the provisions below, the Contract may be terminated by the County upon thirty (30) days advance written notice to the Contractor; but if any work or service hereunder is in progress, but not completed as of the date of termination, then the Contract may be extended upon written approval of the County until said work or services are completed and accepted.

A. Termination for Convenience

The County may terminate this Contract for convenience at any time in which the case the parties shall negotiate reasonable termination costs.

B. Termination for Cause

In the event of Termination for Cause, the thirty (30) days advance notice is waived and the Contractor shall not be entitled to termination costs.

C. Termination Due to Unavailability of Funds in Succeeding Fiscal Years

If funds are not appropriated or otherwise made available to support continuation of the performance of this Contract in a subsequent fiscal year, then the Contract shall be canceled.

2.18 Severability

In the event that any provision shall be adjudged or decreed to be invalid, such ruling shall not invalidate the entire Agreement but shall pertain only to the provision in question and the remaining provisions shall continue to be valid, binding and in full force and effect.

2.19 Applicable Laws/Forum

This Contract shall be governed in all respects by the laws of the State of North Carolina. Any judicial action shall be filed in the State of North Carolina, County of Davidson.

2.20 Notices

All notices and other communications hereunder shall be deemed to have been given when made in writing and either (a) delivered in person, (b) delivered to an agent, such as an overnight or similar delivery service, or (c) deposited in the United States mail, postage prepaid, certified or registered, addressed as noted above.

2.21 Licensure

To the extent required by the State of North Carolina or the County of Davidson, the Contractor shall be duly licensed to sell the goods or perform the services required to be delivered pursuant to this Contract.

2.22 Criminal Background Checks

The Contractor shall obtain nation-wide criminal background checks when the county, in its sole discretion, determines it necessary for reasons of security or confidentiality. These background checks, when requested, will be performed at the Contract's expense.

NOTE: The Contractor will have all employees working at County sites, wear a uniform and have photo identification (frontal face). This identification must be prominently displayed at all times. No one with a felony conviction may be employed under this Contract.

The County reserves the right to require immediate removal of any Contractor employee from County service it deems unfit for service for ANY reason not contrary to law. This right is non-negotiable and the Contractor agrees to this condition by accepting this Contract. The Contractor should have enough qualified people with current background checks so as to be able to provide a replacement within twenty-four (24) hours. Should a replacement take longer than twenty-four (24) hours, this may be cause for termination of the Contract.

2.23 Confidentiality

The Contractor acknowledges and understands that its employees may have access to proprietary, business information, or other confidential information belonging to the County. Therefore, except as required by law, the Contractor agrees that its employees will not:

- A. Access or attempt to access data that is unrelated to their job duties or authorizations as related to this Contract.
- B. Access or attempt to access information beyond their stated authorization.
- C. Disclose to any other person or allow any other person access to any information related to the County or any of its facilities or any other user of this Contract that is proprietary or confidential. Disclosure of information includes, but is not limited to, verbal discussions, FAX transmissions, electronic mail messages, voice mail communication, written documentation, "loaning" computer access codes and/or another transmission or sharing of data.

The Contractor understands that the County, or others may suffer irreparable harm by disclosure of proprietary or confidential information and that the County may seek legal remedies available to it should such disclosure occur. Further, the Contractor understands that violations of this provision may result in Contract termination.

The Contractor further understands that information and data obtained during the performance of this agreement shall be considered confidential, during and following the term of this Contract, and will not be divulged without the Purchasing Agent's written consent and then only in strict accordance with prevailing laws. The Contractor shall hold all information provided by the County as proprietary and confidential and shall make no unauthorized reproduction or distribution of such material.

I have read, understand and agree with all Terms & Conditions as presented here:

Sign

date

3. Mandatory Requirements:

Scope of Work:

All proposals must be made on the basis of, and either meet or exceed, the requirements contained herein. The mandatory requirements for the scope of work are included in the following Specification Sections and Drawings:

DIVISION 01 GENERAL REQUIREMENTS

01 11 00	Summary of Work
01 14 00	Work Restrictions
01 21 00	Allowances
01 22 00	Unit Prices
01 26 00	Contract Modification Procedures
01 29 00	Payment Procedures
01 31 00	Project Management and Coordination
01 33 00	Submittal Procedures
01 40 00	Quality Requirements
01 50 00	Temporary Facilities and Controls
01 74 00	Cleaning and Waste Management
01 77 00	Closeout Procedures

DIVISION 05 METALS

05 31 23	Steel Roof Deck Repair/Securement
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DIVISION 06 WOOD, PLASTICS AND COMPOSITES

06 10 00	Rough Carpentry
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DIVISION 07 THERMAL AND MOISTURE PROTECTION

07 01 50	Preparation for Reroofing
07 22 16	Roof Insulation
07 54 00	Thermoplastic Single Ply Roofing
07 62 00	Sheet Metal Flashing and Trim

DRAWINGS

G-001	Cover
XR101	Roof Plan
XR501	Roof Systems/Deck Securement/Details

4. Scored Mandatory Requirements:

4.1 Submission of Proposals

Before submitting a proposal, read the ENTIRE solicitation including the Contract Terms and Conditions. Failure to read any part shall not relieve the Contractor of its contractual obligations. Technical and Price proposals must be submitted at the same time. The Price proposal shall be submitted on the Request for Proposal pricing forms if provided. Include other information as requested or required. Proposals must be received by the Division of Procurement PRIOR to the specified date and time on the acceptance requirements.

4.2 Questions and Inquiries

Questions and inquiries, both verbal and written, will be accepted from any and all offerors. The Division of Procurement is the sole point of contact for this solicitation unless otherwise instructed herein. Unauthorized contact with other County staff regarding the RFP may result in the disqualification of the offeror. Inquiries pertaining to the Request for Proposal must give the RFP number, title, and acceptance date. Material questions will be answered in writing with an Addendum. It is the responsibility of all offerors to ensure that they have received all addendums. Addendums can be downloaded from www.co.davidson.nc.us

4.3 Completion

Proposal must show number of calendar days required to complete the project or services under normal conditions. Failure to state completion time obligates offeror to complete the project according to the County's schedule. Unrealistically short or long completion promised may cause proposal to be disregarded.

4.4 Firm Pricing for County Acceptance

Proposal pricing must be firm for County acceptance for a minimum of ninety (90) days from proposal receipt date. "Discount from list" proposals are not acceptable unless requested.

4.5 Unit Price

Quote unit price on quantity specified and extend and show total. In case of errors in extension, unit prices shall govern.

4.6 Quotations to be F.O.B. Destination - Freight Prepaid and Allowed

Any goods to be delivered to a County location shall be coordinated with the Contract Administrator prior to delivery. Such goods shall be delivered F.O.B. Destination, freight prepaid, and allowed. COD deliveries shall be denied. The cost of freight, insurance, and all other delivery related costs shall be included in the cost of performing the work proposed in the price proposal.

4.7 Proprietary Information

Trade secrets or proprietary information submitted by an offeror in connection with this solicitation shall not be subject to disclosure under the North Carolina Freedom of Information Act. However, pursuant to North Carolina § 132-1.2 Confidential Information, the offeror must invoke the protections of this section prior to or upon submission of the data or other materials, and must clearly identify the data or other materials to be protected and state the reasons why protection is necessary. Failure to abide by this procedure may result in disclosure of the offeror's information. Offerors shall not mark sections of their proposal as proprietary if they are to be part of the award of the contract and are of a "Material" nature.

4.8 Authority to Bind Firm in Contract

Proposals MUST give full firm name and address of offeror. Failure to manually sign proposal may disqualify it. Person signing proposal will show TITLE or AUTHORITY TO BIND THE FIRM IN A CONTRACT. Firm name and authorized signature must appear on proposal in the space provided on the pricing page. Those authorized to sign are as follows:

If a sole proprietorship, the owner may sign.

If a general partnership, any general partner may sign.

If a limited partnership, a general partner must sign.

If a limited liability company, a "member" may sign or "manager" must sign if so specified by the articles or organization.

If a regular corporation, the CEO, President or Vice-President must sign.

Others may be granted authority to sign but the County requires that a corporate document authorizing him/her to sign be submitted with proposal.

4.9 Preparation and Submission of Proposals

- A. All proposals shall be signed in ink by the individual or authorized principals of the firm.
- B. All attachments to the Request for Proposal requiring execution by the firm are to be returned with the proposals.
- C. Any technical and price proposals are to be returned and submitted in same sealed container. The face of the container shall indicate the RFP number, time and date of public acceptance, and the title of the proposal, found on this cover sheet.
- D. Requests for extensions of this time and date will not be granted, unless deemed to be in the County's best interest. Offerors mailing their proposals shall allow for sufficient mail time to ensure receipt of their proposals by the Division of Procurement by the time and date fixed for acceptance of the proposals. Proposals or unsolicited amendments to proposals received by the County after the acceptance date and time will not be considered. Proposals will be publicly accepted and logged in at the time and date specified above.
- E. Each firm shall submit one (1) original and one (1) copy of their proposal to the County's Division of Procurement as indicated on the cover sheet of this Request for Proposal. The original proposal shall be clearly marked.

4.10 Withdrawal of Proposals

- A. All proposals submitted shall be valid for a minimum period of ninety (90) calendar days following the date established for acceptance.
- B. Proposals may be withdrawn on written request from the offeror at the address shown in the solicitation prior to the time of acceptance.
- C. Negligence on the part of the offeror in preparing the proposal confers no right of withdrawal after the time fixed for the acceptance of the proposals.

4.11 County Furnished Support/Items

The estimated level of support required from County personnel for the completion of each task shall be itemized by position and man days. This requirement from the offeror must be outlined in the response to the RFP, titled as County responsibilities.

4.12 Subcontractors

Offerors shall include a list of all subcontractors with their proposal. Proposals shall also include a statement of the subcontractors' qualifications. The County reserves the right to reject the successful offeror's selection of subcontractors for good cause. If a subcontractor is rejected the offeror may replace that subcontractor with another subcontractor subject to the approval of the County. Any such replacement shall be at no additional expense to the County nor shall it result in an extension of time without the County's approval.

4.13 References

All offerors shall include with their proposals, a list of at least three (3) current references for whom comparable work has been performed. This list shall include company name, person to contact, address, telephone number, e-mail address, and the nature of the work performed. Failure to include references may be cause for rejection of proposal as non-responsive. Offeror hereby releases listed references from all claims and liability for damages that may result from the information provided by the reference.

4.14 Late Proposals

LATE proposals will be returned to offeror UNOPENED, if RFP number, acceptance date and offeror's return address is shown on the container.

4.15 Rights of County

The County reserves the right to accept or reject all or any part of any proposal, waive informalities, and award the contract to best serve the interest of the County.

4.16 Prohibition as Subcontractors

No offeror who is permitted to withdraw a proposal shall, for compensation, supply any material or labor to or perform any subcontract or other work agreement for the person or firm to whom the contract is awarded or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn proposal was submitted.

4.17 Proposed Changes to Scope of Services

If there is any deviation from that prescribed in the Scope of Services, the appropriate line in the scope of services shall be ruled out and the substitution clearly indicated. The County reserves the right to accept or reject any proposed change to the scope.

During the project or work, if there is a need for a change in the scope of work this shall be controlled by a scope change authorization form, this is attached.

4.18 Miscellaneous Requirements

A. The County will not be responsible for any expenses incurred by an offeror in preparing and submitting a proposal. All proposals shall provide a straight forward, concise delineation of the offeror's capabilities to satisfy the requirements of this request. Emphasis should be on completeness and clarity of content.

B. Offerors who submit a proposal in response to this RFP may be required to make an oral presentation of their proposal. The Division of Procurement will schedule the time and location for this presentation.

C. Selected contents of the proposal submitted by the successful offeror and this RFP will become part of any contract awarded as a result of the Scope of Services contained herein. The successful offeror will be expected to sign a contract with the County.

D. The County reserves the right to reject any and all proposals received by reason of this request, or to negotiate separately in any manner necessary to serve the best interests of the County. Offerors whose proposals are not accepted will be notified in writing.

4.19 Notice of Award

A Notice of Award will be posted on the County's web site (www.co.davidson.nc.us).

4.20 W-9 Form Required

Each offeror shall submit a completed W-9 form with their proposal. In the event of contract award, this information is required in order to issue purchase orders and payments to your firm. A blank copy of this form can be downloaded from <http://www.irs.gov/pub/irs-pdf/fw9.pdf>.

4.21 E-Verify Affidavit

Each offeror shall submit a completed E-Verify Affidavit form with their proposal. This form must be notarized to be accepted, failure to submit this form shall be cause for rejection of proposal as non-responsive.

4.22 Minority Business Contract Provisions

The bidder must identify on its bid, the minority business that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts or affidavit (Affidavit B) of self-performance of work, if the bidder will perform work under contract by its own workforce, as required by GS 143-128.2(c) and GS 143-128.2(f). The lowest responsible, responsive bidder must provide Affidavit C, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal or provide Affidavit D, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, with documentation of Good Faith Effort, if the percentage is not equal to the applicable goal.

Alternatively, provide Affidavit B, which includes sufficient information for the Owner to determine that the bidder does not customarily subcontract work on this type project.

The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.

4.23 Roof Manufacturer's Acknowledgement Form

Each offeror shall submit a completed Roof Manufacturer Acknowledgement Form for the roof system manufacturer listed on the bid form.

4.24 Bid Security

Each bid shall be accompanied by a deposit of cash or a certified check drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation in an amount equal to not less than five percent (5%) of the gross amount of the bid. In lieu thereof, such Bidder may file a bid bond in the above amount executed in accordance with and conditioned as prescribed by GS 143-129, as amended by Chapter 1104 of the North Carolina Public Laws of 1951. If the successful Bidder fails to execute the contract within ten (10) days after award, the above deposit will be retained by the Owner on the bid bond executed on liquidated damages. Form of Bid Bond shall be AIA Document A310, current version.

4.25 Performance Bond and Labor And Materials Payment Bond

A Performance Bond and Payment Bond in the amount of the contract is required. Bidders shall include the cost of providing Performance Bond and Payment Bond in the Base Bid. The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. The bonds shall be written on AIA Documents A312, current version. Both bonds shall be written in the amount of the Contract Sum. The bonds shall be dated on or after the date of the Contract. The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety, authorized to do business in the State of North Carolina, to affix thereto a certified and current copy of the power of attorney.

I have read, understand and agree with all Scored Mandatory Requirements as presented here:

sign

date

5. Pricing:

Proposal Page West Campus Gym Roof Replacement Bid #2412004

BASE BID: _____ (\$ _____ .____)
(Words) (Figures)

ALLOWANCES:

Include in the Base Bid the \$10,000.00 Contingency Allowance specified in Section 01 21 00 of the Project Manual.

Include in the Base Bid the Quantity Allowances specified in Section 01 21 00 of the Project Manual.

Repair 300 sq. ft. of Corroded Steel Deck with Coating	\$ _____
Repair 50 sq. ft. of Steel Deck with Steel Plates.....	\$ _____
Replace 125 bd. ft. of Deteriorated Wood Blocking.....	\$ _____
Replace 384 sq. ft. of Deteriorated Plywood	\$ _____

UNIT PRICES:

Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the scope of the work all in accordance with the contract documents.

UP-1: Repair Corroded Steel Deck with Coating.....	\$ _____/SF
UP-2: Repair Steel Deck with Steel Plates.....	\$ _____/SF
UP-3: Replace Deteriorated Wood Blocking	\$ _____/BF
UP-4: Replace Deteriorated Plywood	\$ _____/SF

MANUFACTURERS:

Base bid shall utilize PVC roofing materials manufactured by _____.
(One manufacturer only)

ADDENDUM:

Addendum received and used in computing bid:

Addendum No. 1 _____ Addendum No. 2 _____

SUBCONTRACTORS:

If subcontractors are to be utilized, the General Contractor shall fill out all blanks on the list below. All subcontractors shall be listed. The general contractor shall identify work by the general, subcontractor or not applicable. Do not list suppliers. All blanks must be filled in. Failure to do so may result in bid being declared non-responsive. If there is more than one subcontractor per trade identified below, list all. If no subcontractors are to be utilized, indicate by signing at the appropriate place at the bottom of this page.

Trade: _____	Company: _____
Trade: _____	Company: _____
Trade: _____	Company: _____
Trade: _____	Company: _____

We do not plan to use subcontract forces: _____

Contractor Signature (sign if applicable)

ENCLOSURES:

- Bid Bond
- Section 2 (Terms and Conditions) Signature Page
- Section 4 (Scored Mandatory Requirements) Signature Page
- W9
- E-Verify Affidavit
- Minority Business Contract Provisions Identification of Minority Business Participation
- Minority Business Contract Provisions Affidavit A – Listing of the Good Faith Efforts
- Roof Manufacturer's Acknowledgement Form for Manufacturer listed above.

The undersigned certifies that their service being bid will meet or exceed the minimum specifications as presented in the attached bid package.

Company Name

Telephone Number

Company Address

Date

Officer Signature

Officer Print/Title

Request for Taxpayer Identification Number and Certification

**Give form to the
Requester. Do not
Send to the IRS.**

Print or type
on page 2.
See Specific Instructions

Name (as shown on your income tax return)

Business name, if different from above

Check appropriate box: ☐ Individual/Sole proprietor ☐ Corporation ☐ Partnership
☐ Limited liability company. Enter the tax classification (D=disregarded entity, C=corporation, P=partnership) ©
☐ Other (see instructions) ©

☐ Exempt
Payee

Address (number, street, and apt. or suite no.)

Requester's name and address (optional)

City, state, and ZIP code

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on Line 1 to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident Alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is

Employer identification number

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Certification

Part II

Your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Or

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. See the instructions on

**Sign
Here**

Signature of
U.S. person ©

Date ©

[illegible]

I, _____ (the individual attesting below), being duly authorized by and on behalf of _____, (hereinafter "Contractor") after first being duly sworn hereby swears or affirms as follows:

- This the ____ day of _____, 20__.

Signed and sworn to before me, this the ____ day of _____, 20__.

My commission expires: _____

Minority Business Contract Provisions-

Minority Business Subcontract Goals:

The goals for participation by minority firms as subcontractors on this project have been set at 10%.

The bidder must identify on its bid, the minority business that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts or affidavit (Affidavit B) of self-performance of work, if the bidder will perform work under contract by its own workforce, as required by GS 143-128.2(c) and GS 143-128.2(f).

The lowest responsible, responsive bidder must provide Affidavit C, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal.

OR

Provide Affidavit D, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, with documentation of Good Faith Effort, if the percentage is not equal to the applicable goal.

OR

Provide Affidavit B, which includes sufficient information for the Owner to determine that the bidder does not customarily subcontract work on this type project.

The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.

Minimum Compliance Requirements:

All written statements, affidavits or intentions made by the Bidder shall become a part of the agreement between the Contractor and the Owner for the performance of this contract. Failure to comply with any of these statements, affidavits or intentions, or with the minority business guidelines shall constitute a breach of the contract. A finding by the Owner that any information submitted either prior to award of the contract or during the performance of the contract is inaccurate, false or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the Owner whether to terminate the contract for breach.

In determining whether a contractor has made Good Faith Efforts, the Owner will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts. Good Faith Efforts include:

1. Contracting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.
2. Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.
3. Breaking down or combining elements of work into economically feasible units to facilitate minority participation.
4. Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
5. Attended pre-bid meetings scheduled by the public owner.
6. Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
7. Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
8. Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's supplies in order to help minority businesses in establishing credit.
9. Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
10. Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

Identification of Minority Business Participation

I, _____ (Bidder)

Do hereby certify that on this project, we will use the following minority business enterprises as construction subcontractors, vendors, suppliers or providers of professional services.

[illegible]

*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Socially and Economically Disadvantaged (D)

The total value of minority business contracting will be \$ _____

AFFIDAVIT A – Listing of the Good Faith Efforts

Davidson County, North Carolina

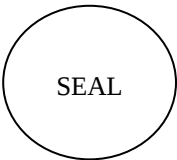
Affidavit of _____
(Bidder)

I have made a good faith effort to comply under the following areas checked:
(A minimum of 5 areas must be checked in order to have achieved a "good faith effort")

- ☐ 1- Contracted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- ☐ 2- Made the construction plans, specifications and requirements available for review by prospective minority businesses or providing these documents to them at least 10 days before the bids are due.
- ☐ 3- Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- ☐ 4- Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- ☐ 5- Attended pre-bid meetings scheduled by the public owner.
- ☐ 6- Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- ☐ 7- Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- ☐ 8- Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's supplies in order to help minority businesses in establishing credit.
- ☐ 9- Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- ☐ 10- Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

In accordance with GS 143-128.2 (d) the undersigned will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon execution of a contract with the Owner. Failure to abide by the statutory provision will constitute a breach of the contract. The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____



Signature: _____
Title: _____

State of North Carolina, County of _____
Subscribed and sworn to before me this _____ day of _____, 20 ____
Notary Public _____
My commission expires _____

AFFIDAVIT B – Intent to Perform Contract with Own Workforce

Davidson County, North Carolina

Affidavit of _____
(Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the

_____ Contract.
Name of Project

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with bidder's own work forces; and

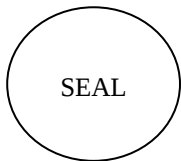
The Bidder agrees to provide any additional information or documentation required by the owner in support of the above statement.

The undersigned hereby certifies that they have read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of North Carolina, County of _____

Subscribed and sworn to before me this _____ of _____, 20 ____

Notary Public _____

My commission expires _____

AFFIDAVIT C – Portion of the Work to be Performed by Minority Firms

Davidson County, North Carolina

If the portion of the work to be executed by minority businesses as defined in GS 143-128.2(g) is equal to or greater than 10% of the bidders total contract price, then the bidder must complete this affidavit. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of _____
(Bidder)

I hereby certify that on the

Name of Project

Project ID# _____ Amount of Bid \$_____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below.

Attach additional sheets if needed.

[illegible]

*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Socially and Economically Disadvantaged (D)

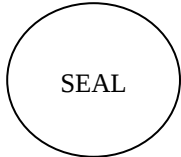
THIS FORM IS NOT TO BE SUBMITTED WITH THE BID DOCUMENTS

In accordance with GS 143-128.2 (d) the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract. The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of North Carolina, County of _____

Subscribed and sworn to before me this _____ day of _____, 20 ____

Notary Public _____

My commission expires _____

THIS FORM IS NOT TO BE SUBMITTED WITH THE BID DOCUMENTS

AFFIDAVIT D – Good Faith Efforts

Davidson County, North Carolina

If the goal of 10% participation by the minority business is not achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of _____
(Bidder)

I do certify the attached documentation as true and accurate representation of my good faith efforts.
(Attach additional sheets if needed)

Name and Phone Number	*Minority Category	Work Description	Dollar Value

*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Socially and Economically Disadvantaged (D)

Documentation of the Bidder's good faith efforts to meet the goals set forth in these provisions. Examples of documentation include, but are not limited to, the following evidence:

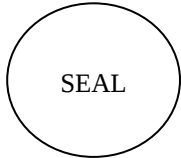
- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contract, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- E. Documentation of any contracts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Copy of pre-bid roster.
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection of minority business due to lack of qualification.
- I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of North Carolina, County of _____

Subscribed and sworn to before me this _____ day of _____, 20 ____

Notary Public _____

My commission expires _____

APPENDIX E

MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor / Architect: _____

Address & Phone: _____

Project Name: _____

Pay Application #: _____ Period: _____

The following is a list of payments to be made to minority business contractors on this project for the above-mentioned period.

Firm Name	*Minority Category	Payment Amount	Owner Use Only

*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Socially and Economically Disadvantaged (D)

Date: _____ Approved / Certified By: _____
Name

Title

Signature

ROOF MANUFACTURER'S ACKNOWLEDGMENT

Owner: Davidson County Support Services

Project Name: West Campus Gym Roof Replacement

Project Address: 555 C/D West Center Street Extension, Lexington, NC 27292

Roofing Contractor: _____

Address: _____

Telephone: _____

This is to advise the Owner that having thoroughly reviewed the Specifications and Drawings contained within the Project Manual dated September 1, 2017 for the above-titled project, we acknowledge that the roof system(s) and flashing system(s) specified are suitable for the issuance of the specified Manufacturer's warranty on this project and have been tested and approved for the wind uplift pressures outlined in the project specifications. Having reviewed the project requirements in detail, the Manufacturer will provide a written response of exceptions to the Engineer through the contractor before five (5) days of the bid due date or as otherwise outlined in the Instructions to Bidders, if conflicts exist between the Manufacturer's warranty requirements and the above listed documents. Exceptions not submitted accordingly are subject to rejection. The manufacturer also certifies that the installer is approved, authorized, or licensed by the manufacturer to install the specified roof system and is eligible to provide the specified manufacturer's warranty. The manufacturer will comply with the specified requirements for on-site technical support.

_____ is hereby designated as our Liaison on this project.
(Print or type name of Liaison)

Telephone

Roof Manufacturer's Company Name

Roof Manufacturer Representative's Signature

Date

Roof Manufacturer Representative's Name

Title

Roof Manufacturer's Address

Telephone

SECTION 00 43 13

BID BOND FORM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Utilize AIA Document A310 - 2010 Bid Bond Form. Document is incorporated by reference, Contractor is responsible to obtain a properly licensed form for use on the project.

1.2 RELATED DOCUMENTS

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

1.3 BID SECURITY

- A. In lieu thereof, each bid may be accompanied by a deposit of cash or a certified check drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation (FDIC) in an amount equal to not less than 5% of the gross amount of the bid.
- B. Bid Bond shall be signed by the Bidder and notarized.
- C. If the successful Bidder fails to execute the contract within 10 days after award, the above deposit will be retained by the Owner on the bid bond executed on liquidated damages.

END OF SECTION

SECTION 00 52 13

STANDARD FORM OF AGREEMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. AIA Document A101 - 2017 Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum.

1.2 RELATED DOCUMENTS

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

DRAFT AIA® Document A101™ – 2017

Standard Form of Agreement Between Owner and Contractor *where the basis of payment is a Stipulated Sum*

AGREEMENT made as of the « » day of « » in the year « »
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

« » « »
« »
« »
« »

and the Contractor:
(Name, legal status, address and other information)

« » « »
« »
« »
« »

for the following Project:
(Name, location and detailed description)

« »
« »
« »

The Architect:
(Name, legal status, address and other information)

«REI Engineers, Inc.» « »
« »
« »
« »

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101™-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201™-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

(Check one of the following boxes.)

[☐] The date of this Agreement.

[☐] A date set forth in a notice to proceed issued by the Owner.

[☐] Established as follows:

(Insert a date or a means to determine the date of commencement of the Work.)

«|»

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

[« »] Not later than « » (« ») calendar days from the date of commencement of the Work.

[« »] By the following date: « »

§ 3.3.2 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be « » (\$ « »), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price
« »	

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance
« Not Applicable »		

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price
« »	

§ 4.4 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
« »		

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

« If the Contractor has not substantially completed the work within the specified contract time period and no time extension is granted, the contract amount shall be reduced by the sum of five hundred (\$500) dollars per day for each day in excess of the scheduled date of completion. Deductions from the original contract amount will be documented in the form of a Change Order. Should the Owner or Architect delay the starting time or any portion of the work, an equitable adjustment will be made in the schedule.

If the Contractor has not completed the punch list items within fifteen (15) days of the substantial completion inspection, the Owner will have the right to impose liquidated damages in the amount of five hundred (\$500) dollars for each consecutive day until all of the items are completed.

If the Contractor has not submitted the required closeout documents within thirty (30) calendar days after Substantial Completion of the Work, the Owner will have the right to impose liquidated damages in the amount of five hundred (\$500) dollars for each consecutive day until all of the items are completed.»

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the last day of a month, the Owner shall make payment of the amount certified to the Contractor not later than Forty-Five (45) days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

« 5% »

§ 5.1.7.1.1 The following items are not subject to retainage:

(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

« Not Applicable »

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:

(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

« When the project is fifty percent (50%) complete, the Owner, with written consent of the surety, shall not retain any further retainage from periodic payments due the contractor if the contractor continues to perform satisfactorily and any nonconforming work identified in writing prior to that time by the Engineer, engineer or owner has been corrected by the contractor and accepted by the Engineer, engineer or owner. If the owner determines the contractor's performance is unsatisfactory, the owner may reinstate retainage for each subsequent periodic payment application as authorized in this subsection up to the maximum amount of five percent (5%). The project shall be deemed fifty percent (50%) complete when the contractor's gross project invoices, excluding the value of materials stored off-site, equal or exceed fifty percent (50%) of the value of the contract, except the value of materials stored on-site shall not exceed twenty percent (20%) of the contractor's gross project invoices for the purpose of determining whether the project is fifty percent (50%) complete. Within 60 days after the submission of a pay request and one of the following occurs, as specified in the contract documents, the owner with written consent of the surety shall release to the contractor all retainage on payments held by the owner: (i) the owner receives a certificate of substantial completion from the Engineer in charge of the project; or (ii) the owner receives beneficial occupancy or use of the project. However, the owner may retain sufficient funds to secure completion of the project or corrections on any work. If the owner retains funds, the amount retained shall not exceed two and one half times the estimated value of the work to be completed or corrected. Any reduction in the amount of the retainage on payments shall be with the consent of the contractor's surety. »

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 45 days after the issuance of the Architect's final Certificate for Payment.

§ 5.3 Interest

Payments due and unpaid under the Contract shall not bear interest.

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017.

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:

(Check the appropriate box.)

[☐] Arbitration pursuant to Section 15.4 of AIA Document A201–2017

[☐] Litigation in a court of competent jurisdiction

[☐] Other *(Specify)*

« »

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner’s convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:

(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner’s convenience.)

« Not Applicable »

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner’s representative:

(Name, address, email address, and other information)

« »

« »

« »

§ 8.3 The Contractor’s representative:

(Name, address, email address, and other information)

« »

« »

« »

§ 8.4 Neither the Owner’s nor the Contractor’s representative shall be changed without ten days’ prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds (Not Applicable)
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .4 Drawings

Number	Title	Date
« 00 01 15 »	List of Drawings contained in REI Project Manual entitled	

.5 Specifications

Section	Title	Date
« 00 01 10 »	Table of Contents contained in REI Project Manual entitled	

.6 Addenda, if any:

Number	Date	Pages
« »		

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.7 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

.8 Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
« 00 73 00 »	Supplementary Conditions		

.9 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

« Not Applicable »

This Agreement entered into as of the day and year first written above.

« »

OWNER (Signature)

« », « »

(Printed name and title)

« »

CONTRACTOR (Signature)

« », « »

(Printed name and title)

SECTION 00 60 00

PROJECT FORMS

PART 1 GENERAL

1.1 SUMMARY

- A. The following documents are hereby incorporated into the Contract Documents by reference:
1. AIA Documents: Properly licensed forms are available for purchase from the American Institute of Architects at www.aia.org/documents. Utilize current version of each document.
 - a. G701 Change Order Form
 - b. G702 Application and Certificate for Payment
 - c. G703 Continuation Sheet
 - d. G704 Certificate of Substantial Completion
 - e. G706 Contractor's Affidavit of Payment of Debts and Claims
 - f. G706A Contractor's Affidavit of Payment of Release of Liens
 - g. G707 Consent of Surety to Final Payment
 - h. G710 Architect's Supplemental Instruction Form
 - i. G714 Construction Change Directive
- B. The following documents are included in the Project Manual:
1. Section 00 61 13.13 - Performance Bond Form
 2. Section 00 61 13.16 - Payment Bond Form
 3. Section 00 62 33 - Roof Manufacturer's Acknowledgment
 4. Section 00 65 36 - Contractor's Warranty
 5. Section 00 65 37 - Asbestos Free Warranty

END OF SECTION

SECTION 00 61 13.13

PERFORMANCE BOND FORM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Utilize AIA Document A312 - 2010 Performance Bond. Document is incorporated by reference, Contractor is responsible to obtain a properly licensed form for use on the project.

1.2 RELATED DOCUMENTS

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

1.3 GENERAL

- A. A Performance Bond in the amount of the contract is required.
- B. Include the cost of providing bonds in the Base Bid.
- C. Deliver the required bonds to the Owner no later than three days following the date of execution of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section.
- D. Write bonds on the forms contained or referenced herein.
- E. Write bond in the amount of the Contract Sum.
- F. Date bonds on the date of the Contract.
- G. Issue bonds by sureties and execute by an attorney-in-fact, on behalf of the surety, who is authorized to do business in the State of North Carolina.
- H. Affix thereto a certified and current copy of the power of attorney.

END OF SECTION

SECTION 00 61 13.16

PAYMENT BOND FORM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Utilize AIA Document A312 - 2010 Payment Bond Form. Document is incorporated by reference, Contractor is responsible to obtain a properly licensed form for use on the project.

1.2 RELATED DOCUMENTS

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

1.3 GENERAL

- A. A Labor and Material Payment Bond in the amount of the contract is required.
- B. Include the cost of providing bonds in the Base Bid.
- C. Deliver the required bonds to the Owner no later than three days following the date of execution of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section.
- D. Write bonds on the forms contained or referenced herein.
- E. Write bond in the amount of the Contract Sum.
- F. Date bonds on the date of the Contract.
- G. Issue bonds by sureties and execute by an attorney-in-fact, on behalf of the surety, who is authorized to do business in the State of North Carolina.
- H. Affix thereto a certified and current copy of the power of attorney.

END OF SECTION

SECTION 00 62 33

ROOF MANUFACTURER'S ACKNOWLEDGMENT

PART 1 GENERAL

1.1 FROM:

- A. Roofing Contractor: _____
- B. Address: _____
- C. Phone: _____ Email: _____

1.2 FOR:

- A. Owner: County of Davidson, NC
- B. Project: West Campus Gym Roof Replacement
- C. REI Project No.: 024CLT-128
- D. Address: 555-C/D West Center Street Extension, Lexington, North Carolina 27292

1.3 ACKNOWLEDGEMENT

- A. This is to advise the Owner that having thoroughly reviewed the Specifications and Drawings contained within the Project Manual dated 12-02-2024, the above-titled project, we acknowledge that the roof system(s) and flashing system(s) specified are suitable for the issuance of the specified Manufacturer's warranty on this project and have been tested and approved for the wind uplift pressures and specified external fire resistance rating outlined in the project specifications. Having reviewed the project requirements in detail, the Manufacturer will provide a written response of exceptions or exclusions to the Engineer through the contractor as otherwise outlined in the Advertisement or Invitation for Bids, if conflicts exist between the Manufacturer's warranty requirements and the above listed documents. Exceptions not submitted accordingly are subject to rejection. The manufacturer also certifies that the installer is approved, authorized, or licensed by the manufacturer to install the specified roof system and is eligible to provide the specified manufacturer's warranty. The manufacturer will comply with the specified requirements for on-site technical support.

1.4 EXECUTED BY:

- A. Manufacturer's Company Name: _____
- B. Designated Reviewer Name and Title: _____
- C. Signature: _____ Date: _____

END OF SECTION

SECTION 00 65 36

CONTRACTOR'S WARRANTY

PART 1 GENERAL

1.1 WARRANTY

- A. Know all men by these presents, that we, _____
(Contractor), having installed roofing system, flashings and sheet metal on the West Campus Gym Roof Replacement under contract between County of Davidson, NC and Contractor, warrant to the Owner with respect to said work that for the period of 2 years from date of substantial completion of _____, 20____, the work shall be watertight and free from defects, provided however the following are excluded from this Warranty: 1) defects or failures resulating from abuse by the Owner, 2) damages caused by fire, tornado, hail, hurricane, acts of God, wars, vandalism, riots or civil commotion, and 3) deficts in design involving failure of structural frame, load bearing walls, and/or foundations. We agree that should any leaks occur in the work we will perform emergency repairs within 24 hours' notice and perform permanent repairs promptly in a manner to restore the work to a watertight condition by methods compatible to the system, acceptable under industry standards and general practice, and acceptable to the Manufacturer, all at no expense to the Owner. We further agree that for the period specified below, we will make repairs at no expense to the Owner to defects which may develop in the work in a manner compatible to the system, acceptable under industry standards and general practice as established by the Engineer and acceptable to the Manufacturer.
- B. We agree to attend one post construction field inspection no earlier than one month prior to the Contractor's Warranty expiration date and to complete corrective actions requested by Owner, Engineer, or Manufacturer at no additional cost to the Owner.

1.2 EXECUTED BY

- A. Contractor: _____
- B. Authorized Officer Name and Title: _____
- C. Signature: _____ Date: _____

1.3 NOTARIZED BY:

- A. I, _____(print name), a Notary Public for _____ County of _____ (State), do hereby certify that _____ (officer listed above) personally appeared before me this day and acknowledged the due execution of the foregoing instrument. Witness my hand and official seal, this ____ day of _____, 20 _____. My commission expires ____ of _____, 20 ____.
- B. Signed: _____

(OFFICIAL SEAL)

END OF SECTION

SECTION 00 65 37

ASBESTOS FREE WARRANTY

PART 1 GENERAL

1.1 FOR

- A. Owner: County of Davidson, NC
- B. Project: West Campus Gym Roof Replacement
- C. Project Address: 555-C/D West Center Street Extension, Lexington, North Carolina 27292

1.2 WARRANTY

- A. Date of Substantial Completion: _____
- B. Know all men by these presents, that we, _____
(Contractor) having furnished labor, materials, equipment and/or supplies, removed existing roof system; installed new roof system and/or miscellaneous components; from, to and/or on the above referenced project under contract between the Owner and Contractor, warrant to Owner with respect to said work that no materials containing asbestos fibers were incorporated into the work, and that, to our knowledge and belief, no materials containing asbestos remain in or are covered by the work.
- C. Exceptions: _____ If there are no exceptions, state "None".

1.3 EXECUTED BY

- A. Contractor: _____
- B. Authorized Signing Officer Name: _____
- C. Authorized Signing Office Title: _____
- D. Signature: _____ Date: _____

1.4 NOTARIZED BY:

- A. I, _____ (print name), a Notary Public for _____ County of _____ (State), do hereby certify that _____ (officer listed above) personally appeared before me this day and acknowledged the due execution of the foregoing instrument. Witness my hand and official seal, this _____ day of _____, 20 _____. My commission expires _____ of _____, 20 _____.

B. Signed: _____

(OFFICIAL SEAL)

END OF SECTION

SECTION 01 11 00
SUMMARY OF WORK

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Name: West Campus Gym Roof Replacement
- B. Project Address: 555-C/D West Center Street Extension, Lexington, North Carolina 27292
- C. Owner: County of Davidson, NC
- D. Engineer: The Contract Documents, dated 12-02-2024, were prepared by REI Engineers, Inc.
- E. This work includes the provision of labor, material, equipment, supervision and administration to integrate the work outlined in these specifications into the total building system such that no leakage into the system occurs. In general, the scope of work in the Base Bid includes:
 - 1. Low Slope Roof Replacement - Gym:
 - a. Remove and dispose of the roof system including flashings and sheet metal down to the steel deck.
 - b. Secure the existing steel deck to structural framing members.
 - c. Provide 2" Roof Insulation mechanically attached.
 - d. Provide 2" Roof Insulation adhered in foam adhesive.
 - e. Provide Cover Board adhered in foam adhesive.
 - f. Fully adhere felt-back thermoplastic single ply membrane along with flashings and accessories.
 - g. Replace sheet metal flashings and trim.
 - h. Provide a complete, watertight, 20-year warrantable roof assembly.
- F. Provide electrical, plumbing, mechanical, and other related trade work necessary to facilitate project operations. Relocate or raise conduit, HVAC equipment, curbs, and/or plumbing necessary to comply with the requirements of these documents and conform to the requirements of the State Building Code.
 - 1. Conduct construction operations so that heat, air conditioning, ventilation, electrical, telephone, gas, water, sanitary, storm sewer, and any other service required for the building operations are maintained at all times during normal working hours. Any shutdowns or interruptions shall be coordinated with and approved by the owner.

- G. General requirements and specific recommendations of the material manufacturers are included as part of these specifications. The manufacturers' specifications are the minimum standards required for the completed systems. Where specific items listed herein improve the standards required by the manufacturers, they take precedence where their compliance does not affect the manufacturers' guarantee or warranty provisions.
- H. Act as the Project Expeditor and coordinate work and schedules of others hired.

1.2 ASBESTOS CONTAINING ROOFING MATERIALS (ACRM):

- A. Sample Testing Results:
 - 1. No materials were sampled or tested for asbestos.
- B. It is the intention of these specifications that no asbestos bearing materials be incorporated into the work. In the event the contractor determines unanticipated asbestos bearing materials present in the building components, stop work in the affected area, notify the Engineer and Owner, and provide temporary protection as required. Costs incurred due to the presence of hidden or unanticipated asbestos bearing materials will be authorized by Change Order to this contract.

1.3 REFERENCE STANDARDS

- A. CSI/CSC MF - Masterformat; 2016.

1.4 CONTRACT

- A. Project constructed under a single prime general construction contract between Owner and Contractor.

1.5 WORK UNDER OTHER CONTRACTS

- A. Separate Contract: Owner may award a separate contract for performance of certain construction operations at Project site.
 - 1. None
- B. Cooperate with separate contractors so work on those contracts are carried out smoothly without interfering with or delaying Work under this Contract.

1.6 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 49-division format and CSI/CSC MF numbering system.
 - 1. Section Identification: The Specifications use section numbers and titles to cross-reference Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete.
- B. 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:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Interpret words and meanings as appropriate. Infer words implied, but not stated, as the sense requires. Interpret singular words as plural and plural words as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Perform requirements expressed in the imperative mood. 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.
 - a. 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.

END OF SECTION

SECTION 01 14 00

WORK RESTRICTIONS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements for work sequence, work restrictions, occupancy requirements and use of premises.

1.2 RELATED DOCUMENTS

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

1.3 SUBMITTALS

- A. Background Checks: Provide background checks for employees anticipated to work on-site during the project.

1.4 WORK SEQUENCE

- A. Construct Work in phases to accommodate the Owner's use; if applicable, of the premises during the construction period; coordinate the construction schedule and operations with the Owner and Engineer.
- B. Construct the Work in phases to provide for public convenience. Do not close off public use of facility until completion of one phase of construction provides alternative usage.
- C. Schedule construction in such a manner that once work has commenced on one facility, the work force to remain at that facility continuously each workday through final completion at that facility.

1.5 WORK RESTRICTIONS

- A. Work hours generally performed during normal business hours.
 - 1. Provide notification to the Owner and Engineer 48 hours in advance of work outside of normal business hours. No work allowed without prior notification and authorization.

1.6 OCCUPANCY REQUIREMENTS

- A. Owner Occupancy:
 - 1. Owner occupies the premises during construction to conduct his normal operations. Cooperate with Owner in construction operations to minimize conflict and to facilitate Owner usage.
 - 2. Conduct operations as to ensure the least inconvenience and the greatest amount of safety and security for the Owner, building occupants, and the general public.

3. Control noise from operations so that building occupants are not affected.

1.7 SECURITY

- A. Restrict the access of persons entering upon the Owner's property in connection with the work to the Contractor's Entrance and to the site of the work.
- B. Maintain an accurate record of the names and identification of visitors entering upon the Owner's property in connection with the work of this contract, including times of entering and times of leaving, and submit a copy of the record to the Owner weekly.
- C. Background Checks: No persons/personnel allowed on site without the following background checks: Nationwide, Sex Offender check, Social Security Number check. Provide this information to the Engineer/Owner 5 business days prior to the scheduled access for each person. Owner's decision on acceptability of personnel. Each person is required to wear a badge with name, photograph, and company name. Ensure background checks for persons are submitted to Owner and those persons denied access are not allowed on-site.

1.8 USE OF SITE

- A. Limit use of premises and confine construction operations to work in areas indicated and approved by Engineer and Owner. Do not disturb portions of site beyond areas in which the Work is indicated.
 1. Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 2. Perform Work in a way that does not restrict parking lots or other locations outside the work area from the facility. Maintain safe access for vehicles
 3. Move stored materials and equipment that interfere with operations of the Owner.
 4. Protect surface improvements including pavements, curbs, sidewalks, lawn and landscaped areas, utilities, etc.
 5. Repair to the Owner and Engineer's satisfaction, or to restore to condition at the time of award of Contract, or to make restitution acceptable to the Owner, damages to surface improvements resulting from, or attributable to, the work operation.
 - a. Repair damaged concrete by replacing full sections of concrete between control/expansion joints.
 - b. Fill ruts in grass areas and grade to original conditions. Provide grass seed and straw.
 - c. Replace disturbed landscaping in mulched or natural areas.
- B. Transportation Facilities

1. Truck and equipment access:
 - a. Avoid traffic conflict with vehicles of the Owner's employees and customers and avoid over-loading of street and driveways elsewhere on the Owner's property, limit the access of trucks and equipment to the designated areas.
 - b. Provide adequate protection for curbs and sidewalks over which trucks and equipment pass to reach the job site.
2. Contractor's vehicles:
 - a. Require contractor's vehicles, vehicles belonging to employees of the contractor, and other vehicles entering the Owner's property in performance of the work the contract, to use only the designated access route.
 - b. Do not permit such vehicles to park on street or other area of the Owner's property except in the designated area.

1.9 USE OF BUILDING

- A. Maintain building in a weathertight condition throughout construction period.
- B. Take precaution against injuries to persons or damage to property.
- C. Protect building, its contents, and its occupants during construction period.
- D. Do not overload or permit the structure to be loaded with such weights that endanger its safety or to cause excessive deflection. Equally distribute materials placed on the roof.
- E. Properly secure materials or equipment placed on roof to prevent blow off during wind events. Ensure materials or equipment on roof does not interfere with roof drainage.
- F. Repair to the Owner and Engineer's satisfaction, or to restore to condition at the time of award of Contract, or to make restitution acceptable to the Owner, damages to the building and its contents resulting from, or attributable to, the work operation.
- G. Indoor Air Quality:
 1. Coordinate with the facility personnel to identify the area where roof work is performed daily and what HVAC equipment and personnel in the building may be affected by the work.
 2. Work with facility personnel to prevent odors or fumes from entering the building or where found to not be practical due to the work area, HVAC equipment limitations or other reasons; coordinate with facility personnel to have occupants relocated to an area of the building not affected by the work.
 3. When possible to safely shut down and seal HVAC equipment; as determined by the facility personnel, coordinate with facility personnel to have mechanical units affected by the planned work area and air intakes properly closed and sealed. After closing of mechanical units and air intakes, cover units and intakes with 6-mil polyethylene sheeting taped secure. Remove polyethylene sheeting before coordinating restart of units and intakes.

4. Provide box carriage fans on rooftop during roof application to move and circulate air away from intakes and units.
5. Where HVAC equipment is required to remain operational during roof work, coordinate with facility personnel to cover air intakes with charcoal filters prior to beginning work.
6. When starting roof work using materials which have odors or emit fumes, communicate with facility personnel within the building in the area of the work to determine if fumes or odors are being experienced. If fumes or odors are experienced, stop work until the cause is determined and remediated or occupants can be moved to an area not affected by the work.

END OF SECTION

SECTION 01 21 00

ALLOWANCES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements governing allowances.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:
 - 1. Section 05 01 30 - Steel Roof Deck Repair and Securement
 - 2. Section 06 10 00 - Rough Carpentry

1.3 ABBREVIATIONS

- A. Abbreviations for typical units of measurement:
 - 1. Square Foot (SF)
 - 2. Square Yard (SY)
 - 3. Cubic Foot (CF)
 - 4. Board Foot (BF)
 - 5. Linear Foot (LF)
 - 6. Each (EA)
 - 7. Tonnage (TON)

1.4 CONTINGENCY ALLOWANCE

- A. Include the specified contingency allowance in the base bid.
- B. Credit unused portion remaining at the completion of the contract back to the Owner.
- C. The Owner reserves the right to modify the contingency allowance prior to award of Contract.

1.5 QUANTITY ALLOWANCES

- A. Include the specified quantity allowances in the base bid. Use the unit price submitted on the Bid Form to compute the quantity allowances. The quantities indicated on the Bid Form are estimated quantities only for the purpose of comparing bids. Compensation for the unit price bid made for the exact quantity of work performed under the unit price item. Deductive amounts of unit price work included in the Contract Sum are calculated at 100% of the quoted add unit price.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 SCHEDULE OF ALLOWANCES

- A. Contingency Allowance: Include a \$10,000.00 contingency allowance in the base bid.
- B. Quantity Allowances:
1. Repair 300 SF of Corroded Steel Deck (Corrosion Degree 1) with Coating. Refer to Section 05 01 30 - Steel Roof Deck Repair and Securement.
 2. Repair 50 SF of Steel Deck (Corrosion Degree 2) with Steel Plates. Refer to Section 05 01 30 - Steel Roof Deck Repair and Securement.
 3. Replace 125 BF of Deteriorated Wood Blocking. Refer to Section 06 10 00 - Rough Carpentry.
 4. Replace 384 SF of Deteriorated Plywood. Refer to Section 06 10 00 - Rough Carpentry.

END OF SECTION

SECTION 01 22 00

UNIT PRICES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for unit prices.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:

1. Section 05 01 30 - Steel Roof Deck Repair and Securement
2. Section 06 10 00 - Rough Carpentry

1.3 DEFINITION

A. Unit price is an amount proposed by Bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 ABBREVIATIONS

A. Abbreviations for typical units of measurement:

1. Square Foot (SF)
2. Square Yard (SY)
3. Cubic Foot (CF)
4. Board Foot (BF)
5. Linear Foot (LF)
6. Each (EA)
7. Tonnage (TON)

1.5 UNIT PRICE MEASUREMENT

- A. Prior to performing work under a unit price as specified herein, notify the Engineer to allow for measurement of the actual quantities of work. Work performed under these items without prior approval and measurement is at the Contractor's expense.
- B. Maintain a daily log including visual documentation (i.e. digital photographs) showing dates, location and exact quantities of unit price work.

- C. Owner and Engineer reserve the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent party.

1.6 UNIT PRICE PAYMENT

- A. Include in unit prices costs associated with performing the unit price work including but not limited to labor, material, equipment, insurance, applicable taxes, overhead and profit, bonds, etc.

1.7 UNIT PRICE PERFORMANCE

- A. Install unit price work in accordance with the applicable specification sections and Contract Drawings.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 SCHEDULE OF UNIT PRICES

- A. Provide a unit price for:
 - 1. Repair Corroded Steel Deck (Corrosion Degree 1) with Coating. Unit of Measurement: Square Foot (SF). Refer to Section 05 01 30 - Steel Roof Deck Repair and Securement.
 - 2. Repair Steel Deck (Corrosion Degree 2) with Steel Plates. Unit of Measurement: Square Foot (SF). Refer to Section 05 01 30 - Steel Roof Deck Repair and Securement.
 - 3. Replace Deteriorated Wood Blocking. Unit of Measurement: Board Foot (BF). Refer to Section 06 10 00 - Rough Carpentry.
 - 4. Replace Deteriorated Plywood. Unit of Measurement: Square Foot (SF). Refer to Section 06 10 00 - Rough Carpentry.

END OF SECTION

SECTION 01 25 00
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. This Section specifies administrative and procedural requirements for handling requests for substitutions after award of Contract.

1.2 RELATED DOCUMENTS

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

1.3 DEFINITIONS

- A. Substitutions: Requests for changes in products, materials, and equipment, of construction required by Contract Documents proposed by the Contractor are considered requests for "substitutions". The following are not considered substitutions:
 - 1. Revisions to Contract Documents requested by the Owner or Engineer.
 - 2. Specified options of products and construction methods included in Contract Documents.
 - 3. Determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

- A. Submit requests for acceptance of equivalent items in writing to the Engineer during the submittal process. No substitutions considered after acceptance of project submittals.
- B. Substitutions after award are considered solely for convenience and approved by Change Order in form of credit to the Owner. Bear additional costs related to making the substituted material or system work including additional engineering, material or system modifications, and time considerations relating to material or system installation requirements.
- C. Provide information sufficient for the Engineer to make a determination of equivalent items. Engineer's determination of the equivalency of a product is final. The Engineer reserves the right to request information or documentation for evaluation including but not limited to the following:
 - 1. Provide a letter describing in detail proposed changes, substitutions, or deviations from the project or manufacturer's specifications.
 - 2. A written explanation of why substitutions should be considered is required.
 - 3. Statement indicating why specified product cannot be provided.

4. Coordination of information, including a list of modifications needed to other parts of the work necessary to accommodate proposed substitution.
5. Product data including drawings, descriptions, and fabrication/installation procedures.
6. Samples where applicable.
7. Material test reports from a qualified testing agency indicating the interpreting test results for compliance with requirements.
8. Contractor's certification that proposed substitution complies with requirements in the contract documents and is appropriate for applications indicated.
9. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
10. If requesting product substitution after bid award, provide cost information including proposal of change in the contract sum.

END OF SECTION

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements for handling and processing Contract modifications.

1.2 RELATED DOCUMENTS

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

1.3 REFERENCE STANDARDS

- A. AIA G701 - Change Order; 2017.
- B. AIA G710 - Architect's Supplemental Instructions; 2017.
- C. AIA G714 - Construction Change Directive; 2017.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: A detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time will be issued by the Engineer along with supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 5 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, propose changes by submitting a request for a change to Engineer.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 6. Comply with requirements in Division 1 if the proposed change requires substitution of one product or system for product or system specified.
- C. Proposal Request Approval:
1. If sufficient contingency allowance funds remain, written approval will be provided by the Engineer in the form of an Allowance Authorization signed by the Engineer, Contractor and Owner.
 2. If contingency allowance funds are not available; upon approval by Owner, written approval will be provided by the Engineer in the form of a Change Order as provided in the Conditions of the Contract.
 - a. Form of Change Order: AIA G701.
 - b. Do not commence work or purchase materials for such change orders until written approval is received in the form of an executed Allowance Authorization or Change Order.
 - c. An executed Change Order is the only legal document which can change the Contract Sum or Time.

1.5 SUPPLEMENTAL INSTRUCTIONS

- A. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Engineer on AIA G710.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: When the Owner and Contractor are not in total agreement on the terms of a Proposal Request; the Engineer may issue a Construction Change Directive on AIA G714, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. The Construction Change Directive will contain a description of the change in the Work and designate the method followed to determine the change in the Contract Sum or Contract Time.
 2. Submit unit costs, equipment rates and labor rates as requested by the Engineer and agree upon submitted rates before the work progresses unless directed to proceed in the absences of an agreement or in an emergency.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive. Provide a copy of those records the Engineer.
1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

END OF SECTION

SECTION 01 29 00
PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 RELATED DOCUMENTS

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

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 REFERENCE STANDARDS

- A. AIA G702 - Application and Certificate for Payment; 1992.
- B. AIA G703 - Continuation Sheet; 1992.
- C. AIA G706 - Contractor's Affidavit of Payment of Debts and Claims; 1994.
- D. AIA G706A - Contractor's Affidavit of Release of Liens; 1994.
- E. AIA G707 - Consent of Surety to Final Payment; 1994.

1.5 SUBMITTALS

- A. Sample Application for Payment Cover on AIA G702 .
- B. Schedule of Values: A schedule of values on AIA G703 Continuation Sheet consisting of a detailed breakdown of the Contract amount showing separate figures for labor and materials. The work listed under the various sections and subsections of the Specifications serve as the format for preparation.

1.6 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Submittals.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment Forms with Continuation Sheets

- b. Submittals Schedule
 - c. Contractor's Construction Schedule
 - 2. Submit the Schedule of Values to Engineer along with Submittals.
 - 3. Sub schedules: Where the Work is separated into phases requiring separately phased payments, provide sub schedules showing values correlated with each phase of payment.
- B. Format and Content: Provide one line item for labor and one line item for material for each Specification Section.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Application for Payment Number.
 - b. Application for Payment Date.
 - c. Engineer's project number.
 - d. Period to for Schedule of Values.
 - 2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents.
 - 3. Provide several line items for principal subcontract amounts, where appropriate.
 - 4. Round amounts to nearest whole dollar; total to equal the Contract Sum.
 - 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - 6. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
 - 7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 - 8. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 - 9. Complete each item in the Schedule of Values and Applications for Payment. Include total cost and proportionate share of general overhead and profit for each item.
 - 10. Show temporary facilities and other major cost items that are not direct cost of work in place either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

11. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.7 APPLICATION FOR PAYMENT

- A. Submit one electronic pdf of the application for payment on AIA G702.
 1. Indicate the date for each progress payment. The period of Work covered by each application is the period indicated in the Agreement
 2. Provide on original AIA forms.
 3. Complete, notarize and execute each Application for Payment by a person authorized to legally sign documents.
 4. Show breakdown of the work with separate labor and material amounts on AIA G703 in accordance with the accepted Schedule of Values.
 5. Make each application consistent with previous applications and payments as certified by Engineer and paid for by Owner.
 6. Engineer will return incomplete applications without action.
- B. Retainage: If contract amount exceeds \$100,000, to ensure proper performance of this Contract, 5% of the amount of each estimate will be retained by the Owner until 50% completion, at which time the Owner, with written consent of the surety, shall not retain further retainage from periodic payments due the contractor if the contractor continues to perform satisfactorily and nonconforming work identified in writing prior to that time by the Engineer, engineer or owner has been corrected by the contractor and accepted by the Engineer, engineer or owner.
 1. If the owner determines the contractor's performance is unsatisfactory, the owner may reinstate retainage for each subsequent periodic payment application as authorized in this subsection up to the maximum amount of 5%.
 2. The project shall be deemed 50% complete when the contractor's gross project invoices, excluding the value of materials stored off-site, equal or exceed 50% of the value of the contract, except the value of materials stored on-site shall not exceed 20% of the contractor's gross project invoices for the purpose of determining whether the project is 50% complete.
 3. Within 60 days after the submission of a pay request and one of the following occurs, as specified in the contract documents, the owner with written consent of the surety shall release to the contractor retainage on payments held by the owner:
 - a. The owner receives a certificate of Substantial Completion from the Engineer in charge of the project.
 - b. The owner receives beneficial occupancy or use of the project. However, the owner may retain sufficient funds to secure completion of the project or corrections on work. If the owner retains funds, the amount retained shall not exceed two and one-half times the estimated value of the work to be completed or corrected. Reduction in the amount of the retainage on payments with the consent of the contractor's surety.

- C. Match data of entries on the schedule of values and construction schedule. Include amounts of change orders issued before last day of construction period covered by the application.
- D. The Engineer reserves the right to contact material manufacturers directly, without contractor consent, to verify material invoices. Make material invoices available to the Engineer upon his request from the contractor or material manufacturer.
- E. When requesting payment for materials stored on site, submit with request an invoice for the materials and a certificate of insurance showing proof of coverage for the materials stored on site. Payment will be made only for stored materials. No payment will be made for anticipated overhead and/or profit.
- F. With each application for payment, also submit the following:
 - 1. Unit Price Daily Logs: Submit copies of unit price daily logs and appropriate change order forms with each application for payment unless no unit price work was accomplished during the period covered by the application.
 - 2. AIA G706
 - 3. AIA G706A
- G. At substantial completion, submit an application for payment showing 100% completion for portion of the work claimed as substantially complete. Include documentation supporting claim that the work is substantially complete.
- H. At final completion, submit final application for payment with releases and supporting documentation not previously submitted and accepted, including but not limited to the following. Final payment not due until required documents have been submitted.
 - 1. Project Closeout Submittals
 - 2. AIA G706
 - 3. AIA G706A
 - 4. AIA G707

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - a. Project Schedule
 - b. General project coordination procedures.
 - c. Coordination.
 - d. Administrative and supervisory personnel
 - e. Project meetings

1.2 RELATED DOCUMENTS

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

1.3 SUBMITTALS

- A. Emergency contact list: Key personnel including home, office and mobile numbers, for the Owner, Contractor, Subcontractor(s), and Engineer
- B. Work schedule:
 - 1. Indicate start date, crew size, production rate, completion date, etc.
 - 2. Provide illustrated schedule on an aerial map.

1.4 COORDINATION

- A. Coordinate construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Coordinate its operations with those included in different Sections that depend on each other for proper installation, connection, and operation.
 - 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 other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.

- B. Coordinate the scheduling and sequence of operations with the Owner and Engineer.
- C. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Construction Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Pre-Construction conference.
 - 7. Pre-installation conferences.
 - 8. Project closeout activities.

1.5 PROJECT MEETINGS

- A. Pre-Construction Meeting
 - 1. A Pre-Construction Meeting will be scheduled as soon as possible after the award of the contract. The Engineer's Representative will compile minutes of the meeting and will furnish a copy of the minutes to each person present.
 - 2. Attendance: Project Manager, Job Superintendent and Job Foreman, Owner, Engineer's Representative, manufacturer's representatives, installers of related work and other persons concerned with the installation and performance.
 - a. Provide 3 telephone numbers to contact the Contractor or his authorized representative in the event of an emergency after normal business hours.
 - 3. Minimum Agenda: Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, and the Project Manager; channels and procedures for communication; construction schedule, including sequence of critical work; contract documents, including distribution of required copies of Drawings and revisions; processing of Shop Drawings and other data submitted to the Project Manager for review; rules and regulations governing performance of the work and procedures for safety, first aid, security, quality control, housekeeping and related matters.
- B. Progress Meetings:

1. Attend monthly progress meetings for the purpose of informing the Owner and the Engineer regarding the status of the project. The Engineer will compile minutes of the meeting and will furnish a copy of the minutes to each person present.
2. Attendance: Owner, Engineer, Contractor, Job Superintendent, material Supplier, and Subcontractors, as appropriate. Provide an updated job progress schedule at each weekly meeting. Be thoroughly familiar with the status of the project and be prepared to discuss and act upon situations that arise. The time, date and location of these meetings will be established during pre-construction conference.
3. Minimum Agenda: Review of work progress; field observations, problems, and decisions; identification of problems which impede planned progress; maintenance of progress schedule; corrective measures to regain projected schedules; planned progress during succeeding work period; coordination of projected progress; maintenance of quality and work standards; processing of field decisions and Change Orders; effect of proposed changes on progress, schedule, and coordination; other business relating to work.

C. Substantial Completion Inspection Meeting

1. Scheduled by Owner and Engineer upon written notification of substantial completion of work from the Contractor.
2. Attendance: Owner, Engineer, Contractor, material manufacturer.
3. Minimum Agenda: Walkover inspection, verification of substantial completion, identification of punch list items and identification of problems potentially impeding issuance of warranties.

D. Final Inspection Meeting

1. Scheduled by Owner and Engineer upon written notification of final completion of work from the Contractor.
2. Attendance: Owner, Engineer, Contractor.
3. Minimum Agenda: Verification of final completion including the completion of the punch list items.

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

1.2 RELATED DOCUMENTS

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

1.3 SUBMITTAL PROCEDURE

- A. General: The Contractor is responsible for providing the submittals to the Engineer. Each submittal is required to be accepted in writing prior to commencement of work.
- B. Submission Requirements:
 - 1. Submit required submittals electronically in pdf format to the Engineer for review. The submittals will then be returned electronically to the Contractor with comments. Final submittals require written responses to submittal comments.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as specified below, commencing on Engineers receipt of submittal.
 - 1. Initial Review: Allow 7 work days for initial review of submittals.
 - 2. Allow 7 work days for processing each resubmittal.
 - 3. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- D. Identification:
 - 1. Submit as one pdf file with bookmarks for each scheduled item.
- E. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals and provide letter describing in detail proposed changes, substitutions, or deviations from the project or manufacturers specifications. Include a written explanation of why substitutions should be considered under the appropriate tab.
- F. Transmittal: Package submittals appropriately for transmittal. Engineer will discard submittals received from sources other than Contractor. Include Contractors certification stating that information submitted complies with requirements of the Contract Documents.
- G. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

1.4 SCHEDULE OF SUBMITTALS

- A. Refer to the applicable specification section for list of submittal requirements for each section.
- B. Submit the following submittal items electronically with a title page and/or pdf bookmark for each submittal item to meet the requirements specified herein:
 - 1. Section 00 52 13 - Copy of Executed Owner/Contractor Agreement along with Certificate of Insurance
 - 2. Section 00 61 13.13: Copy of Executed Performance Bond Form
 - 3. Section 00 61 13.16: Copy of Executed Payment Bond Form
 - 4. Section 00 62 33 - Roof Manufacturers Acknowledgment Form
 - 5. Section 01 25 00 - Substitution Procedures
 - 6. Section 01 29 00 - Payment Procedures
 - 7. Section 01 31 00 - Project Management and Coordination
 - 8. Section 01 40 00 - Quality Requirements
 - 9. Section 01 73 00 - Execution Requirements
 - 10. Section 05 01 30 - Steel Roof Deck Repair and Securement
 - 11. Section 06 10 00 - Rough Carpentry
 - 12. Section 07 22 16 - Roof Insulation
 - 13. Section 07 25 00 - Weather Resistive Barriers
 - 14. Section 07 54 00 - Thermoplastic Single Ply Roofing
 - 15. Section 07 62 00 - Sheet Metal Flashing and Trim
 - 16. Shop Drawings: Shop drawings or letter stating installation of materials as detailed in the Contract Drawings unless properly authorized by the Engineer.
 - 17. Physical color samples as specified in the applicable specification section.

PART 2 PRODUCTS

2.1 SUBMITTALS

- A. General: Prepare and submit Submittals required herein and by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information is specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturers written recommendations.
 - b. Manufacturers product specifications.
 - c. Manufacturers installation instructions.
 - d. Manufacturers catalog cuts.
 - e. Wiring diagrams showing factory-installed wiring.
 - f. Printed performance curves.
 - g. Operational range diagrams.
 - h. Compliance with recognized trade association standards.
 - i. Compliance with recognized testing agency standards.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Include the following information, as applicable: dimensions, identification of products, fabrication and installation drawings, schedules, coordination requirements and notation of dimensions established by field measurements.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
- D. Samples: Prepare physical units of materials or products, including the following:
1. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show range of color and texture variations expected. Samples include, but are not limited to, partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 2. Submit three sets of Samples. Engineer will retain two Sample sets; remainder will be returned.
 3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Engineers sample where so indicated. Attach label on unexposed side.

4. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and component as delivered and installed.
 5. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity and used to determine final acceptance of construction associated with each set.
- E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.
 - F. Product Certificates: Prepare written statements on manufacturers letterhead certifying that product complies with requirements.
 - G. Installer Certificates: Prepare written statements on manufacturers letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
 - H. Manufacturer Certificates: Prepare written statements on manufacturers letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
 - I. Material Certificates: Prepare written statements on manufacturers letterhead certifying that material complies with requirements.
 - J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
 - K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
 - L. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software used for calculations. Include page numbers.
 - M. Manufacturer's Instructions: Prepare written or published information that documents manufacturers recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
 - N. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, and term of the coverage.

PART 3 EXECUTION

3.1 CONTRACTORS REVIEW

- A. Review each submittal, check for compliance with the Contract Documents and note corrections and field dimensions prior to submitting to Engineer.

3.2 ENGINEERS ACTION

- A. Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal item with an action stamp and will mark stamp appropriately to indicate action taken.
- B. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. This Section includes administrative and procedural requirements for quality assurance and quality control.
 - 2. Secure and pay costs of licenses and permits required by City, County and/or State authorities.

1.2 RELATED DOCUMENTS

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

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction comply with requirements. Services do not include contract enforcement activities performed by Engineer.
- C. Authority Having Jurisdiction: AHJ

1.4 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.

1.5 SUBMITTALS

- A. Permit: Provide copy of construction permits along with required licenses or certifications required by the AHJ.

1.6 QUALITY ASSURANCE

- A. Perform quality assurance in accordance with governing Codes, referenced standards, established standards, or industry standards.

- B. Solely responsible for supervising and directing the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise necessary to perform the Work in accordance with the Contract. Solely responsible for the means, methods, techniques, sequences and procedures of construction and for coordinating portions of the Work under the Contract, except where otherwise specified in the Contract Documents. Solely responsible to the Owner that the finished Work complies with the Contract Documents.
- C. It is the intent under this contract that workmanship be of the best quality consistent with the materials and construction methods specified. The presence or absence of the Owner's or Engineer's representative in no way relieves the Contractor of his responsibility to furnish materials and construction in compliance with the drawings and specifications. The Owner and Engineer have the authority to judge the quality and require replacement of unacceptable work or personnel.
- D. Cooperate in the execution of work and plan work in such manners as to avoid conflicting schedules or delay of work. If the work depends upon the work of another Contractor, report defects affecting the work to the Engineer. Commencement of work where such condition exists constitute acceptance of the other Contractor's work as being satisfactory to receive the work commenced. Coordinate work of trades under this contract in such a manner to obtain the best possible workmanship for the project. Install components of the work in accordance with the best practices of the particular trade. Notify the Owner sufficiently in advance of operations to allow for assignment of personnel.
- E. Solely responsible for health and safety precautions and programs for workers and others in connection with the Work. No inspection by, knowledge on the part of, or acquiescence by the Engineer, the Owner, the Owner's employees and agents, or other entity whatever relieves the Contractor from its sole responsibility for compliance with the requirements of the Contract or its sole responsibility for health and safety programs and precautions.
- F. Materials or methods described by words which, when applied, have a well-known technical or trade meaning are held to refer to such recognized standard. Standard specifications or manufacturer's literature, when referenced, are of the latest revision or printing unless otherwise stated, and are intended to establish the minimum requirements acceptable.
- G. When special makes or grades of material which are normally packaged by the supplier or manufacturer are specified or accepted, deliver materials to the site in original packages or containers with seals unbroken and labels intact and do not open until reviewed and accepted by the Engineer. Notify the Engineer prior to such material's delivery.
- H. Provide new materials unless otherwise indicated.
- I. Provide workmanship in accordance with the best modern practice.
- J. Verify dimensions and conditions at the site prior to starting work and notify the Engineer immediately of any errors or inconsistencies.
- K. Maintain one set of the contract documents and accepted submittals at the job site.
- L. Correct deficiencies identified by Engineer and non-conforming work within 24 hours of receipt of notification, either verbally or written, and submit a plan of action for addressing the deficiencies and non-conforming work. Do not proceed with further tear-off or commencement of other work until deficiencies and non-conforming work are properly addressed.

M. Control of Installation

1. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
2. Comply with manufacturers' instructions, including each step in the sequence
3. Request clarification from Engineer before proceeding in the event manufacturers' instructions conflict with Contract Documents.
4. Comply with specified standards as the minimum quality for the Work, except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
5. Only allow Work performed by person qualified to produce workmanship of specified quality.
6. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

N. Tolerances:

1. Monitor tolerance control of installed products to produce acceptable work. Do not permit tolerances to accumulate.
2. Comply with manufacturers' tolerances. Request clarification from Engineer in the event manufacturers' tolerances conflict with Contract Documents.
3. Adjust products to appropriate dimensions; position before securing products in place.

O. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

1. Maintain applicable federal, state and municipal licenses.
2. Be certified in writing for a minimum of 2 years by the roofing materials manufacturer to install the primary roofing products.
3. Have a minimum of 5 years' experience in installing the same or similar materials specified under the same firm name as that submitting the bid. If requested, submit a copy of firm's Articles of Incorporation to verify years in business. Crew workers on site are experienced and have a working knowledge of the system being installed.
4. Principals of the firm to have a minimum of 10 years' experience in the estimating, supervision, management and administration of a contracting firm engaged in work similar to work as specified.
5. Licensed by state work is occurring in for the type and dollar amount of work contemplated by these Contract Documents.
6. Never filed bankruptcy or filed for protection from creditors.

7. During the construction and completion of work covered by these Specifications, if the conduct of workers of the various crafts is determined unsuitable or a nuisance to the Owner or Engineer, or if the workman is considered incompetent or detrimental to the work, order such party removed from the grounds with the person not returning during the course of work on the project.
8. Superintendent: During the performance of work by the Contractor or subcontractors, provide an on site and full time superintendent/representative meeting the following requirements:
 - a. For the purpose of these Specifications the designation "superintendent" is hereby defined as the individual present on the job site while work is being performed, and whose primary responsibility is to supervise and direct the performance of the Work.
 - b. Be in attendance at the project site during the progress of the work and duties as superintendent limited to this project only. Supervise and instruct workmen without engaging in the work process. If superintendent is absent temporarily from the project, designate a competent foreman to assume duties. During the superintendent's absence, foreman cannot engage in the work process; supervise and instruct only. Likewise, communications given to the foreman are binding as if given to the Contractor.
 - c. Communicate matters pertaining to the Work with the Owner and Engineer. Do not make decisions regarding changes in the Work without the Owner and Engineer's knowledge.
 - d. Decision making authority and ability.
 - e. Able to demonstrate knowledge of work being installed.
 - f. Fluent in the English language (reading, writing and speaking).
 - g. In possession of mobile telephone.
 - h. Employed by the Contractor at least six months prior to project commencement.
 - i. Owner approval and Engineer acceptance.
 - j. Once approved, do not change the superintendent except with the consent of the Owner unless he proves unsatisfactory to the Owner or Contractor or is no longer employed.
 - k. Minimum of five 5 years continuous experience as a job superintendent.
9. No later than ten days prior to the pre-construction conference, provide the Owner, in writing, the names of the proposed project manager, superintendent, and foreman for approval. If he so determines, the Owner, without giving cause, may request an additional name, or names, be submitted for approval. The Owner will notify the Contractor of his acceptance at least 48 hours prior to the pre-construction conference.

- P. Specialists: Certain sections of the Specifications require that specific construction activities be performed by entities who are recognized experts in those operations. Specialists satisfy qualification requirements indicated and be engaged for the activities indicated.
- Q. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- R. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.7 QUALITY CONTROL

- A. The authorized representatives and agents of Owner permitted to inspect work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records.
- B. Owner Responsibilities:
 - 1. Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 - a. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
 - b. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- C. Contractor Responsibilities:
 - 1. Repair and protection of work and materials.
 - 2. Replace work or materials not conforming with requirements of the Specifications or damaged during the progress of the work before completion and acceptance of the project.
 - 3. Coordinate documents with manufacturer and perform such testing, reporting, and communication incidental to provisions of the warranty procedures.
 - 4. Inclement Weather
 - a. In the event of temporary suspension of work during inclement weather, or whenever the Engineer recommends, protect carefully its work and materials against damage or injury from weather. If work or materials have been damaged by reason of failure to protect the work, replace such materials.

- b. During inclement weather and temporary suspension of work, inspect the facility no later than 9:00 AM each day for leaks and perform temporary repairs if necessary. Make inspections daily during extended periods of inclement weather. Upon arrival at the facility, inform the Owner of his presence and purpose.
 - c. If inspection of the facility does not occur by 9:00 AM on days of inclement weather and there is one or more leaks attributable to the Work, at 9:15 AM the Owner can exercise his right to contact an outside contractor to perform temporary repairs as necessary to prevent damage to the building, its contents and to minimize disruption. Reimburse the outside contractor an equitable amount as determined solely by the outside contractor. If the Contractor arrives at the project site after the outside contractor has been contacted, but before temporary repairs are made, reimburse the amount contractor the fixed amount of \$500.00, each occasion, for mobilization and/or travel expenses.
 - d. In the event inclement weather occurs after normal business hours, Saturday, Sunday or holidays, make arrangements with the Owner to provide access to the building to inspect for leaks. Compensate Owner for providing personnel for the service on an hourly rate basis as determined solely by the Owner.
- D. Manufacturer's Field Services: During construction, perform quality assurance site visits monthly by manufacturer's technical representative to ensure materials are being properly installed and as required to obtain the specified warranty.
 - 1. The first site visit performed within the first three (3) days of operations.
 - 2. Coordinate site visits with Engineer. Submit reports of findings within one week of inspection. Payment applications will be rejected until applicable reports are received.
 - 3. Inspections to be performed by an employee of the selected manufacturer that is assigned full time to their technical services department. Sales personnel are not acceptable for this function and may result in rejection of the work installed that does not fulfill this requirement.
 - 4. Manufacturer's final inspections performed only with REI personnel in attendance. A minimum of seven days' written notice is required. Manufacturer's final inspection conducted without REI personnel in attendance will be repeated at no additional cost to the Owner.
 - 5. Violation of these requirements results in the removal of that manufacturer for a period of not less than one year from the Engineer's accepted materials list.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 REPAIR AND PROTECTION

- A. On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
- B. Protect construction exposed by or for quality control service activities.

- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality control services.

END OF SECTION

SECTION 01 42 00

REFERENCE STANDARDS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Requirements relating to referenced standards.

1.2 RELATED DOCUMENTS

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

1.3 REFERENCE STANDARDS

- A. Reference standards are specified in Part 1 of the applicable specification section.
- B. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- C. Comply with the reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- D. Should specified reference standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- E. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Engineer shall be altered by Contract Documents by mention or inference otherwise in any reference document.

1.4 BUILDING CODE

- A. Comply with the building code and energy conservation code/standard in effect in North Carolina and current on date of Contract Documents.
 - 1. 2018 North Carolina Building Code
 - 2. 2018 North Carolina Energy Conservation Code

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

1.2 RELATED DOCUMENTS

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

1.3 REFERENCE STANDARDS

- A. NFPA 10 - Standard for Portable Fire Extinguishers; 2022.
- B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.4 USE CHARGES

A. Include in Contract, cost or use charges for temporary facilities which are not chargeable to Owner. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, occupants of testing and inspecting agencies and personnel of authorities having jurisdiction.

1.5 QUALITY ASSURANCE

- A. Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241 .
- B. Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70 .
- C. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- D. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures. Instruct personnel in methods and procedures. Post warnings and information.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials or utilize undamaged, previously used materials in serviceable condition if accepted by Engineer. Provide materials suitable for use intended.
- B. Fencing:
 - 1. Safety Fence: Safety orange high density polyethylene fabric with a minimum of 4 feet in height, 15 lbs. per 100 linear feet. Painted steel fence posts with ground anchors and metal tabs stationed often enough to hold the fabric at a minimum height of 3 feet 8 inches tall.
- C. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- D. Water: Potable.
- E. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material with a self-contained or standalone exterior handwashing station.
- F. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110 to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
- G. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure and the requirements of the local Governing agency.
- H. Ground Protection Mats: 4 foot by 8 foot, HDPE infused with rubber for traction mats designed to protect landscaping from construction equipment.

PART 3 EXECUTION

3.1 TEMPORARY UTILITIES

- A. Water Service: Water for construction purposes is available from the Owner at no charge. Operate exterior hose bids only with properly fitted handles. Remove at the end of each workday. Repair damage to hose bids or hose bib stems. Do not operate hose bibs with pliers.
- B. Electrical Power Service: Provide portable generators for electrical power requirements.
 - 1. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths do not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

3.2 CONSTRUCTION FACILITIES

- A. Temporary construction facilities include the following:

1. Field Office: prefabricated, mobile units or job-built construction with lockable entrances and serviceable finishes including lights and utilities.
2. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities. Located facilities at sites approved by Owner. Access inside the facility is not available.
 - a. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
 - b. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
 - c. Wash Facilities: Provide adequate hand washing stations.
 - d. Drinking-Water Facilities: Provide bottled-water, drinking-water units.
3. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations at a location approved by the Owner. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Use of Owner's waste disposal facilities is not acceptable.
 - a. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material.

3.3 TEMPORARY BARRIERS, ENCLOSURES AND CONTROLS

- A. Provide temporary barriers and enclosures for protection from exposure, foul weather, construction operations and other activities. Protect buildings and grounds from damages during construction.
- B. Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- C. Provide security controls to protect work and materials at the project site.
- D. Provide fencing to enclose the materials storage and staging area.
- E. Provide and maintain suitable temporary sidewalks, closed passageways, fences, or other structures required by law so as not to obstruct or interfere with traffic in public streets, alley ways, or private right-of-way. Leave an unobstructed way along public and private places for pedestrians and vehicles.
- F. Provide walks over and around all obstructions in public places. Maintain sufficient light and guards to protect persons from injury.
- G. Provide emergency egress from existing occupied areas at all times as required by AHJ. Maintain egress path in compliance with requirements of the applicable building code.

3.4 PROTECTION FACILITIES INSTALLATION

- A. Provide environmental protection by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Provide storm water controls sufficient to prevent flooding from heavy rain.
- C. Protection of materials stored on site.
 - 1. Material storage will be where shown in Contract Drawings.
 - 2. Protect materials stored on the job site from theft and weather related damage.
 - 3. Store as much material in locked trailers as practicable.
 - 4. Place no more material on the job site than is necessary to maintain the work schedule.
 - 5. Do not deliver materials prior than 7 days earlier then work commencing.

3.5 TREE AND PLANT PROTECTION:

- A. Contractors are hereby reminded and cautioned that care shall be exercised to protect trees and plants which are to remain during the progress of the Project. Suitable barriers shall be provided around all trees and plants that are to remain and which are in the construction area and product handling area. All damage to such trees and plants shall be repaired; broken limbs properly and neatly pruned and painted with pruning paint; all trunk damage neatly dressed and painted with pruning paint. Any trees and plants which are excessively damaged shall be replaced in like, kind, size, and species by The Contractor at no additional cost. All work shall be by a recognized and approved nursery.
 - 1. All grading around trees and plants to remain shall be such that the root system shall not be disturbed. Earth shall not be temporarily piled around trees and plants, nor shall earth be graded to the trees and plants above the natural root depth for that particular species.
 - 2. Established trees and plants, which are in the way of construction and which are in the material handling areas, shall be removed and stored for future replanting. The services of a recognized and approved nursery shall be employed to remove the trees and plants and prepare them for storage. Removed trees and plants shall be properly balled and burlapped in accordance with their size. During the time of storage, they shall be properly watered and cared for in accordance with the instructions from the nursery. After the construction work is completed, the stored trees and plants shall be replanted, and those trees and plants not replanted shall be disposed of as directed by the Owner.

3.6 CRANES, HOISTS AND LIFTING

- A. Where cranes and other lifting equipment are required, develop and maintain a plan to execute the work in a safe manner including the following items at a minimum:
 - 1. Erection, climbing and dismantling process
 - 2. Inspection process for equipment and rigging

3. Exclusion zones
 4. Maintenance processes
 5. Identification of Qualified/Competent persons
 6. Lifting plan
 7. Process for identifying and working around aerial hazards
 8. Signalmen communication
 9. Working around energized lines
 10. Ground conditions and underground hazards
- B. Ensure that cranes and lifting equipment are certified for use by a Qualified/Competent person prior to first use and annually (at a minimum).
 - C. Ensure that cranes and lifting equipment are inspected as required by a third party Qualified/Competent person.
 - D. Provide ground protection mats over landscaped areas beneath lifts.
 - E. Do not operate or travel lifts over curbs or sidewalks. Where necessary to travel equipment over curbs or sidewalks, provide adequate protection to prevent damage.

3.7 PROJECT SIGNAGE

- A. Provide temporary signs to provide information to building occupants directing them away from construction operations.
- B. Provide signage inside adjacent buildings alerting occupants of the Work Area.

3.8 VEHICULAR ACCESS AND PARKING

- A. Parking for vehicles available only in the approved Set-up and Staging area. No other vehicle parking on site is allowed.
- B. Owner Personnel vehicles will be removed from the construction area prior to the start of construction.

3.9 TRAFFIC CONTROLS

- A. Obtain and erect street/parking lot signage as necessary to divert traffic away from staging areas, work area, etc. Coordinate signage requirements with the Owner and Engineer.
- B. Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.

END OF SECTION

SECTION 01 73 00

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. General procedural requirements governing execution of the Work.

1.2 RELATED DOCUMENTS

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

1.3 SUBMITTALS

A. List of Materials on the project site including manufacturer name and product name.

B. Safety Data Sheets (SDS):

1. Safety Data Sheets (SDS) for materials/products anticipated for use and stored or brought to the site for completion of this project.
2. Maintain on site with the Superintendent a set of SDS for products/materials on site.

C. Existing Damage Documentation: Existing damaged/dysfunctional components documentation (videotape, photos, etc.) including but not limited to asphalt spills, windows, walls, sidewalks, paving, ceilings, etc. Lack of submission prior to commencement of work indicates no existing damaged components and Contractor takes responsibility for damages caused by operations.

PART 2 PRODUCTS

2.1 MATERIALS

A. Material storage area designated by the Owner at the Pre-Bid and Pre-Construction Meetings and/or indicated in Contract Drawings.

1. Store materials as required by the manufacturer and indicated in their installation instructions.
2. Store materials as required by their respective specification section.
3. Properly secure materials to resist wind events.

B. Deliver and transport materials to project in accordance with the Owner's requirements and coordinate material deliveries with Owner.

C. Hazardous Materials:

1. Use products, cleaners, and installation materials that are not considered hazardous.
2. Store chemicals in a fireproof cabinet. Store only like materials together in a cabinet. Ensure labels are intact or to place labels on chemicals prior to delivery to site.

PART 3 EXECUTION

3.1 EXAMINATION

A. Existing Conditions:

1. The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of construction affecting the Work.

B. Existing Utilities:

1. The existence and location of utilities and construction indicated as existing are not guaranteed.
2. Before construction, verify the location and points of connection of utility services.
3. Before beginning work, investigate and verify the existence and location of utilities and other construction affecting the Work.

C. Acceptance of Conditions:

1. Examine areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance.
2. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include a description of the work, list of detrimental conditions, list of unacceptable installation tolerances and recommended corrections.
3. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each material. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Upon discovery of the need for clarification of the Contract Documents, submit a request for information to Engineer. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 INSTALLATION

- A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
- B. Install products at the time and under conditions that ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- C. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

3.4 STARTING AND ADJUSTING

- A. Test equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

3.6 CORRECTION OF THE WORK

- A. Restore permanent facilities used during construction to their specified condition.
- B. Replace components that are not up to specification standards.

END OF SECTION

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. This Section includes procedural requirements for cutting and patching.

1.2 RELATED DOCUMENTS

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

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 QUALITY ASSURANCE

- A. Engineer's Acceptance: Obtain acceptance of cutting and patching before cutting and patching. Acceptance does not waive right to later require replacement of unsatisfactory work.
- B. Structural Elements: Do not cut and patch structural elements in a manner that changes their load-carrying capacity or load-deflection ratio. Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations sealed by a licensed Engineer in the state of the project showing integration of reinforcement with original structure.
- C. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety.
- D. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that change their load-carrying capacity that results in reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety.
- E. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that, in the Engineer's opinion, reduces the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

- F. Cutting and Patching Conference: If extensive cutting and patching is required, 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.

1.5 WARRANTY

- 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.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, match the visual and functional performance of existing materials.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and conditions under which cutting and patching are performed.
 - 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 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 removed, relocated, or abandoned, bypass such services before cutting to minimize 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 without delay.

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.
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 or Masonry: Cut using 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 eliminate evidence of patching and refinishing.
 3. Floors and Walls: Where walls or partitions that are removed extend from one finished area into another, patch and repair floor and wall surfaces. Provide an even surface of uniform finish, color, texture, and appearance. Replace floor and wall coverings, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over unbroken surface containing the patch to the nearest joint or delineation between materials. Provide additional coats until patch blends with adjacent surfaces.
 4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather tight condition.
 5. Ceilings: Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
- D. Renovation Project Procedures

1. Materials: As specified in technical sections, match existing products and Work.
 2. Employ skilled and experienced installer to perform cutting and patching.
 3. Remove, cut and patch materials in a manner to minimize damage and to provide a means of restoring products and finishes to original condition.
 4. Refinish existing visible surfaces to remain in renovated rooms and spaces, to renewed condition for each material, with a neat transition to adjacent finishes.
 5. Where work abuts or aligns with existing construction, provide a smooth and even transition. Patch work to match existing adjacent work in texture and appearance.
 6. When a smooth transition with Work is not possible, submit recommendation to Engineer for review. Terminate existing surface along a straight line at a natural line of division when possible.
 7. Patch or replace portions of surfaces, which are damaged, lifted, discolored or showing other imperfections.
 8. Finish surfaces as specified in individual Product sessions.
 9. Cutting and patching completed in a manner such that the patched surfaces are compatible with the surfaces in which the repairs were made, both structurally and aesthetically as deemed appropriate by the Project Engineer.
- E. Restoration: Restore existing work, including concealed work not indicated or specified to be modified, and which is damaged or otherwise affected by construction operations, to a condition which existed before the work was commenced. Use workers skilled in reconstruction and alteration work where construction adjoins, connects to, or abuts existing work. Join Work in such a manner as to make the joining as inconspicuous as possible. Obvious patching of damaged Work is not acceptable. At the completion, ensure that the buildings and grounds are in first-class condition within the intent of these specifications, with parts well joined as required, connections completed, and facilities in working condition.

3.4 CLEANING

- A. Clean areas and spaces where cutting and patching is performed where required for construction or used as access.
- B. Remove paint, mortar, oils, putty and similar materials.
- C. Leave work in an acceptable completed condition.

END OF SECTION

SECTION 01 74 00

CLEANING AND WASTE MANAGEMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Administrative and Procedural requirements for progress cleaning and construction waste management.

1.2 RELATED DOCUMENTS

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

1.3 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.4 DEFINITIONS

- A. Waste: Material that has reached the end of its intended use. Waste includes salvageable, returnable, recyclable and reusable material.
- B. Construction waste: Solid wastes including, but not limited to, building materials, packaging materials, debris and trash resulting from construction operations.
- C. Salvage: To remove a waste material from the Project site to another site for resale or reuse by others.
- D. Hazardous waste: Material or byproduct of construction that is regulated by the Environmental Protection Agency and cannot be disposed in a landfill or other waste end-source without adherence to applicable laws.
- E. Trash: Product or material unable to be returned, reused, recycled or salvaged.
- F. Landfill: Public or private business involved in the practice of trash disposal.

1.5 CLOSEOUT SUBMITTALS

A. Landfill charge tickets

PART 2 PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or cause damage to finished surfaces.

PART 3 EXECUTION

3.1 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials in a legal manner.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site:
 - 1. Maintain Project site free of waste materials and debris.
 - 2. Keep site free of nails, screws, fasteners and scrap metal. Utilize magnets as necessary to sweep parking lots, driveways and sidewalks. Responsible for repair or replacement of punctured tires of site occupants.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust impairs proper execution of the Work, broom-clean or vacuum the work area, as appropriate.
 - 3. If necessary, have a heavy-duty vacuum on site to remove small, loose debris from work area.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and do not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Final Acceptance.
- G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. remove paint, mortar, oils, putty, and similar materials. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- H. Waste Disposal: Burying or burning waste materials on-site is not permitted. Washing waste materials down sewers or into waterways is not permitted.

- I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Final Acceptance.
- J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- K. Limiting Exposures: Supervise construction operations to ensure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.2 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that prevents spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials from Owner's property and legally dispose of them.
- D. Separate, store and dispose of hazardous wastes in accordance with local and EPA regulations and additional criteria listed below:
 - 1. Do not incinerate building products manufactured with PVC or containing chlorinated compounds.
 - 2. Disposal of fluorescent tubes to open containers is not permitted.
 - 3. Do not co-mingle unused fertilizers with construction waste.

3.3 FINAL CLEANING

- A. Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.
 - 2. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including, waste material, litter, and other foreign substances.
 - 3. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

4. Remove tools, construction equipment, machinery, and surplus material from Project site. Properly dispose of unwanted surplus material.
 5. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 6. Remove debris and surface dust from roofs and walls.
 7. Clean transparent materials and glass in windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
 8. Remove labels that are not permanent.
 9. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 10. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess foreign substances.
 11. Replace parts subject to unusual operating conditions.
 12. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - a. Inspection Procedures.
 - b. Project Record Documents.
 - c. Warranties.

1.2 RELATED DOCUMENTS

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

1.3 REFERENCE STANDARDS

- A. AIA G704 - Certificate of Substantial Completion; 2017.

1.4 SUBMITTALS

- A. Warranties: Submit copy of warranties to meet the requirements of their respective specification section.

1.5 SUBSTANTIAL COMPLETION

- A. Submit written certification to the Engineer that the Project is substantially complete along with the following:
 - 1. Prepare a list of items to be completed and corrected (Contractor's punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Notify Owner of pending insurance changeover requirements.
 - 3. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 4. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 5. Notify Owner of changeover in heat and other utilities.
 - 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

7. Complete final cleaning requirements, including touchup painting.
 8. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Substantial Completion Inspection: On receipt of written substantial completion certification, the Engineer will make a substantial completion inspection within 7 days after receipt of certification.
1. Should the Engineer consider the Work not substantially complete, he will notify the Contractor, in writing, stating the reasons. Complete the Work and send a second written notice to the Engineer, certifying the Project is substantially complete, at which time the Engineer will re-inspect the work.
 2. Should the Engineer consider the Work substantially complete, he will prepare and issue AIA G704 accompanied by the list of items to be completed or corrected (Punch List).
 3. A punch list of items will be prepared for correction and completion before the Final Inspection. Complete the punch list items within 15 days of the punch list inspection. If the Contractor fails to complete the punch list within this period, the Owner has the right to impose liquidated damages in the amount of \$500.00 for each consecutive day until the items are completed.

1.6 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Division 01.
 2. Submit signed copy of Engineer's inspection list of items to be completed or corrected (punch list) certifying each item has been completed or otherwise resolved for acceptance.
 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Final Inspection: The submission of the signed punch list constitutes as written request for final inspection for acceptance. On receipt of request, Engineer along with the Owner's Representative will conduct a final inspection within 7 days of receipt of certification.
1. Should the Engineer consider that the Work is finally complete in accordance with requirements of the Contract Documents, Project Closeout Submittals will be requested.
 2. Should the Engineer consider that the Work is not finally complete, notification to the Contractor, in writing, stating the reasons will be made.
 3. Take steps to remedy the stated deficiencies and send a second written notice to the Engineer certifying that the Work is complete, at which time the Engineer will re-inspect the Work.

1.7 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.
 - 1. Submit required record documents and warranties within 30 days of the punch list inspection. If the Contractor fails to properly submit required items within this period, the Owner has the right to impose liquidated damages in the amount of \$500.00 for each consecutive day until the items are properly submitted.
- B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
 - 1. Mark Record Prints to show where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 - 3. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
 - 4. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
- C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Note related Change Orders and Record Drawings, where applicable.
- D. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
 - 1. Completed and signed Engineer's Punch List

2. Copy of Manufacturer's Final Inspection Report
3. Landfill Charge Tickets
4. Certificate of Occupancy from AHJ

1.8 WARRANTIES

- A. Warranties to commence on the date of Substantial Completion of the project.
- B. WRB warranty as outlined in Section 07 25 00 - Weather Resistive Barriers.
- C. Thermoplastic Single Ply Roofing System warranty as outlined in Section 07 54 00 - Thermoplastic Single Ply Roofing.
- D. Pre-finished Sheet Metal finish warranty as outlined in Section 07 62 00 - Sheet Metal Flashing and Trim.
- E. Contractor's Warranty - utilize form contained in Section 00 65 36.
- F. Asbestos Free Warranty - utilize form contained in Section 00 65 37.

END OF SECTION

SECTION 05 01 30

STEEL ROOF DECK REPAIR AND SECUREMENT

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Steel Deck Repair: Inspect, evaluate and remediate steel roof deck as follows:
 - a. Repair of surface rust in steel decking.
 - b. Repair of through holes in steel decking.
 - c. Overlay of damaged or deteriorated steel decking.
 - d. Replacement of damaged or deteriorated steel decking.
 - 2. Steel Deck Securement: Provide mechanical fasteners to secure steel deck to existing steel framing and to secure existing deck side and end laps.

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections and the following Specification Sections apply to this Section:
 - 1. Section 06 10 00 - Rough Carpentry
 - 2. Section 07 01 50 - Preparation for Reroofing
 - 3. Section 07 22 16 - Roof Insulation
 - 4. Section 07 54 00 - Thermoplastic Single Ply Roofing

1.3 REFERENCE STANDARDS

- A. AISC (MAN) - Steel Construction Manual; 2023, with Errata (2024).
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
- C. FM DS 1-29 - Roof Deck Securement and Above-Deck Roof Components; 2016, with Editorial Revision (2022).
- D. SDI (DM) - Publication No.30, Design Manual for Composite Decks, Form Decks, and Roof Decks; 2007.
- E. SDI (QA/QC) - Standard for Quality Control and Quality Assurance for Installation of Steel Deck; 2017.

1.4 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

1.5 QUALITY ASSURANCE

- A. Provide meticulous attention to the detail of installation and workmanship to ensure the assemblage of products in the highest grade of excellence by skilled craftsmen of the trade.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Steel Deck Repair:
 - 1. Steel Deck: FM Approved or UL listed, 22 gauge minimum; galvanized steel meeting ASTM A653/A653M with profile to conform to existing deck profile at end and side laps.
 - 2. Deck Repair Plates: 16 gauge, galvanized steel plates meeting ASTM A653/A653M sized to extend a min. 8 inches beyond the through hole in existing decking with plate edges resting on a rib.
 - 3. Deck Repair Coating: High solids, low VOC, self-priming epoxy coating for use on steel structures.
 - a. PPG Amerlock 400
 - b. Devoe Bar-Rust 231
 - c. Kryon Industrial High Build Epoxy Mastic 100
 - d. Benjamin Moore & Co. Surface Tolerant Epoxy Mastic Coating V160
- B. Steel Deck Securement:
 - 1. Deck-to-structural steel fasteners: FM Approved, self-drilling deck fasteners of length and type as required by fastener manufacturer for thickness of structural steel.
 - a. ITW Buildex Corp. 12-24 Tek 5
 - b. SFS Intec Impax 12-24 SD5
 - c. Blazer 1/4-20 DP5
 - 2. Deck-to-deck side lap fasteners: FM Approved self-drilling deck side lap fasteners of length and type as required by fastener manufacturer for thickness of steel deck.
 - a. ITW Buildex Corp. 10-16 Tek 3

- b. SFS Intec #10-16 SD3
 - c. Blazer #10-16 DP3
3. Washers: 3/4 inch diameter of same material as fastener or integral 1/2 inch diameter washer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Inspect roof deck in work areas noted on roof plan. Notify engineer of additional damaged decking, or damaged structural elements.
- B. Before removing decking, cutting decking or fastening decking, inspect interior conditions under the deck to prevent cutting or damaging the joists, electrical conduit, sprinkler piping, fixtures and utilities. Ensure conditions are satisfactory before proceeding with the work, and continuously monitor interior and exterior work conditions during demolition and construction operations.
- C. Commencement of work signifies acceptance of conditions. Correct defects in work resulting from accepted substrates at no additional expense to the Owner.
- D. The following descriptions indicate roof deck corrosion levels by degree. Inspect roof deck areas and assess corrosion level of 1 through 5. Following the assessment, conduct the appropriate Remediation Method in accordance with the deck corrosion level descriptions.
 - 1. Corrosion Degree 1
 - a. Red rust or dark brown rust scaling on top flange only.
 - b. Dark brown rust scale removed by scraping/wire brushing to indicate minor pitting of the metal surface.
 - c. Deck flutes discolored.
 - 2. Corrosion Degree 2
 - a. Red rust or dark brown rust scale present on the deck surface.
 - b. Deck sections (flanges and flutes) have been or can be readily removed during examination or areas of decking are missing, up to 13" in any one direction.
 - 3. Corrosion Degree 3
 - a. Red rust or dark brown rust scale present on the deck surface.
 - b. Deck sections (flanges and/or flutes) have been or can be readily removed during examination or areas of decking are missing, from 13" to 24" in one dimension.
 - 4. Corrosion Degree 4
 - a. Red rust or dark brown rust scale present on the deck surface.

- b. Deck sections (flanges and/or flutes) have been or can be readily removed during examination or areas of decking are missing, 24" or greater in one dimension.

3.2 PREPARATION

- A. Remove and vacuum debris from deck surface and ribs to allow for inspection of deck, and to fasten decking.
- B. Remove and properly dispose of damaged decking (Corrosion Degree Level 4) and remove deck fasteners in the repair area.
- C. Take necessary precautions to prevent debris from entering building space, and coordinate operations with Engineer and Owner.
- D. Provide temporary protection of building interior and contents to prevent damage.

3.3 STEEL DECK REMEDIATION

- A. General:
 - 1. Remove loose dirt, rust, moisture, grease or other contaminants from the surface with a power wire brush.
 - 2. Vacuum the roof deck surface clean.
- B. Corrosion Degree 1:
 - 1. Properly mix deck repair coating according to manufacturer's recommendations.
 - 2. Do not mix more material than can be used in the materials expected pot life.
 - 3. Apply material at temperatures from 50° F to 90° F for optimum application.
 - 4. Brush or roller apply deck repair coating as recommended by manufacturer.
 - 5. Allow coating to dry a minimum of 30 minutes. Do not install roof insulation until coating is dry.
- C. Corrosion Degree 2:
 - 1. Properly mix deck repair coating according to manufacturer's recommendations.
 - 2. Do not mix more material than can be used in the materials expected pot life.
 - 3. Apply material at temperatures from 50° F to 90° F for optimum application.
 - 4. Brush or roller apply deck repair coating as recommended by manufacturer.
 - 5. Mechanically attach deck repair plate to deck ribs with deck to side lap fasteners 6 inches on center maximum or a minimum of 2 screws per side.
- D. Corrosion Degree 3:
 - 1. Properly mix deck repair coating according to manufacturer's recommendations.

2. Do not mix more material than can be used in the materials expected pot life.
3. Apply material at temperatures from 50° F to 90° F for optimum application.
4. Brush or roller apply deck repair coating as recommended by manufacturer.
5. Allow coating to dry a minimum of 30 minutes. Do not install roof insulation until coating is dry.
6. Overlay steel deck to match existing profile extending a minimum of 6 inches beyond the deficient area.
7. Mechanically attach perimeter of overlay deck to existing deck ribs with deck to side lap fasteners 6 inches on center.
 - a. Where structural support is present, secure overlay deck to structural framing in accordance with the steel deck securement pattern.
 - b. Apply weight over the area being fastened to prevent deck deflection and ensure contact between fasteners, deck and/or structural steel.
 - c. Follow deck Manufacturer's instructions and SDI (QA/QC) .

E. Corrosion Degree 4:

1. Examine underside of steel deck for conduit located directly below the deck surface, anything suspended or fastened to the deck surface, etc. If necessary, detach objects from the bottom side of the deck being removed.
2. Remove deck meeting Corrosion Degree 4.
3. Provide roof deck where existing is removed.
4. Overlay deck end laps no less than 6 inches and as required to secure through both panels and into the structural steel. Lap ends only over structural framing. Deck fasteners to penetrate deck panels no less than 2 inches from the edge of the panel.
5. Overlay deck side laps to nest flush into neighboring deck panel. Install a minimum of two deck side lap fasteners between framing members.
6. Apply weight over the area being fastened to prevent deck deflection and ensure contact between fasteners, deck and/or structural steel.
7. Follow deck Manufacturer's instructions and SDI (QA/QC) .

3.4 STEEL DECK SECUREMENT

- A. Fasten steel deck panels to steel framing and steel deck side laps as indicated in the contract drawings and to meet the requirements of SDI (DM), AISC (MAN), and FM DS 1-29.
- B. Drive deck fasteners in the center of the bottom of the deck rib. Drive the fasteners within +/-1/4 inch of the center of the structural steel bearing surface. Drive fasteners along the center of the structural steel member, not near the edge of the structural steel.

- C. Drive deck side lap fasteners into the deck rib such that both panels are penetrated. Locate the side lap fasteners along the center of the bottom of the rib.
- D. Utilize fastener with integral washer or provide washer for fasteners in Zone 2 (perimeter) and Zone 3 (corner).
- E. Apply weight over the area being fastened to prevent deck deflection and ensure contact between fasteners, deck and/or structural steel.

3.5 FIELD QUALITY CONTROL

- A. Monitor the inside of the building during removal and replacement of damaged steel decking to prevent damage to building, equipment and occupancy.
- B. Monitor hot work operations in strict accordance with the Owners requirements and local Code. These operations include, but are not limited to, cutting, welding, soldering, brazing, grinding, etc. and other spark or flame producing operations.

END OF SECTION

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Rough Carpentry work required to facilitate installation of roof assembly including:
 - a. Provide rough carpentry.
 - b. Resecure rough carpentry to remain in place.
 - c. Replace damaged, rotted or deteriorated rough carpentry with rough carpentry.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections and the following Specification Sections apply to this Section:
 - 1. Section 05 01 30 - Steel Roof Deck Repair and Securement
 - 2. Section 07 01 50 - Preparation for Reroofing
 - 3. Section 07 22 16 - Roof Insulation
 - 4. Section 07 54 00 - Thermoplastic Single Ply Roofing
 - 5. Section 07 62 00 - Sheet Metal Flashing and Trim

1.3 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- B. ASTM F1667/F1667M - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples; 2021a.
- C. FM DS 1-49 - Perimeter Flashing; October 2021.
- D. PS 1 - Structural Plywood; 2023.
- E. PS 20 - American Softwood Lumber Standard; 2021.

1.4 DEFINITIONS

- A. Rough Carpentry includes carpentry work not specified as part of other Sections and generally not exposed.

- B. KDAT: Kiln Dried After Treatment.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.

1.6 QUALITY ASSURANCE

- A. Inspect wood for damage, warping, splits, and moisture content as defined by the applicable wood products industry standards. Reject materials that do not comply.
- B. Rough carpentry to present a smooth, consistent substrate for roof system and flashing installation.
- C. Qualifications of workers: Provide sufficient, competent and skilled carpenters in accordance with accepted practices and supervisors present during execution of the work. Be thoroughly familiar with type of construction involved and related work and techniques specified.
- D. Moisture Content:
 - 1. Kiln Dry After Treatment (KDAT).
 - 2. Do not store or install treated lumber used in the roofing assembly in a manner exposing it to rain.
 - 3. Lumber: 19% or less before being covered/enclosed into roofing assembly.
 - 4. Plywood: 18% or less before being covered/enclosed into roofing assembly.
- E. Label: Bear the stamp of the AWP Quality Mark, indicating compliance with the requirements of the AWP Quality Control Program.
- F. Installation of rough carpentry for roofing and flashing terminations to ensure plumb, uniform and level metal flashings.
- G. Install rough carpentry to ensure roof membrane flashing transitions are smooth for positive roof drainage and appearance.
- H. Installation of fasteners and associated materials to secure rough carpentry as detailed and specified.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Store a minimum of four inches above ground on framework or blocking. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks. Cover with protective waterproof covering providing for adequate air circulation and ventilation
- B. Avoid exposure to precipitation during shipping, storage or installation. If material does become wet, replace or permit to dry prior to covering or enclosure by other roofing, sheet metal or other construction materials (except for protection during construction).
- C. Upon delivery to job site, place materials in area protected from weather.

- D. Do not store seasoned materials in wet or damp portions of building.
- E. Protect sheet materials from corners breaking and damaging surfaces, while unloading.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Wood Nailers/Blocking:
 - 1. No. 2 or better spruce or southern yellow pine lumber meeting PS 20 standards.
 - 2. Sound, thoroughly seasoned, dressed to nominal finish dimension, and free of warpage, cupping, and bowing.
 - 3. Dimensions determined by job conditions or as indicated in detail drawings.
- B. Plywood:
 - 1. APA PS 1 Rated Sheathing, 32/16, Exposure 1, Grade C, thickness to match existing or as indicated in Contract Drawings.

2.2 FASTENERS

- A. General:
 - 1. Stainless steel or as accepted by Engineer.
 - 2. Fasteners securing pressure treated lumber manufactured for corrosion resistance and exposures associated with pressure treated wood applications.
 - 3. Do not use nails at roof edges to fasten rough carpentry, lumber, plywood, etc. Use screws, anchors, and/or machine bolts to secure rough carpentry at roof perimeter edges.
 - 4. Do not use masonry screws, spikes, and drive-pins to fasten edge/perimeter nailers to concrete. Utilize minimum 1/2-inch diameter anchors or bolts to secure roof edge nailers to concrete.
 - 5. Do not secure or fasten edge/perimeter wood nailers to hollow core concrete masonry; grout concrete masonry units and provide minimum embedment of fasteners to meet anchor manufacturer's installation instructions.
 - 6. Do not secure edge/perimeter wood nailers to brick masonry as the primary securement method.
- B. Nails: 8d (0.135 inch shank diameter), 10d (0.148 inch shank diameter) or 16d (0.162 inch shank diameter), type 316 stainless steel, ring shank nails. meeting ASTM F1667/F1667M. Length to embed into base substrate a minimum 1-1/2 inches.
 - 1. Maze Nails
 - 2. Anchor Staple and Nail
 - 3. Simpson Strong Tie

4. Manasquan Premium Fasteners
 5. Engineers accepted equivalent.
- C. Screws: No. 10 or greater, stainless steel wood screws with flat head, or insulation screws. Length to embed into base substrate a minimum of 1-1/2 inches.
- D. Self-Drilling Screws (for steel deck and light gauge steel framing, 16-ga. or less): #14-13 DP1, pancake or panhead, corrosion resistant, ASTM A153/A153M, FM Approved, self-drilling and self-tapping screw, length to provide minimum 3 pitches of thread through metal thicknesses or 3/4 inch through top flange of steel deck.
1. ITW Buildex Tek
 2. Triangle Fasteners
 3. SFS Intec
 4. Engineers accepted equivalent.
- E. Self-Drilling Screws (for structural steel, greater than 12-gauge): #12-24 DP5 (for steel thickness up to 1/2 inch) or DP4 (for steel thickness from 1/8 inch to 3/8 inch), flat or hex head, corrosion resistant, self-drilling/self-tapping fastener of length to provide minimum 3 pitches of thread through metal thicknesses.
1. ITW Buildex Tek
 2. SFS Intec
 3. Blazer
 4. Engineers accepted equivalent
- F. Epoxy Adhesive Anchor System: Minimum 1/2-inch diameter, corrosion resistant threaded rods supplied by the anchoring system manufacturer, length to provide minimum embedment as required by fastener manufacturer based upon substrate being secured. Screen for substrate provided by fastener manufacturer. Corrosion resistant nut and 1-1/2 inch diameter flat washer.
1. Hilti Hit Hy-10 Plus
 2. Powers Fasteners, Inc. AC100 Anchoring System
 3. Red Head Epcon C6 Fast Curing Epoxy
 4. Engineers accepted equivalent
- G. Washers: Fasteners heads for screws, anchors and bolts terminating at the surface of nailers provided with a minimum 5/8-inch diameter, stainless steel or similar corrosion resistance flat washer provided by fastener manufacturer, unless washer is provided from factory as part of the fastener assembly.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Inspect substrates to receive rough carpentry, and ensure substrates are in satisfactory condition prior to installation of rough carpentry.
- B. Inspect rough carpentry including fasteners for material condition before proceeding with installation. Replace deteriorated, rotted, damaged, split, warped, twisted or wet materials.
- C. Remove cants, tapered edge strips, debris, fasteners, etc. that interfere with the installation of rough carpentry.
- D. Notify Engineer in writing of unsatisfactory conditions.
- E. Commencement of work signifies acceptance of substrates. Correct defects in work resulting from accepted substrates at no additional expense to the Owner.

3.2 PREPARATION

- A. Steel/Metal Substrates:
 - 1. Coat steel and metal with a uniform, heavy application of asphalt primer, or separate by membrane or other acceptable means to prevent contact between steel/metal and treated wood products.
- B. Roof Deck and Structure:
 - 1. Adjust substrates to receive rough carpentry to ensure completed rough carpentry installation is acceptable for roofing and sheet metal flashings.
 - 2. Coat steel decking with a uniform, heavy application of asphalt primer, or separate by membrane or other acceptable means to prevent contact between steel and treated wood products.
 - a. Do not allow treated lumber to make direct contact with steel decking.
- C. Epoxy Adhesive Anchor System:
 - 1. Follow adhesive anchor manufacturer's published instructions for preparation and installation.
 - 2. Pre-drill hole for adhesive anchors.
 - 3. Use compressed air to blow-out and remove dust and moisture before installing adhesive anchors.

3.3 INSTALLATION

- A. Replace damaged or deteriorated wood blocking, nailers, and curbs.
- B. Re-secure wood nailers at roof edges that are to remain with fastener type and spacing to comply with this section.

- C. Install wood blocking, nailers, and curbs to achieve a minimum 8-inch flashing height above the roof membrane.
- D. Install wood nailers at perimeter roof edges and low-profile expansion joints to match insulation height while maintaining a constant nailer height along perimeter edges.
- E. Install wood blocking and nailers concurrently with roof system installation. Removal of insulation and/or folding back of roof membrane to install wood blocking and nailers at a later date is not acceptable.
- F. Set rough carpentry to required levels and lines, with members plumb, true to line, material cut to fit, and braced to hold work in proper position. Use a belt sander to remove obtrusive surface irregularities. Drive nails and spikes home; and pull bolt nuts tight with heads and washers in close contact with the wood.
- G. Fit rough carpentry to other construction, scribe and cope for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction. Install joints between wood for a smooth transition.
- H. Attachment:
 - 1. Consult the fastener manufacturer's published literature and follow the recommended requirements for pre-drilling, cleaning, placement and compatibility of substrates. Follow manufacturer's requirements for fasteners spacing, substrate preparation and substrate embedment where not specified.
 - 2. Securely attach rough carpentry work to substrate with fasteners anchored to resist the required upward and outward design wind loads.
 - 3. Meet the requirements herein and that of FM DS 1-49 for rough carpentry attachment.
 - 4. Install bolts flush with the top surface of nailers where possible to avoid countersinking. Bolt bottom nailers then fasten above nailers where possible. Countersink bolts, nuts and screws flush with wood surfaces only as detailed; countersink a maximum of one half the board thickness.
 - 5. Install fasteners without splitting wood. Pre-drill where necessary. Replace split or damaged wood to provide acceptable conditions.
 - 6. For anchors, pre-drill concrete and masonry units to prevent damage or cracking of the masonry. Consult fastener manufacturer's published guides. Repair or replace damaged masonry with fasteners re-installed in an acceptable location.
 - 7. Fastener spacing: Staggered in two rows $\frac{1}{3}$ the board width when board is wider than 6 inches and installed within 3 to 4 inches of each end.
 - a. Nails: Securing wood to wood spaced as indicated below with two nails installed within 3 to 4 inches of each end of nailer lengths to prevent wood from twisting at board joints. Do not utilize nails at roof edges, utilize screws.
 - 1) Perimeter (Zone 2) spacing of 12 inches maximum and Corner (Zone 3) spacing of 6 inches maximum.

- b. Screws: Securing wood to wood spaced as indicated below with two screws installed within 3 to 4 inches of each end of nailer lengths to prevent wood from twisting at board joints.
 - 1) Perimeter (Zone 2) spacing of 12 inches maximum and Corner (Zone 3) spacing of 6 inches maximum.
 - c. Self-Drilling Screws: Securing wood to steel spaced as indicated below with one screw within 3 to 4 inches of each end of nailer lengths to prevent wood from twisting at board joints.
 - 1) Perimeter (Zone 2) spacing of 12 inches maximum and Corner (Zone 3) spacing of 6 inches maximum.
 - d. Epoxy Adhesive Anchors System: Spaced as indicated below, staggered and an additional fastener within 3 to 4 inches of each end of nailer to prevent boards from twisting at board joints.
 - 1) Perimeter (Zone 2) spacing 48 inches max and Corner (Zone 3) spacing 24 inches max.
 - 8. Plywood Sheathing Securement: Secure at 12 inches on center in Perimeter (Zone 2) and 6 inches on center in Corner (Zone 3) staggered each direction.
 - I. Select fasteners of size and length that are not exposed from the building interior and/or from the ground, or remove protruding fasteners, paint or finish to eliminate exposure.
 - J. Thickness of wood nailers flush with adjacent insulation and other materials. Install additional fasteners to ensure nailers are flush.
 - K. Unless otherwise detailed, install plywood used as blocking or shim below dimensional lumber such that the fastener head terminates at the dimensional lumber surface.
 - L. Do not utilize wood nailers at roof perimeters, expansion joints, roof area dividers, etc. less than 3 feet long.
 - M. When multiple nailers are installed stacked two high or more, offset nailers no less than 12" such that joints at nailer end do not line-up vertically.
 - N. Fasten each end of nailers with additional fasteners to ensure a smooth transition at butted joints, and to prevent warping and/or twisting.
 - O. Shims:
 - 1. Provide plywood and lumber shims as required for the specified height and thickness.
 - 2. Shims to make full contact with stacked rough carpentry. Partial shim contact, and small shim pieces spaced apart are not acceptable.
 - P. Curbs:
 - 1. Adjust wood curbs to support rooftop piping, ducts, equipment, etc.
 - 2. Raise equipment to provide required flashing height for roofing.

3.4 CLEANING

- A. Ensure the site and building are cleaned to meet pre-construction conditions, as accepted by the Owner.
- B. Clean the site and building of saw dust from lumber, fasteners and other debris.
- C. Repair or replace damages to the building, grounds, equipment and site to meet pre-construction conditions, as accepted by the Owner.

END OF SECTION

SECTION 07 01 50

PREPARATION FOR REROOFING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Complete preparatory work prior to roof installation including but not limited to:
 - a. Removal of roof assemblies down to the steel deck.
 - b. Raising of mechanical units and/or HVAC units to meet the required minimum flashing height.
 - c. Under roof deck survey

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections and the following Specification Sections apply to this Section:
 - 1. Section 05 01 30 - Steel Roof Deck Repair and Securement
 - 2. Section 06 10 00 - Rough Carpentry
 - 3. Section 07 22 16 - Roof Insulation
 - 4. Section 07 54 00 - Thermoplastic Single Ply Roofing

1.3 DEFINITIONS

- A. Removal: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain property of the Owner.
- B. Existing to remain: Protect construction indicated to remain against damage and soiling during demolition. When accepted by Engineer, items may be removed to a suitable, protected storage location during demolition, cleaned and reinstalled in their original locations.
- C. Material ownership: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished items become the Contractor's property. Remove demolished items from the site.

1.4 REFERENCE STANDARDS

1.5 SUBMITTALS

1.6 EXISTING ROOF ASSEMBLIES

- A. Refer to Contract Drawings for existing roof system composition.

1.7 QUALITY ASSURANCE

- A. Qualifications: Previous experience removing roof systems.
- B. Requirements: Comply with governing EPA regulations and hauling/disposal regulations of authorities having jurisdiction.

1.8 SCHEDULING

- A. Do not disrupt Owner's operations during demolition. Provide 72 hours notification to Owner of activities that affect Owner's operations.

1.9 WARRANTIES

- A. Repair or replace damage to existing items under warranty with materials acceptable to the Warrantor.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 EXAMINATION

- A. Survey conditions to determine extent of demolition.
- B. Record the conditions of items to be removed/reinstalled and items to be removed/salvaged.
- C. Do not remove elements that result in structural deficiency or collapse the structure or adjacent structures during demolition.
- D. Inspect substrate for soundness and notify Engineer in writing of deficiencies. Commencement of work signifies acceptance of site conditions.

3.2 PREPARATION

- A. Do not begin demolition until utilities have been disconnected/sealed and have been verified as such in writing.
- B. Do not close off or obstruct streets, walks or other adjacent occupied facilities without permission from Owner and authorities having jurisdiction.
- C. Provide safe conditions for pedestrians. Erect temporary protection, walkways, fences, railings and canopies as required by OSHA and other governing authorities.
- D. Provide protection for adjacent building, appurtenances and landscaping to remain. Erect temporary fencing around trees to remain.
- E. Provide temporary weather protection as required to prevent water leakage and damaged to exterior or interior of adjacent structures.

3.3 UTILITIES/SERVICES

- A. Maintain utilities that are to remain in service and protect them against damage during selective site demolition unless authorized in writing by the Owner and authorities having jurisdiction.

1. Locate conduits and equipment attached to the underside of the decking prior to reroofing. Do not disturb conduits or interior components/equipment with insulation fasteners.
2. If utilities serving occupied portions of the site are shut down, provide temporary services.
3. Provide 72 hours' notice to Owner if shut down is required.
4. Where services are removed, relocated or abandoned, provide necessary bypass connections to remaining occupied buildings and areas.

3.4 POLLUTION CONTROLS

- A. Use water, mist, temporary enclosures and other suitable methods to limit the spread of dust and dirt. Comply with local EPA regulations.
 1. Do not use water where there is potential for damage to occur or where hazardous conditions, ice or flooding are created.

3.5 UNDER ROOF DECK SURVEY

- A. Prior to work being performed, complete a survey of the under deck components.
- B. Locate and mark conduit, utilities, etc. that interfere with the replacement roof system.
- C. Determine the presence of spray applied fireproofing on the underside of the roof deck. If fireproofing is present, utilize caution when removing and replacing roof system to prevent fireproofing from dislodging. Survey interior of building during tear-off operations and at end of each day. Clean up debris daily. Report displaced fireproofing to the Owner/Engineer.
 1. Contractor is responsible to repair displaced fireproofing and repair any interior finishes damaged from the displaced fireproofing.
- D. Notify Owner and Engineer prior to survey being performed.

3.6 REMOVALS

- A. Coordinate and sequence roof removal such that tear-off debris and materials are not stored on or trafficked over the replacement roof system and such that varying heights between roof assemblies does not adversely affect roof drainage.
- B. Demolish and remove construction only to the extent required.
- C. Remove roof membrane, flashings, roof insulation, vapor retarder, and sheet metal and discard.
- D. Remove or correct obstructions which interfere with the proper application of materials.
- E. Lift or remove equipment so that flashings can be replaced.
- F. Remove debris to provide clean, dry substrate.
- G. Remove and transport debris in a manner that prevents damage/spills to adjacent buildings and areas.

- H. Dispose of demolished items and materials on a daily basis. On-site storage of removed items is not permitted.
- I. Transport demolished materials off-site and dispose of materials in a legal manner.
- J. Perform progress inspections to detect hazards resulting from demolition activities.

3.7 FLASHING HEIGHTS

- A. Permanently raise roof top equipment as required to achieve 8" minimum flashing height.
- B. Provide additional wood blocking to top of parapet walls and expansion joints to achieve minimum 8" flashing height.
- C. Extend sanitary vents to height required by the applicable Plumbing Code, but no less than 8 inches and no more than 12 inches above the finished roof system.

3.8 CLEANING

- A. Inspect the site daily and clean up debris and hazards at the end of each day. Keep adjacent roads, drives and walkways in operation and free from construction materials debris.
- B. Clean adjacent structures of dust dirt and debris. Return adjacent areas to original conditions to the satisfaction of the Owner.

END OF SECTION

SECTION 07 22 16

ROOF INSULATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Provide roof insulation system as specified in Section 01 11 00 - Summary of Work and as indicated in Contract Drawings.

1.2 RELATED DOCUMENTS

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

1. Section 05 01 30 - Steel Roof Deck Repair and Securement
2. Section 06 10 00 - Rough Carpentry
3. Section 07 01 50 - Preparation for Reroofing
4. Section 07 54 00 - Thermoplastic Single Ply Roofing

1.3 REFERENCE STANDARDS

A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2023a.

1.4 PERFORMANCE REQUIREMENTS

A. R Value

1. In accordance with the referenced Energy Conservation Code and ASHRAE 90.1.
2. Minimum continuous R-value: 20
3. R value based on Long-Term Thermal Resistance (LTTR) for polyisocyanurate insulation and manufacturer's published data for other insulation components, as tested in accordance with specified the specified.

B. Wind Design: Install insulation system to meet the required wind uplift pressures as specified in Contract Drawings.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

- C. Shop Drawings: Tapered insulation plan from material supplier with minimum R-value for each roof area.

1.6 QUALITY ASSURANCE

- A. Install insulation in accordance with their respective manufacturer's requirements.
- B. Reject insulation not bearing UL label at point of delivery.
- C. Remove insulation damaged or wetted before, during, or after installation from the job site no later than the next working day from the day such damage or moisture contamination is noted.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials in the manufacturer's original sealed and labeled packaging.
- B. Storage: Store materials out of direct exposure to the elements on pallets or dunnage at least 4 inches above ground level at location acceptable to Owner.
 - 1. Utilize tarps that cover materials to prevent moisture contamination. Remove or slit factory shrouds and/or visqueen; do not use these materials as tarps.
 - 2. Install vapor retarders under material storage areas located on the ground.
 - 3. Remove damaged or deteriorated materials from the job site.
- C. Handling: Handle material in such a manner to prevent damage and contamination with moisture or foreign matter.

1.8 PROJECT CONDITIONS

- A. Do not apply insulation during precipitation. Take responsibility for starting installation in the event there is a probability of precipitation occurring during application.
- B. Take necessary action to restrict dust, asphalt, and debris from entering the structure.
- C. Do not remove more roofing than can be replaced with insulation, membrane and flashings in the same day to create a watertight installation.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Insulation Boards:
 - 1. Roof Insulation:
 - a. Rigid polyisocyanurate roof insulation board complying with ASTM C1289 Type II, Class 2, Grade 2 and meeting the following requirements:
 - 1) Factory applied coated polymer bonded glass fiber mat facers on the top and bottom.

- 2) 24 hours minimum curing time, plus an additional 24 hours minimum per inch thickness, at a minimum of 60 degrees F before shipment from the manufacturer.
- 3) 2 percent maximum linear change dimensional stability when conditioned at 158 degrees F and 97 percent relative humidity for seven days.
- 4) Maximum permissible insulation board size for mechanical attachment is 4 feet by 8 feet and for foam adhesive and hot asphalt attachment is 4 feet by 4 feet. Field cutting of larger boards is not acceptable.
- 5) Thickness: as indicated in Contract Drawings

2. Tapered Insulation Crickets and Saddles:

- a. Rigid polyisocyanurate roof insulation board complying with ASTM C1289 Type II, Class 2, Grade 2 and meeting the following requirements:
 - 1) Factory applied coated polymer bonded glass fiber mat facers on the top and bottom.
 - 2) Curing time: 24 hours minimum, plus an additional 24 hours minimum per inch thickness, at a minimum of 60 degrees F before shipment from the manufacturer.
 - 3) Dimensional stability: 2 percent maximum linear change when conditioned at 158 degrees F and 97 percent relative humidity for seven days.
 - 4) Board size: 4 feet by 4 feet.
 - 5) Slope: 1/2 inch per foot

3. Cover Board:

- a. Cover board approved by roof system manufacturer. Board Size: 4 feet by 8 feet. Minimum thickness as listed below or as required by roof system manufacturer.
 - 1) Georgia Pacific 1/4 inch DensDeck Prime Roof Board
 - 2) DEXcell 1/4 inch FA Glass Mat Roof Board

B. Insulation Accessories:

1. Tapered Edge Strip:

- a. Polyisocyanurate: Closed-cell polyisocyanurate foam core integrally bonded to non-asphaltic, fiber-reinforced organic felt or inorganic coated-glass facers. Fabricated with 1 inch per foot slope and "zero edge" to provide transitions as required by field conditions.

C. Insulation Mechanical Attachment Materials:

Steel Deck Fasteners and Stress Plates: Corrosion resistant 3-inch galvalume stress plate and corrosion resistant screw type fasteners for use with steel decks; approved by the insulation manufacturer for the insulation type, thickness and board size specified; fastener length as required by the fastener manufacturer for the insulation thickness specified, and to penetrate the deck a minimum of 3/4 inch and a maximum of 1-1/4 inch.

- a. Provide with white coating.

D. Adhesives:

1. Foam Adhesive: One or two part, VOC compliant, moisture-cured polyurethane foamable adhesive designed as roof insulation adhesive and approved by insulation manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Inspect substrate for soundness and notify Engineer in writing of deficiencies.
- B. Commencement of work signifies acceptance of substrates. Correct defects in work resulting from accepted substrates at no additional expense to the Owner.

3.2 PREPARATION

- A. Dry and broom roof deck clean of debris and foreign matter prior to installation of insulation system.

3.3 APPLICATION

A. General

1. Apply in accordance with the insulation and roof system manufacturer's instructions and these specifications.
2. Install insulation in full boards, carefully fitted and pushed against adjoining sheets to form tight joints. Gaps exceeding 1/4 inch are not acceptable.
3. Saw cut or knife cut insulation and cover boards in a straight line, not broken. Utilize chalk lines to cut insulation. Uneven or broken edges are not acceptable.
4. Remove insulation dust and debris that develops during insulation cutting operations.
5. Offset joints between successive and adjacent layers of insulation a minimum of six inches.
6. Stagger joints of cover boards one foot (vertically and laterally) to ensure that joints do not coincide with joints from the previous or adjacent layer.
7. On steel decks, apply insulation boards with long dimension of units across deck ribs. Bear ends of insulation boards on top flange of steel deck.
8. Install crickets, saddles and tapered edge strips before the cover board.

9. Adhere cant strips and tapered edge strips at transitions, terminations and/or penetrations as detailed or required ribbons of foam adhesive to ensure smooth transitions are provided for the roof membrane and flashings.
10. Provide necessary modifications to insulation system or nailers at roof edges as required to ensure a flush and smooth transition is provided for the roof membrane and flashing.
11. Make field modifications of insulation, tapered insulation, tapered edge strips and cants where required to accommodate roof and flashing conditions and to prevent water dams and ponding water. Ponding water at scuppers and cricket valleys is not acceptable.
12. Ponding Water:
 - a. The ponding of water on the roof surface after installation of the roofing system is not acceptable and is grounds for rejection of the roof.
 - b. Ponding is herein defined as precipitation remaining in a four-square foot area or larger, 1/4 inch or deeper for a period of 24 hours from the termination of precipitation.
 - c. Provide modifications to insulation system to ensure proper drainage and prevent standing water including but not limited to reinstallation of roof system or installation of additional tapered insulation.

B. Tapered Insulation System:

1. Install tapered insulation system to provide positive slope for roof drainage without ponding water.
2. Size crickets as shown in the Contract Drawings. Provide modifications to ensure positive slope and prevent standing water along the cricket valley.
 - a. Minimum length to width ratio of 2:1. Fabricate partial crickets with dimensions which result in a minimum length to width ratio of 2:1 if they were extended to full size.
 - b. Unless otherwise noted, fabricate crickets from tapered stock as required to provide the specified minimum slope. For example, when roof slope is indicated as 1/4 inch per foot minimum, fabricate crickets with slope of 1/2 inch per foot minimum.
 - c. Construct crickets on up slope side of curbs to ensure positive drainage.
 - d. Install tapered edge strips at cricket edges to provide a smooth transition between the cricket and insulation system below.
3. Insulation boards may require mechanical fasteners and stress plates at slope transition of crickets to minimize bridging.

C. Roof Drainage:

1. Install drainage sumps as detailed.

2. Carefully lay out the tapered insulation, sumps, drain bowls and scuppers to ensure the finished roof provides drainage with no ponding water.
3. Fabricate miter-cut sumps at drains/scuppers to provide smooth transitions between the insulation system and the drains/scuppers.
4. Ensure sumps provide roof drainage and prevent water dams.
5. Adjust insulation, drains and scuppers to ensure roof drainage and satisfactory substrates for membrane and flashings.
6. Secure drain sump components using specified insulation fasteners or adhesives.
7. Circular sumps and sumps that do not provide smooth transition or that create standing water at the drains are not allowed.

D. Tapered Edge Strips:

1. Install at edges to make transitions as detailed in Contract Drawings.
2. Provide to form crickets in front of curbs wider than 12 inches.
3. Provide slope transition at the outside of drainage sumps.
4. Provide slope at top of parapet walls below coping.
5. Use 1/2 inch by 6 inch tapered edge strips in front of tapered insulation crickets to provide smooth transition.

E. Insulation Mechanical Attachment:

1. Fastener quantity and spacing as required to comply with the requirements of roof system manufacturer's approved, tested assembly.
2. Install fasteners using manufacturer's recommended equipment and in accordance with the manufacturer's requirements.
3. Set fasteners and stress plates secure and tight against the insulation surface and do not over drive.
4. Fasteners to engage the top flange of steel decks only.

F. Foam Adhesive:

1. Position and space adhesive beads as required to comply with the requirements of the roof system manufacturer's approved, tested assembly.
2. Size adhesive beads in accordance with the adhesive manufacturer's guidelines.
3. Place insulation boards onto the beads and "walk" and/or "weight" into place. Place insulation boards into the adhesive in accordance with the adhesive manufacturer's guidelines.

4. Ensure adhesion of insulation and take whatever steps necessary to achieve adhesion, including but not limited to temporary ballasting of insulation until adhesive sets.

END OF SECTION

SECTION 07 25 00

WEATHER RESISTIVE BARRIERS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Provide a weather resistive barrier (WRB) assembly to provide moisture resistance while maintaining moisture-vapor permeability.

1.2 RELATED DOCUMENTS

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

1. Section 06 10 00 - Rough Carpentry
2. Section 07 62 00 - Sheet Metal Flashing and Trim

1.3 DESCRIPTION

A. The weather resistive barrier assembly generally consists of the WRB membrane, seam tape, flashing components and fasteners.

1.4 REFERENCE STANDARDS

- A. AATCC Test Method 127 - Test Method for Water Resistance: Hydrostatic Pressure; 2018, with Editorial Revision (2019).
- B. ASTM C719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle); 2022.
- C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016 (Reapproved 2023).
- E. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting; 2018.
- F. ASTM D3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings; 2005 (Reapproved 2018).
- G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.
- H. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2023.
- I. ASTM E1677 - Standard Specification for Air Barrier (AB) Material or Assemblies for Low-Rise Framed Building Walls; 2023.

- J. ASTM E2178 - Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials; 2021a.
- K. ASTM E2357 - Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies; 2024.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- C. Shop Drawings: Show details, penetrations, transitions and closures necessary to form a continuous weather resistive barrier assembly.

1.6 QUALITY ASSURANCE

- A. Provide weather resistive barrier and accessory materials produced by single manufacturer.
- B. Manufacturer Qualifications: Minimum of 10 years' experience supplying products to the region where the work is performed.
- C. Installer Qualifications:
 - 1. Acceptable to, licensed or certified by manufacturer.
 - 2. Not less than 3 years' experience with specified systems.
- D. Regulatory Requirements: Comply with local Building Code requirements if more restrictive than those specified.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver weather resistive barrier materials and components in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Store weather resistive barrier materials as recommended by weather resistive barrier manufacturer.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials in accordance with requirements of local authorities having jurisdiction.

1.8 WARRANTY

- A. Provide the manufacturer's ten (10) year warranty from date of final weather resistive barrier installation.

PART 2 PRODUCTS

2.1 PRODUCTS

- A. Weather Resistive Barrier (WRB): A non-perforated, nonwoven, non-absorbing, breathable, spunbonded, polyolefin membrane that resists air flow, bulk water and wind driven rain and channels water and moisture to the outside of the building envelope. It has microscopic pores that allow moisture vapor to escape from inside walls.

1. Performance Characteristics:

- a. Air Penetration of 0.001 cfm/ft² at 75 Pa, when tested in accordance with ASTM E2178. Type I per ASTM E1677. ≤0.04 cfm/ft² at 75 Pa, when tested in accordance with ASTM E2357.
- b. Water Vapor Transmission of 28 perms, when tested in accordance with ASTM E96/E96M, Method B.
- c. Water Penetration Resistance of 280 cm when tested in accordance with AATCC Test Method 127.
- d. Basis Weight of 2.7 oz/yd², when tested in accordance with TAPPI Test Method T-410.
- e. Air infiltration at >1500 seconds, when tested in accordance with TAPPI Test Method T-460.
- f. Tensile Strength of 38/35 lbs/in., when tested in accordance with ASTM D882, Method A.
- g. Tear Resistance of 12/10 lbs., when tested in accordance with ASTM D1117.

2. Surface Burning Characteristics - Class A, when tested in accordance with ASTM E84. Flame Spread: 10, Smoke Developed: 10.

3. Manufacturers:

- a. Dupont - Tyvek CommercialWrap® (Basis of Design)
- b. Barricade Building Products - R-Wrap
- c. Kingspan - GreenGuard

2.2 RELATED MATERIALS

- A. Seam Tape: UV resistant, polypropylene film coated, permanent acrylic adhesive, pressure sensitive tape supplied by the WRB manufacturer.
- B. Butyl Backed Flexible Flashing Membrane: Self-adhered, non-perforated, nonwoven, non-absorbing, breathable, spunbonded, polyethylene laminated membrane with butyl rubber adhesive backing as supplied by the weather resistive barrier manufacturer with minimum thickness of 30 mils.

- C. Double Sided Butyl Backed Flashing Membrane: A Self-adhered, non-perforated, nonwoven, non-absorbing, breathable, spunbonded, polyethylene laminated membrane with butyl rubber adhesive backing on two sides as supplied by the weather resistive barrier manufacturer with minimum thickness of 30 mils.
- D. Accessories:
 - 1. Provide the weather resistive barrier manufacturer's standard accessories and other items required to provide a continuous weather resistive barrier assembly including closures, flashing, sealants and liquid applied components.
- E. Fasteners:
- F. Adhesives:
 - 1. Provide adhesive as provided or recommended by weather resistive barrier manufacturer.
- G. Primers:
 - 1. Provide primer as provided or recommended by the weather resistive barrier manufacturer to assist in adhesion between substrate and flashing membrane.
- H. Sealant: One component, moisture curing, non-sag, gun-grade elastomeric polymer for use as a sealant or liquid applied flashing.
 - 1. Referenced Standards: Must meet AAMA 808.3 and ASTM C920.
 - 2. Movement Capability: $\pm 25\%$; ASTM C719.
 - 3. Max VOC: 9 g/L; ASTM D3960.
 - 4. Compatibility: Chemically compatible with flexible flashing; AAMA 713.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Substrate:
 - 1. Examine substrate to ensure properly secured and prepared to receive weather resistive barrier assembly.
 - 2. Ensure items that pass through WRB are properly and rigidly installed.
 - 3. Ensure substrate is installed flat, free from objectionable warp, wave, and buckle.
 - 4. Ensure substrate is free of moisture, frost, and other contaminants before installing weather resistive barrier assembly.
 - 5. Verify substrate and surface conditions are in accordance with weather resistive barrier manufacturer recommended tolerances prior to installation of weather resistive barrier and accessories.

3.2 INSTALLATION

- A. Install weather resistive barrier over exterior face of exterior wall substrate in accordance with manufacturer recommendations.
 - 1. Install weather resistive barrier prior to installation of windows and doors.
 - 2. Start weather resistive barrier installation at a building corner, leaving 6-12 inches of weather resistive barrier extended beyond corner to overlap.
 - 3. Install weather resistive barrier in a horizontal manner starting at the lower portion of the wall surface with subsequent layers installed in a shingling manner to overlap lower layers. Maintain weather resistive barrier plumb and level.
 - 4. Sill Plate Interface: Extend lower edge of weather resistive barrier over sill plate interface 3 to 6 inches. Secure to foundation with elastomeric sealant as recommended by weather resistive barrier manufacturer.
 - 5. Window and Door Openings: Extend weather resistive barrier over openings.
 - 6. Overlap weather resistive barrier
 - a. Outside and Inside Corners: minimum 12 inches.
 - b. Seams: minimum 6 inches.
- B. Weather Resistive Barrier Attachment:
- C. Seaming:
 - 1. Before installing seam tape, ensure surfaces are dry and free of contaminants.
 - 2. Seal seams of weather resistive barrier with seam tape at vertical and horizontal overlapping seams.
 - 3. During installation of seam tape, apply firm pressure with "J" roller.
 - 4. Seal tears or cuts in accordance with the weather resistive barrier manufacturer's printed instructions.
- D. Opening preparation and flashing for use with non-flanged windows or penetrations:
 - 1. Flush cut weather resistive barrier at edge of sheathing around perimeter of opening.
 - 2. Cut a head flap at 45-degree angle in the weather resistive barrier at window head to expose 8 inches of sheathing. Temporarily secure weather resistive barrier flap away from sheathing with tape.
 - 3. Cut flexible flashing a minimum of 12 inches longer than width of sill rough opening.
 - 4. Cover horizontal sill by aligning flexible flashing edge with inside edge of sill. Adhere to rough opening across sill and up jambs a minimum of 6 inches. Secure flashing tightly into corners by working in along the sill before adhering up the jambs.

5. Fan flexible flashing at bottom corners onto face of wall. Firmly press in place with a "J" roller. Mechanically fasten fanned edges.
 6. Apply 9 inch wide strips of flashing at jambs. Align flashing with interior edge of jamb framing. Start flashing at head of opening and lap sill flashing minimum 6-inches.
 7. Spray-apply primer to top 6 inches of jambs and exposed sheathing.
 8. Install flexible flashing at opening head using same installation procedures used at sill. Overlap jamb flashing a minimum of 2 inches.
 9. Coordinate flashing with window installation.
 10. On exterior, install backer-rod in joint between window frame and flashed rough opening. Apply sealant at jambs and head, leaving sill unsealed. Apply sealants in accordance with sealant manufacturer's instructions and ASTM C1193.
 11. Position weather resistive barrier head flap across head flashing. Adhere using butyl backed flashing membrane. Seal 45-degree seams with seam tape.
 12. Flash top of window in accordance with Contract Drawings and manufacturer recommendations.
 13. On interior, install backer rod in joint between frame of window and flashed rough framing. Apply sealant around window to create air seal in accordance with sealant manufacturer's instructions and ASTM C1193.
- E. Opening preparation and flashing for use with flanged windows or penetrations:
1. Flush cut weather resistive barrier at edge of sheathing around perimeter of opening.
 2. Cut a head flap at 45 degree angle in the weather resistive barrier at window/penetration head to expose 8 inches of sheathing. Temporarily secure weather resistive barrier flap away from sheathing with tape.
 3. Cut flexible flashing a minimum of 12 inches longer than width of sill rough opening.
 4. Cover horizontal sill by aligning flexible flashing edge with inside edge of sill. Adhere to rough opening across sill and up jambs a minimum of 6 inches. Secure flashing tightly into corners by working in along the sill before adhering up the jambs.
 5. Fan flexible flashing at bottom corners onto face of wall. Firmly press in place with a "J" roller. Mechanically fasten fanned edges if necessary.
 6. Apply 9-inch wide strips of flashing at jambs. Align flashing with interior edge of jamb framing. Start flashing at head of opening and lap sill flashing minimum 6-inches.
 7. On exterior, apply continuous bead of sealant to backside of window/penetration mounting flange across jambs and head. Do not apply sealant across sill.
 8. Install window/penetration according to manufacturer's instructions.

9. Apply strips of flashing at jambs overlapping mounting flange. Extend jamb flashing 1-inch above top of rough opening and below bottom edge of sill flashing.
10. Apply strip of flashing as head flashing overlapping the mounting flange. Extend head flashing a minimum of 6-inches beyond outside edges of both jamb flashings.
11. Position weather resistive barrier head flap across head flashing. Adhere flashing over the 45-degree seams.
12. Tape head flap in accordance with manufacturer recommendations.
13. On interior, install backer rod in joint between frame of window/penetration and flashed rough framing. Apply sealant around window/penetration to create air seal in accordance with sealant manufacturer's instructions and ASTM C1193.

F. Flexible Flashing Installation:

1. Overlap flexible flashing with weather resistive barrier by 6 inches.
2. Mechanically fasten bottom of weather resistive barrier through top of thru-wall flashing.
3. Seal vertical and horizontal seams with tape or butyl backed flashing membrane.
4. Flexible flashing/weather resistive barrier interface at shelf angle
 - a. Apply flexible flashing over shelf angle. Overlap flexible flashing with weather resistive barrier by 6-inches.
 - b. Seal bottom of weather resistive barrier to flexible flashing with tape or butyl backed flashing membrane.
5. Flexible flashing/weather resistive barrier interface at window head
 - a. Cut flap in weather resistive barrier at window head.
 - b. Prime exposed sheathing.
 - c. Install lintel as required. Verify end dams extend 4 inches minimum beyond opening.
 - d. Install end dams bedded in sealant.
 - e. Adhere 2 inches minimum flexible flashing to wall sheathing. Overlap lintel with through wall flashing and extend ¼ inch minimum beyond outside edge of lintel to form drip edge.
 - f. Apply sealant along through wall flashing edges.
 - g. Fold weather resistive barrier flap back into place and tape bottom edge to thru-wall flashing.
 - h. Tape diagonal cuts of weather resistive barrier.

- i. Secure weather resistive barrier flap with fasteners.

3.3 FIELD QUALITY CONTROL

- A. Notify manufacturer's designated representative to obtain required periodic observations of weather resistive barrier assembly installation.

3.4 PROTECTION

- A. Protect work as required to ensure WRB is without damage at time of final completion.

END OF SECTION

SECTION 07 54 00

THERMOPLASTIC SINGLE PLY ROOFING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Provide adhered, fleeceback, thermoplastic membrane and flashings to provide a permanently watertight system.

1.2 RELATED DOCUMENTS

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

1. Section 05 01 30 - Steel Roof Deck Repair and Securement
2. Section 06 10 00 - Rough Carpentry
3. Section 07 01 50 - Preparation for Reroofing
4. Section 07 22 16 - Roof Insulation
5. Section 07 62 00 - Sheet Metal Flashing and Trim

1.3 REFERENCE STANDARDS

- A. ASTM D4434/D4434M - Standard Specification for Poly(Vinyl Chloride) Sheet Roofing; 2021.
- B. ASTM D6754/D6754M - Standard Specification for Ketone Ethylene Ester Based Sheet Roofing; 2015.
- C. FM 4470 - Examination Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for Use in Class 1 and Noncombustible Roof Deck Construction; 2022.
- D. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; Current Edition, Including All Revisions.
- E. UL 790 - Standard for Standard Test Methods for Fire Tests of Roof Coverings; Current Edition, Including All Revisions.
- F. UL 1897 - Uplift Tests for Roof-Covering Systems; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.

1.4 PERFORMANCE REQUIREMENTS

- A. Install roofing system to meet UL 790 Class A Fire Rating.

- B. Wind Uplift Strength: Provide an approved roof assembly tested in accordance with FM 4470, UL 580 or UL 1897 to resist the minimum required wind uplift strength specified in the Contract Drawings.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- C. Roof System Assembly Letter: Letter from roof system manufacturer listing roof assembly components along with their method of attachment and acceptance of the specified roof system warranty terms. Assembly letter should match the submitted test report documentation and specified assembly.
- D. Test Reports: Submit documentation of approved, tested roof system to meet the specified requirements for the following:
 - 1. Wind uplift pressures
 - 2. UL Fire Resistance Rating
- E. Shop Drawings:
 - 1. Submit manufacturer approved drawings and details for conditions not depicted in Contract Drawings including but not limited to inside corners, outside corners, lap seams, etc.

1.6 QUALITY ASSURANCE

- A. Manufacturer Requirements:
 - 1. Written contractor/installer approval program.
 - 2. Primary membrane products (including roof membrane and flashing membrane) manufactured by other manufacturers and private labeled are not acceptable.
- B. Contractor Requirements:
 - 1. Install roof system by a Contractor authorized by the membrane manufacturer for a minimum of two years with manufacturer's highest certification level.
 - 2. Application of the roofing system accomplished by primary roofing contractor, his roofing foreman, and sufficient applicator technicians who have been trained and approved by the manufacturer of the single ply roofing system. Submit evidence of qualification from the manufacturer.
- C. No deviations made from the Contract Documents or the accepted shop drawings without prior written acceptance by the Engineer.
- D. Complete work by personnel trained and authorized by the membrane manufacturer.
- E. Upon completion of the installation, provide inspection by a representative of the membrane manufacturer to review the installed roof system and document deficiencies.

- F. Provide manufacturer written verification indicating seams have been probed and are watertight.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials in the manufacturer's original sealed and labeled packaging and in quantities required to allow continuity of application.
- B. Storage: Store materials out of direct exposure to the elements on pallets or dunnage at least 4 inches above ground level at location acceptable to Owner.
 - 1. Utilize tarps that cover materials to prevent moisture contamination. Remove or slit factory shrouds and/or visqueen; do not use these materials as tarps.
 - 2. Install vapor retarders under material storage areas located on the ground.
 - 3. Remove damaged or deteriorated materials from the job site.
 - 4. Store membrane rolls lying down on pallets and protected from the weather with clean canvas tarpaulins. Unvented polyethylene tarpaulins are not accepted due to the accumulation of moisture beneath the tarpaulin in certain weather conditions affecting the ease of membrane weldability.
 - 5. Store adhesives at temperatures approved for the product.
 - 6. Store flammable materials in a cool, dry area away from sparks and open flames. Follow precautions outlined on containers or supplied by material manufacturer/supplier.
 - 7. Remove damaged materials and replace at no cost to the Owner.
- C. Handling: Handle materials in such a manner as to prevent damage and contamination with moisture or foreign matter.

1.8 PROJECT CONDITIONS

- A. Do not apply roofing during precipitation. Contractor assumes responsibility for starting installation in the event there is a probability of precipitation occurring during application.
- B. Only install as much of the roofing as can be made weathertight each day, including flashing and detail work. Clean and hot air weld seams before leaving the job site that day.
- C. Schedule and execute work without exposing the interior building areas to the effects of inclement weather. Protect the building and its contents against risks.
- D. Ensure surfaces to receive insulation, membrane or flashings are dry. Provide the necessary equipment to dry the surface prior to application.
- E. Secure construction, including equipment and accessories, in such a manner as to preclude wind blow-off and subsequent roof or equipment damage.
- F. Install uninterrupted waterstops at the end of each day's work and remove before proceeding with the next day's work. Do not allow waterstops to emit dangerous or unsafe fumes and remain in contact with the finished roof as the installation progresses. Replace contaminated membrane at no cost to the Owner.

- G. Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment movement and storage. Where such access is absolutely required, provide necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. Provide a protection layer of plywood over insulation board for roof areas that receive rooftop traffic during construction.
- H. Prior to and during application, remove dirt, debris and dust from surfaces, either by vacuuming, sweeping, blowing with compressed air and/or similar methods.
- I. Do not allow contaminants, grease, fats, oils, and solvents to come into contact with the roofing membrane. Report rooftop contamination that is anticipated or that is occurring to the Engineer and membrane manufacturer to determine the corrective steps necessary.
- J. If unusual or concealed condition is discovered; stop work and notify Engineer of such condition in writing within 24 hours.
- K. Do not install the roofing membrane under the following conditions without consulting the membrane manufacturer's technical department for precautionary steps:
 - 1. The roof assembly permits interior air to pressurize the membrane underside.
 - 2. The wall/deck intersection permits air entry into the wall flashing area.

1.9 WARRANTIES

- A. Manufacturer's Guarantee: Manufacturer's standard form, non-pro-rated, without monetary limitation or deductibles, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks or breaches in the primary roof membrane causing moisture to enter the substrate below (even if visible leaks are not observed inside the facility).
 - 1. Warranty Period: 20 years from date of Substantial Completion
 - 2. Warranty to remain in effect for wind speeds up to 72 mph.
 - 3. Warranties requiring the Owner's signature are not acceptable.
 - 4. Warranty to include membrane materials, adhesives, related materials and fasteners specified in this section and the following materials specified in other sections as follows:
 - a. 07 22 16 - Roof Insulation
 - b. Polymer Clad Metal as specified in Section 07 62 00 - Sheet Metal Flashing and Trim
- B. Contractor's Warranty: Two Year Warranty: Manufacturer's Representative and Contractor's Representative will attend post construction field inspection no earlier than one month prior to the expiration date of the Contractor's Warranty. Submit a written report within seven (7) days of the site visit to the Engineer listing observations, conditions and recommended repairs or remedial action.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Subject to compliance with requirements herein, provide roof system from a single source. Manufacturers:
 - 1. Sika Sarnafil
 - 2. Fibertite
 - 3. Siplast

2.2 MEMBRANE MATERIALS

- A. Membrane: Thermoplastic membrane with fiberglass and/or polyester reinforcement meeting ASTM D4434/D4434M or ASTM D6754/D6754M and factory applied fleece backing. Acceptable products:
 - 1. Sika Sarnafil 60-mil G410 Feltback
 - 2. Fibertite 45-mil SM-FB
 - 3. Siplast Parasolo PVC Kee Fleeceback 60-mil
- B. Flashing/Stripping Membrane: Non fleeceback, thermoplastic membrane reinforced with fiberglass.
 - 1. Sika Sarnafil 60-mil G410
 - 2. Fibertite 45-mil SM
 - 3. Siplast Parasolo PVC Kee Smooth 60-mil
- C. Membrane and Flashing Membrane Color: White

2.3 ADHESIVES

- A. Membrane Adhesive: Membrane manufacturer's solvent-based adhesive.
 - 1. Sika Sarnafil Sarnacol 2170
 - 2. Fibertite FTR 290
 - 3. Siplast Parasolo PVC Bonding Adhesive
- B. Flashing Adhesive: Membrane manufacturer's solvent-based adhesive.
 - 1. Sika Sarnafil Sarnacol 2170
 - 2. Fibertite FTR 190e
 - 3. Siplast Parasolo PVC Bonding Adhesive

2.4 RELATED MATERIALS

- A. T-joint Patch: Membrane manufacturer's circular patch welded over T-joints formed by overlapping thick membranes.
- B. Corner Flashing: Membrane manufacturer's pre-formed inside and outside flashing corners that are hot-air welded to membrane or polymer clad metal base flashings.
- C. Coverstrip: 8 inch wide pre-cut polyester reinforced flashing strip.
- D. Pipe Flashing: Membrane manufacturer's pre-formed pipe boot flashing that is hot-air welded to membrane and secured with a stainless-steel draw band and sealant.
- E. Termination Bar: Manufacturer's 1/8 inch by 1 inch mill finish extruded aluminum bar with pre-punched slotted holes.
- F. Lipped Termination Bar: 3/4 inch wide, extruded mill finished aluminum (6063 T6 Alloy) with 3/16 inch lip and pre-punched oval holes at 6 inches on center.
- G. Walkway Pad: Walkway pad by manufacturer of membrane.
- H. Pre-Fabricated Expansion Joint: Manufacturer's approved pre-fabricated expansion joint made with polyester reinforced membrane, neoprene foam and galvanized metal.
- I. Polymer Clad Metal: Refer to Section 07 62 00 - Sheet Metal Flashing and Trim.

2.5 SEALANTS AND CLEANERS

- A. Sealant: Manufacturer's multi-purpose sealant.
- B. Sealant Tape: Minimum 1/2 inch wide, non-skinning, butyl sealant tape.
- C. Primary Membrane Cleaner: High-quality solvent cleaner provided by membrane manufacturer for use as a general membrane cleaner.
- D. Pre-weld Cleaner: High-quality solvent based seam cleaner with moderate evaporation rate as recommended and provided by membrane manufacturer.

2.6 FASTENERS

- A. Flashing Membrane Termination Screws: #12 corrosion resistant hex or pan head screws with length to penetrate substrate a minimum of 1-1/2 inch.
- B. Concrete and Masonry Flashing Membrane Termination Anchors:
 - 1. 1/4-inch diameter metal-based expansion anchor with stainless steel pin of length to penetrate substrate a minimum of 1-1/2 inch.
 - 2. Masonry screws approved by membrane manufacturer, 1/4-inch minimum diameter, corrosion resistant, with Phillips flat head. Length to provide minimum 1-1/2 inch embedment into substrate.
- C. Steel Deck Fasteners and Plates: #12 corrosion resistant approved by membrane manufacturer of length to penetrate top flange of steel deck a minimum of 1 inch with galvalume plates approved for membrane attachment.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Inspect the surface of the insulation or substrate prior to installation of the roof membrane.
- B. Verify that the substrate is dry, clean, smooth, and free of debris, loose material, oil, grease, or other foreign matter. Remove sharp ridges and other projections and accumulations of bitumen to ensure a smooth surface before roofing.
- C. Replace broken, delaminated, wet or damaged insulation boards.
- D. Repair deteriorated substrates.
- E. Beginning installation means acceptance of prepared substrate.

3.2 PREPARATION

- A. Remove, cover or flash using compatible, approved materials substrates containing asphalt. Do not allow PVC to contact substrates containing asphalt materials.
- B. Provide necessary protection from adhesive vapors to prevent interaction with foamed plastic insulation.

3.3 ADHERED MEMBRANE INSTALLATION

- A. Over the properly installed and prepared substrate, apply membrane adhesive in accordance with the manufacturer's instructions and application rates utilizing equipment as required by the manufacturer.
 - 1. Do not allow adhesive to skin-over or surface-dry prior to installation of roof membrane.
 - 2. Comply with the manufacturer's published requirements for adhesive application rates.
 - 3. Count the amount of pails of adhesive used per area per day to verify conformance to the specified adhesive rate.
 - 4. Do not apply adhesive in seam areas.
 - 5. Replace notched squeegees daily or as notches are reduced below 1/4 inch.
- B. Place roof membrane into the adhesive in accordance with manufacturer's instructions.
- C. Shingle seams with flow of water. Overlap upslope, adjacent rolls 3 inches over previous roll. This process is repeated throughout the roof area.
- D. After placement of membrane, press roll into place with the manufacturer's recommended roller by frequent rolling in two directions.
- E. Weld membrane coverstrips at fleeceback membrane seams without a factory selvage edge.

3.4 MEMBRANE TERMINATION

- A. Terminate membrane at walls and curbs as shown in the contract drawings.
 - 1. Roof Deck: Mechanically terminated using specified fasteners and plates 6 inches on center.
 - 2. Wood Wall Substrate: Turn membrane up wall 1 inch and mechanically terminate using specified screws 8 inches on center with a termination bar.
 - 3. Concrete/Masonry Wall Substrate: Turn membrane up wall 1 inch and mechanically terminated using specified anchors 8 inches on center with a termination bar.
- B. Terminate membrane at penetrations as shown in the contract drawings.
 - 1. Fasten membrane 6 inches on center or a minimum of 4 fasteners per penetration into the structural deck using fasteners and plates as approved by the membrane manufacturer for the deck substrate.
- C. Extend membrane over roof edge a minimum of 2 inches below the perimeter wood blocking. If fleeceback membrane is utilized, trim membrane flush with outside edge of roof and hot-air weld a non fleeceback flashing membrane to extend over the roof edge.
- D. Provide sealant tape at base of flashing membrane on outside of wall to prevent moisture infiltration.

3.5 FLASHING INSTALLATION

- A. General
 - 1. Install flashings concurrently with the roof membrane as the job progresses.
 - 2. Temporary flashings are not allowed.
 - 3. Do not tape seams as temporary measure; hot-air weld seams before the end of each day.
 - 4. Adhere flashings to compatible, dry, smooth, and solvent-resistant surfaces.
 - 5. Where substrates are incompatible with adhesives and PVC materials, remove the incompatible materials and replace with a compatible substrate or install compatible PVC flashing materials.
 - 6. Use caution to ensure adhesive fumes are not drawn into the building.
- B. Adhesive for Flashing Membrane
 - 1. Over the properly installed and prepared flashing substrate, apply flashing adhesive according to manufacturer's installation instructions. Apply adhesive in smooth, even coats with no gaps, globs or similar inconsistencies.
 - 2. Press the sheet firmly in place with a hand roller to ensure bond and adhesion.
 - 3. Do not apply adhesive in seam areas that are to be welded.

- C. Mechanically terminate flashings a minimum of 8 inches above the finished roofing surface using specified method indicated in the Contract Drawings.
- D. Cut and provide hot-air welded corner flashing at interior and exterior corners.
- E. Hot-air weld flashings at their joints and at their connections with the roof membrane.
- F. Provide additional securement for flashings that exceed 30 inches in height. Consult Manufacturer's Technical Department for securement methods.
- G. Seal off Polymer Clad sheet metal incorporated into the roofing system with a hot-air welded stripping ply. Extend stripping ply four inches beyond sheet metal onto roof membrane and fit closely to edge of sheet metal.
- H. At expansion joints, extend flashing membrane over joint and dip into cavity to allow for expansion.
- I. Soil Pipe/Pipe Penetration:
 - 1. Provide field wrapped pipe penetration flashing or manufacturer's prefabricated pipe boot as shown in detail drawing.
 - 2. Apply aluminum tape to penetration if asphalt contamination is present.
 - 3. Hot-air weld horizontal flashing membrane a minimum of four inches onto the membrane.
 - 4. Adhere vertical flashing membrane adhered to pipe penetration and extend a minimum of 1.5 inches horizontal at the base of penetration. Hot-air weld vertical flashing membrane to horizontal flashing membrane.
 - 5. Install stainless steel draw band and sealant or hot-air weld flashing cap to terminate top edge of pipe flashing.

3.6 HOT-AIR WELDING OF SEAM OVERLAPS

- A. General
 - 1. Hot-air weld seams.
 - a. Minimum 3-inch-wide membrane overlap when automatic machine-welding.
 - b. Minimum 4-inch-wide membrane overlap when hand-welding, except for certain details.
 - c. Minimum width of hot-air weld is 1-1/2 inches.
 - d. Provide wider membrane overlaps or width of welds as required by the roof membrane manufacturer.
 - 2. Provide welding equipment by or approved by the membrane manufacturer. Mechanics intending to use the equipment to have successfully completed a training course provided by a membrane manufacturer's technical representative prior to welding.

3. Clean and dry membrane to be hot-air welded.
- B. Hand-Welding
1. Complete hand-welded seams in two stages. Allow hot-air welding equipment to warm up prior to welding.
 2. Weld the back edge of the seam with a narrow but continuous weld to prevent loss of hot air during the final welding.
 3. Insert nozzle into the seam at a 45-degree angle to the edge of the membrane. Once the proper welding temperature has been reached and the membrane begins to "flow," the hand roller is positioned perpendicular to the nozzle and pressed lightly. For straight seams, the 1-1/2 inch wide nozzle is recommended for use. For corners and compound connections, the 3/4 inch wide nozzle is recommended for use.
- C. Machine Welding
1. Machine welded seams are achieved by the use of automatic welding equipment. When using this equipment, follow instructions from the manufacturer and local codes for electric supply, grounding and over current protection. Dedicated circuit house power or a dedicated portable generator is recommended. Do not operate other equipment off the generator.
 2. Metal tracks may be used over the deck membrane and under the machine welder to minimize or eliminate wrinkles.
- D. Quality Control of Hot-Air Welded Seams
1. Check hot-air welded seams for continuity using a rounded screwdriver. Visible evidence that welding is proceeding correctly is smoke during the welding operation, shiny membrane surfaces, and an uninterrupted flow of dark grey material from the underside of the top membrane. Provide on-site evaluation of welded seams daily and to locations as directed by the Engineer or membrane manufacturer's representative.
 2. Take 1-inch-wide cross-section samples of hot-air welded at least three times a day. Correct welds display failure from shearing of the membrane prior to separation of the weld. Patch test cut areas.

3.7 WALKWAY PAD INSTALLATION

- A. Check membrane seams that are to be covered by walkway pad with rounded screwdriver and repair deficiencies prior to walkway pad installation.
- B. Clean and dry roof membrane to receive walkway pad.
- C. Place chalk lines on sheet to indicate location of Walkway.
- D. Apply a continuous coat of membrane adhesive to the sheet and the back of walkway pad in accordance with membrane manufacturer's technical requirements and press walkway pad into place with a water-filled, foam-covered lawn roller.
- E. Clean the membrane in areas to be welded. Hot-air weld perimeter of the walkway to the roof membrane.

- F. Check welds with a rounded screwdriver. Repair deficiencies.
- G. Provide walk pads where indicated in Contract Drawings and at the following locations:
 - 1. Around roof hatches.
 - 2. At base and top of fixed wall access ladders.
 - 3. Around HVAC units.
 - 4. At door access to roof areas.

3.8 TEMPORARY CUT-OFF

- A. Install flashings concurrently with the membrane in order to maintain a watertight condition as the work progresses.
- B. When a break in the day's work occurs in the central area of the project, install a temporary watertight seal. Provide an 8-inch strip of flashing membrane welded 4 inches to the field membrane. Seal the remaining 4 inches of flashing membrane to the deck or the substrate so that water can not travel under the membrane. Seal the edge of the membrane with a continuous, heavy, 6 inch width application of pourable sealer. When work resumes, remove the contaminated membrane. Do not reuse these materials.
- C. If inclement weather occurs while a temporary water stop is in place, monitor the situation to maintain a watertight condition.
- D. If water is allowed to enter under the completed system, replace the affected area.

3.9 CLEANING

- A. Ensure trash and debris is removed from the roof daily.
- B. Keep metal scraps, nails, screws and other sharp damaging debris off of the roof membrane surface during construction.
- C. Clean off/remove excess adhesive, sealant, stains and residue on the membrane and flashing surfaces.
- D. Remove temporary coverings and masking protection from adjacent work areas upon completion.

3.10 PROTECTION

- A. Protect the roof from construction related damages during the Work.
- B. Replace damaged membrane, flashings and other membrane components. Repair in accordance with the membrane manufacturers repair instructions to comply with the specified warranty.

END OF SECTION

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Sheet metal flashings and trim to provide a permanently watertight condition.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections and the following Specification Sections, apply to this Section:
 - 1. Section 06 10 00 - Rough Carpentry
 - 2. Section 07 54 00 - Thermoplastic Single Ply Roofing

1.3 REFERENCE STANDARDS

- A. ANSI/SPRI/FM 4435/ES-1 - Test Standard for Edge Systems Used with Low Slope Roofing Systems; 2022.
- B. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications; 2023a.
- C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- D. NRCA (RM) - The NRCA Roofing Manual; 2024.
- E. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.4 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- C. Shop Drawings: For any transitions and/or terminations not depicted in Contract Drawings.
- D. Test Reports: Submit test reports for edge metal indicating resistance of specified wind uplift pressures.
- E. Color Charts:
 - 1. Pre-finished Sheet Metal

2. Polymer Clad Sheet Metal
3. Sealants

1.5 MOCK-UPS

- A. Provide mock-ups of the following sheet metal components prior to fabrication of the components:
 1. Coping: Provide minimum 10-foot length of coping mock-up including applicable fascia covers. Include at least one seam of the configuration specified.
 2. Gutter: Provide mock-up of gutter, gutter bracket and gutter hanger. Include one lap in gutter section.

1.6 QUALITY ASSURANCE

- A. Install in accordance with the Contract Drawings.
- B. Ensure work is free of leaks.
- C. Provide metal edge and coping fabricated and tested in accordance with ANSI/SPRI/FM 4435/ES-1 to resist the specified wind uplift pressures.
 1. Fabricate metal edge and coping as shown in Contract Drawings and following NRCA (RM) tested details.
- D. Provide sheet metal flashing and trim in accordance with SMACNA (ASMM).
- E. Provide first-class workmanship. Assemble and secure sheet metal work in accordance with these specifications, roof system manufacturer's requirements and referenced standards.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials in the manufacturer's original sealed and labeled containers and in quantities required to allow continuity of application.
- B. Storage: Store materials within areas designated by the Owner. Ensure materials remain dry, covered and not in contact with the ground.
- C. Handling: Handle material in such manner as to preclude damage and contamination with moisture or foreign matter.

1.8 PROJECT CONDITIONS

- A. Environmental: Protect building and its components from the elements.
- B. Coordination and Scheduling: Coordinate phases of work to allow continuity of work without delays.

1.9 WARRANTY

- A. Provide pre-finished sheet metal manufacturer's thirty (30) year finish warranty from the date of substantial completion.

- B. Provide certification of air-dried kynar paint or powder coating for specified materials.

PART 2 PRODUCTS

2.1 PRIMARY SHEET METAL

- A. Material: Pre-finished Galvalume

1. 24-gauge, galvalume coated steel meeting or exceeding AZ50 per ASTM A792. Manufacturer's smooth finish, pre-finished color coatings consisting of 70% Kynar 500 fluorocarbon (Polyvinylidene Fluoride PVF2) coating over a urethane primer on the finish side, with primer and a wash coat on the reverse. Measurements per NCCA Technical Bulletin II-4 or ASTM D1005. Protect the finish during fabrication and installation with a strippable plastic film. Manufacturer's standard color selected by Owner.

- B. Components:

1. Slip Flashing
2. Coping
3. Fascia Cover
4. Gutter
5. Downspouts
6. Continuous Cleat (use one gauge thicker than primary sheet metal): 22-gauge, galvalume coated steel

2.2 ALUMINUM

- A. ASTM B209 Aluminum Alloy Sheet and Plate, alloy and temper 3003-H14:

1. Gutter Bracket: 1/4 inch x 2 inches
2. Gutter Spacer: 1/16 inch x 1 inch
3. Downspout Hanger: 1/16 inch x 1 inch

2.3 STAINLESS STEEL FLASHINGS

- A. 26-gauge, Type 304, 2B as tested in accordance with ASTM A240/A240M.

1. Watertight Umbrella

- B. Compression Bar: 1/4-inch x 1.5 inches, stainless steel, flat bar.

2.4 POLYMER CLAD METAL

- A. Heat-weldable, 24 gauge, AISI G90 galvanized steel sheet with an unsupported 20-mil thermoplastic membrane coating to match the flashing membrane composition laminated on one side, manufactured by, and included in the roof membrane manufacturer's warranty. Color selected by Owner.

1. Drip Edge
2. Base Flashing Closure

2.5 FASTENERS

- A. Roofing Nails: Minimum 12-gauge stainless steel ring shank roofing nails with diamond point, minimum 3/8 inch diameter head and length as required to penetrate substrate a minimum of 1-1/4 inches.
- B. Screws:
 1. Sheet metal to wood attachment (exposed): #12 stainless steel, 5/16 HWH with length to penetrate substrate a minimum of 1-1/2 inches. Provide with bonded EPDM washer or washer specified below. Factory painted heads to match the sheet metal color.
 2. Sheet metal to wood attachment (concealed): #10 stainless steel, low profile pancake head with length to penetrate substrate a minimum of 1-1/2 inches.
 3. Sheet metal to sheet metal attachment (exposed): 1/4 inch x 7/8 inch carbon steel, self-drilling point, self-tapping, zinc alloy hex head screws with bonded EPDM tubular washer under head of fastener; screw heads to match color of wall panel by means of factory applied coating. Factory painted heads to match the sheet metal color.
 4. Sheet metal to light gauge steel attachment (concealed): #14-13 DP1 stainless-steel low-profile pancake head of length as required for three threads to penetrate metal substrate or min. 1 inch penetration though wood substrates.
- C. Concrete and Masonry Anchors: 1/4 inch diameter metal-based expansion anchor with stainless steel pin of length to penetrate substrate a minimum of 1-1/2 inches. Factory painted heads to match the sheet metal color.
- D. Washers: Stainless steel with neoprene gasket backing.
 1. 9/16 inch diameter for use with #12 screws
 2. 5/8 inch diameter for use with 1/4 inch diameter concrete and masonry anchors.
- E. Rivets: #44 stainless steel rivets with stainless steel mandrel and factory painted head to match adjacent sheet metal. Length to properly fasten particular sheet metal components.

2.6 RELATED MATERIALS

- A. Sealants:
 1. Silicone Sealant: One-component, non-sag, neutral cure, low-modulus, UV resistant, high performance silicone sealant meeting ASTM C920, Type S, Grade NS, Class 100/50, Use NT, M, G, A or O. Color to match sheet metal color selected by Owner. Acceptable Manufacturers include:
 - a. Dow 790 Building Sealant
 - b. Pecora 890 NST Silicone

- c. Sikasil-WS 290
 - d. Triangle Fastener Corporation Ultra 1000
- 2. Sealant Tape: Minimum 1/2 inch wide, non-skinning, butyl sealant tape.
- 3. Butyl Sealant: Gun grade, non-skinning, non-hardening, flexible blend of butyl rubber and polyisobutylene sealant.
- 4. Backer Rod: Closed-cell polyethylene or polyurethane rods sized approximately 25% larger than joint opening.
- B. Aluminum Tape: Pressure-sensitive, 2 inch wide aluminum tape used as a separation layer between small areas of asphalt contamination and the membrane and as bond breaker under the metal edge cover plates.
- C. Solder: 80-20 lead-TIN alloy conforming to ASTM B32.
- D. Flux: Muriatic acid killed with zinc or an accepted brand of commercial soldering flux designed for use with 80-20 solder.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Coordinate with other work for correct sequencing of items.
- B. Ensure substrates are installed, secured and modified to accommodate sheet metal flashings.
- C. Report deficiencies associated with the sheet metal substrates to Engineer before beginning sheet metal work. Correct deficiencies before installing sheet metal flashings.

3.2 INSTALLATION

- A. General:
 - 1. Lock and seal joints of pre-finished sheet metal.
 - 2. Solder joints of stainless steel flashings.
 - 3. Provide for thermal movement (expansion and contraction) of sheet metal.
 - 4. Where dissimilar metals contact, prevent galvanic action by means of heavy coat of asphalt primer or separate with sheet metal underlayment.
 - 5. Prime sheet metal surfaces (top and bottom) to receive bituminous materials. Allow primer to dry before application of bituminous materials.
 - 6. Install metal flanges on top of membrane, adhere and fasten as indicated in detail drawings, specified herein, and in accordance with membrane manufacturer's requirements.
 - 7. Provide uniform sheet metal sections with corners, joints and angles mitered, sealed and secured.

8. Hem (return) exposed edges for strength and appearance.
 9. Fit sheet metal close and neat.
 10. Provide cleats or stiffeners and other reinforcements to make sections rigid and substantial.
 11. Fabricate, support, cleat, fasten and join sheet metal to prevent warping, "oil canning", and buckling.
- B. Sheet Metal Laps (unless otherwise indicated):
1. Notch and lap ends of adjoining sheet metal sections not less than 4 inches; apply sealant tape or two bead of butyl sealant between sections.
 2. Lap miters at corners a minimum of 1 inch and apply sealant between laps. Rivet at 2 inches on center.
- C. Polymer Clad Sheet Metal:
1. Secure flanges of polymer clad sheet metal into roof deck at 12 inches on center.
 2. Sheet Metal Laps:
 - a. Leave a 1/4 inch opening between sheet metal sections.
 - b. Center aluminum tape over joint opening.
 - c. Hot-air weld 4-inch wide strip of stripping membrane over joint.
 - d. At inside and outside corners, lap miters a minimum of 1 inch and rivet at 2 inches on center; strip in with 4-inch wide strip of stripping membrane over joint.
- D. Fasteners:
1. Size and type required.
 2. Fasteners compatible with materials being joined.
 3. Exposed Fasteners:
 - a. Install screws with 5/16-inch predrilled, oversized holes.
 - b. Install Concrete and Masonry Anchors with 11/32-inch predrilled, oversized holes.
 - c. Exposed horizontal surface fasteners are not acceptable.
- E. Watertight Umbrella:
1. Fabricate watertight umbrellas as shown in detail drawings. Refer to SMACNA (ASMM) Figure 8-9C.
 2. Install watertight umbrella with stainless steel draw band and sealant properly tooled to ensure adhesion and slope to shed water.

3. Vertical leg of umbrella flashing to extend a minimum of 2 inches below the sleeve top and be positioned as low as possible on the sleeve.
 4. Clean and solder seams.
- F. Slip Flashing:
1. Fabricate at curbs as shown in detail drawings in 10 foot lengths.
 2. Extend a minimum of 2 inches below base flashing termination and fit tightly against curb.
 3. Secure at 12 inches on center of a minimum of two fasteners per side of the curb. If slip flashing is located within Corner (Zone 3) secure at 6 inches on center maximum.
- G. Fascia Cover:
1. Provide fascia cover secured to wood blocking 12 inches on center where indicated in detail drawings.
 2. Lock fascia cover onto continuous cleat if present and hand tong metal edge onto continuous cleat.
- H. Coping:
1. Fabricate coping in 10 foot lengths. Fabricate coping a maximum of 1/2 inch wider than the width of the wall; field verify parapet wall width prior to sheet metal fabrication.
 2. Install continuous cleat fastened to substrate 6 inches on center in vertical leg. Locate fasteners no greater than 2 inches from the bottom hem.
 3. Lock outside face of coping onto continuous cleat and secure inside face as follows:
 - a. For coping widths up to and including 12 inches, secure with screws through waterproof washers and oversized holes at 18 inches on center.
 - b. For coping widths greater than 12 inches, secure inside face with continuous cleats. Secure cleat through vertical face of cleat to blocking with fasteners at 6 inches on center. Locate fasteners no greater than 2 inches from the bottom hem.
 4. Coping Seams: Provide drive seam at adjoining coping sections. Turn cover ends back a minimum of 1 inch onto itself. Allow 1/4 inch space between coping sections for expansion and contraction and install sealant. Refer to SMACNA (ASMM) Figure 3-2, Type 4
 5. Provide one-piece coping section at corners, four-way intersections and tee intersections. Locate joints within 24 inches from inside corner.
 6. Turn coping ends up a minimum of 2 inches at elevation walls and cover termination with surface mounted counterflashing.
- I. Drip Edge:

1. Fabricate drip edge as shown in detail drawings in 10 foot lengths. Refer to SMACNA (ASMM) Figure 2-1 except for continuous cleat dimensions as shown in Contract Drawings.
2. Secure flange of drip edge to wood blocking 3 inches on center staggered with first row 1 inch from edge of flange and second row offset 1/2 inch from first row.
3. Strip flange of metal edge as specified.
4. Hand tong metal edge onto continuous cleat.
5. Drip Edge Joints:
 - a. Leave a 1/4 inch opening between metal edge sections. Install two roofing nails in the end of the flange, and one roofing nail in the end of the vertical face of each metal edge section.
 - b. Center aluminum tape over joint opening (flange and face).
 - c. Hot-air weld 4-inch wide strip of stripping membrane over joint.
 - d. Strip in flange of metal edge as described above.
 - e. Center 6-inch wide cover plate over joint locking onto notched drip edges of metal edge sections. Refer to SMACNA (ASMM) Figure 2-5A, and Figure 2-5, Detail 1.
 - f. Strip flange of cover plate with hot-air welded flashing membrane. Extend flashing membrane 2 inches beyond the cover plate flange on 3 interior sides.

J. Gutters:

1. Fabricate to profile shown in Contract Drawings. Refer to SMACNA (ASMM) Figure 1.2 Style D.
2. Gutters continuous, roll formed from coil stock on site or formed in 10 foot lengths.
 - a. Lap joints in gutters a minimum of 1 inch, riveted 1 inch on center. Install sealant tape between gutter sections and sealant at exposed inside edge and on rivets. Lap joints in the direction of water flow.
3. Provide butt type expansion joints in gutters at spacing appropriate for the type material used to fabricate gutters. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-7. Maximum length of gutter between expansion joints is 50 feet.
4. Provide downspout outlet tubes in downspout locations. Refer to SMACNA (ASMM) Figure 1-33B and Detail 1. Tab gutter outlet tubes a minimum of 1 inch, set in a bead of sealant and secure to gutter with a minimum of two rivets per tab.
5. Provide coated gutter brackets and spacers as shown in detail drawings by air dried kynar paint or powder coated to match sheet metal finish color. Provide certification delivered to site with materials indicating method of finish utilized.

- a. Evenly stagger the placement of brackets and spacers. Space brackets and spacers 30 inches on center, staggered.
 - b. Rivet spacers to both sides of the gutter only.
 - c. Secure brackets to wood blocking with two fasteners.
- 6. Fabricate gutter with leading edge 1 inch below the back edge as shown in detail drawing.
- 7. Hang gutters level.
- K. Downspouts:
 - 1. Fabricate downspouts in 10 foot lengths. Refer to SMACNA (ASMM) Figure 1-32B.
 - 2. Paint hangers with air dried kynar painted or powder coat to match sheet metal finish of downspouts.
 - 3. Secure downspout to the structure with two-piece hangers spaced no more than 8 foot apart with a minimum of two hangers per downspout with a hanger located within 12 inches from bottom. Refer to SMACNA (ASMM) Figure 1-35H.
 - 4. Fashion downspouts to run back to (at overhangs) and be parallel to the facility walls.
 - 5. Where downspouts discharge onto lower adjacent roof areas, provide splash pans at discharge as specified below. Provide discharge elbow at the base of downspout where it kicks out onto splash pan.
 - 6. Tie downspouts into below grade storm drainage system if present.
 - a. Provide square to round transition to tie into below grade system as necessary.
 - 7. If below grade storm drainage system is not present, kick-out downspouts above grade onto concrete splash blocks. Fill in soil to provide slope away from building.
- L. Base Flashing Closure:
 - 1. Install closures where base flashings abruptly end.
 - 2. Hot-air weld joints watertight.
 - 3. Install closures over membrane and under finish ply of base flashing.
 - 4. Extend closures up under counterflashings or copings.
 - 5. Install closures to seal ends of base flashings, membrane and cants as well as end joints of edge metal.

3.3 CLEANING AND PROTECTION

- A. Clean sheet metal work of asphalt, flux, scrapes and dust.

- B. Replace sheet metal components with scratches through the metal finish.

END OF SECTION