

TOWN OF EAST LYME
NIANTIC & PATTEGANSETT PUMP HOUSES
ROOF REPLACEMENTS

Niantic Pump House: 141 Main Street

Pattegansett Pump House: 32A West Main Street

NIANTIC, CONNECTICUT

~~March 25th, 2026~~
REVISED March 27th, 2026 (Invitation to Bid dates)
CONTRACT AND SPECIFICATIONS



First Selectmen: Dan Cunningham

Public Works Director: Joseph J. Bragaw, PE

Chief Operating Officer, East Lyme Water and Sewer: Ben North

Architect: Friar Architecture, Inc.

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NIANTIC & PATTEGANSETT PUMP
HOUSE ROOF REPLACEMENT

FRIAR PROJECT #: 2024-128A

141 MAIN STREET, NIANTIC CT 06357
32A WEST MAIN STREET, NIANTIC CT 06062

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NIANTIC & PATTEGANSETT PUMP
HOUSE ROOF REPLACEMENT

FRIAR PROJECT #: 2024-128A

141 MAIN STREET, NIANTIC CT 06357
32A WEST MAIN STREET, NIANTIC CT 06062

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OFFICIAL BID ADVERTISEMENT

TOWN OF EAST LYME

NIANTIC AND PATTEGANSETT PUMP HOUSE ROOF REPLACEMENTS

Sealed bids will be received at the East Lyme Town Hall @ 108 Pennsylvania Ave, Niantic, CT until 2:00pm on **Friday April 17th, 2026**, and will be publicly opened and read at that time. This bid advertisement entails replacing the roofs at the East Lyme Niantic Pump House located at 141 Main St, Niantic & the East Lyme Pattegansett Pump House located at 32A West Main Street, Niantic. The Instructions to Bidders, Contract Terms & Conditions, Technical Specifications and Plans along with the Bid Form can be obtained from the Town's website at eltownhall.com.

There will be a pre-bid meeting at the site on **Wednesday April 1st, 2026 at 10:00am** to be able to examine the site and ask any questions that the bidders may have. **The site visits will begin at the East Lyme Niantic Pump House located at 141 Main St, Niantic.** This is the only time that the contractor will be allowed on the roof before the bid opening. Any questions not asked at the pre-bid meeting need to be emailed to publicworks@eltownhall.com **by 4:00pm on Wednesday April 8th, 2026**, just in case an addendum needs to be sent to all prospective bidders.

The Town of East Lyme reserves the right to accept or reject any or all bids; to waive any informality, or; to accept any bid deemed in the best interests of the Town of East Lyme.

TOWN OF EAST LYME

AN AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYER

MBE/WBE AND SBE's are encouraged to bid

TOWN OF EAST LYME

NIANTIC AND PATTEGANSETT PUMP HOUSE ROOF REPLACEMENT

INSTRUCTIONS TO BIDDERS

1. The Town is requesting bids from contractors to replace the roof at the East Lyme Niantic Pump House located at 141 Main St, Niantic & the East Lyme Pattegansett Pump House located at 31A West Main Street, Niantic.
2. The bids are due by 2:00pm on **Friday April 17th, 2026**.
3. The bid forms can either be mailed to EL Public Works, 108 Pennsylvania Ave, Niantic, CT 06357 Attn: Public Works Director or dropped off in person to the PW Department in the lower level of the East Lyme Town Hall @ 108 Pennsylvania Ave, Niantic, CT.
4. Each bid must be signed and submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten. Each bid must be submitted in a sealed envelope bearing on the outside, the name of the bidder, his address, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the paragraph above.
5. The Town may make whatever investigations it deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Town all information and data for this purpose as the Town may request. The Town reserves the right to reject any bid if the evidence submitted by, or investigation of, the bidder fails to satisfy the Town that the bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.
6. Any bids submitted after this time will not be considered.
7. There will be a pre-bid meeting at the site on **Wednesday April 1st, 2026** at 10:00am to be able to examine the site and ask any questions that you have.
8. Any questions not asked at the pre-bid meeting need to be emailed to publicworks@eltownhall.com by 4:00pm on **Wednesday April 8th, 2026**, so that we have time to issue an addendum if needed.
9. Once the Town determines who the lowest responsible bidder is, we will look to sign the contract and give a notice to proceed as soon as possible.
10. Since this is a working municipal building, it is up to the contractor to give a specific schedule in advance of when they will be working in certain areas so that the Town can work around the contractor.
11. Schedule: bidders should be aware that it is the intent of the Town of East Lyme to achieve substantial completion **by Friday, July 24th, 2026**. Should the date of substantial completion extend beyond this date, it is incumbent on the bidder to provide an explanation to the Town of East Lyme as to why and how the schedule will be rectified to bring the project to completion as soon as possible.

CONTRACT TERMS AND CONDITIONS

The contract signed by the Town of East Lyme and the Contractor will bind both parties to the terms and conditions listed in these bid documents, unless specified otherwise.

GENERAL CONDITIONS

1. The successful bidder will submit to the Town proof that the Town of East Lyme is an additionally insured. Providing an insurance certificate is not enough proof. The Town will need a copy of Additional insured endorsement or a copy of the actual policy that lists the Town of East Lyme as additionally insured. At no time should the Contractor perform work for the Town without an active insurance policy with the Town of East Lyme named as an Additional Insured.
2. The minimum insurance requirements that the Contractor must maintain while working on Town property and/or within the Town's right of ways are as follows;
 - **General Liability:** \$1,000,000 each occurrence; \$2,000,000 aggregate
 - **Automobile Liability:** \$1,000,000 combined single limit for each accident
 - **Workers' Compensation:** Shall be in accordance with State of Connecticut requirements at the time of the contract. The policy must contain a waiver of subrogation in favor of the Town of East Lyme, executed by the insurance company
 - **Umbrella/Excess Liability:** \$5,000,000 each occurrence; \$5,000,000 aggregate and providing coverage over the Commercial General Liability, Commercial Automobile Liability and the Employer Liability section of the Workers Compensation coverage.

The Town of East Lyme, its officers (both elected and appointed), employees, and agents shall be named as additional insured on all policies. Thirty (30) days' notice of cancellation is required and must be provided to the Town of East Lyme via certified mail.

3. The Contractor will perform the work in line with acceptable industry standards for this kind of work.
4. The Contractor may either submit one invoice at the end of their work or submit monthly invoices depending on the length of the work. A schedule of values should be submitted with the bid so that it is clear what the various components of the bid are.
5. The Town of East Lyme agrees to process the invoice(s) as soon as possible but no later than 30 days from the date of the invoice.
6. Pursuant to Section 12-412 of the Connecticut General Statutes, municipalities are exempt from the payment of excise, transportation and sales taxes imposed by the Federal Government and/or

the State. Such taxes must not be included in Bid prices. The Town can provide a tax-exempt certificate to the Contractor if requested.

7. The Contractor shall be responsible for, and reimburse the Town, adjacent property owners and/or others for, any and all losses, damage or expense which the Town or those others may suffer, either directly or indirectly or through any claims of any person or party, for any trespass outside the spaces and rights of way provided by the Town to the Contractor, or any violation or disregard of the terms and conditions established for the use or occupancy of those rights or for negligence in the exercise of those rights. The Town may retain or deduct from any sum or sums due or to become due to the Contractor such amount or amounts as may be proper to insure the Town against loss or expense, by reason of the failure of the Contractor to observe the limits and conditions of the rights of way, rights of access, etc., provided by the Town.
8. The Contractor, in contracting with the Town for the services identified above with the Town of East Lyme and its respective officers, agents and servants, agrees to indemnify, defend and save harmless from and against any and all claims, damages, losses, litigation expenses, counsel fees and compensation arising out of any injuries (including death) sustained by, or alleged to have been sustained by, the servants, employees or agents of the Town and its respective officers, agents and servants, or of the Contractors or of any participant or spectator, and from injuries (including death) sustained by, or alleged to have been sustained by, the public or any persons on or near the site or on any other person or damage to property, real or personal, including property of the Town and their respective officers, agents, and servants, caused in whole or in part by the acts or omission of the Contractor or any participant or spectator or anyone directly or indirectly employed or working for the Contractor while engaged in the activity in the Town of East Lyme.
9. All materials delivered must be new, and shall include any and all manufacturer warranties, unless otherwise stated in the Bid specifications.
10. The Contractor shall comply with all requirements of the Occupational Safety and Health Act (OSHA) and will provide the Town with a safety plan in advance of the work as to how they will be in compliance with this requirement.
11. This work should be considered a prevailing wage project. Because of this, the contractor should factor into their bid labor costs that are a minimum of the prevailing wages as attached with these bid documents.
12. It is the responsibility of the contractor to obtain all building permits through the Town's Building Department; however, there will be no cost to the contractor for the building permit fee.

TOWN OF EAST LYME – BID FORM

NIANTIC AND PATTAGANSETT PUMP HOUSE ROOF REPLACEMENTS

FROM: _____ (Bidder)

TO: Town of East Lyme, Attn: Public Works Director, PO Box 519, 108 Pennsylvania Ave,
Niantic, CT 06357

The undersigned proposes to furnish through his bid price all charges, including all supervision, technical personnel, labor, materials, equipment, tools, appurtenances, services, and anything else necessary to perform and complete this Contract pursuant to the Contract specifications for the lump sum price as listed below:

ALLOWANCES

All bidders must provide line-item values for items identified below and a total bid value. Reference allowance section 01 2100.

<u>Item #</u>	<u>Allowance Item</u>	<u>Units</u>	<u>Quantity</u>	<u>Value</u>
01	Roof Deck Repair			\$30,000.00

Lump Sum (Written in numbers) _____

(Written in words) _____

UNIT PRICES

The undersigned proposes and agrees that the following unit prices shall be the basis for computing extra costs to the contract for additional or deleted work. Unit prices shall include costs for all materials, equipment, tools, small tools, labor, permits, fees, overhead, profit, supervision, home office support, project management, estimating, safety, travel, shop drawings and as built drawings for all parties involved in the work. Unit prices shall apply to both the trade contractors and their subcontractors. All work is to be accomplished in accordance with applicable Sections of the Specifications. The Owner reserves the right to selectively reject any of the unit prices without any effect on the remainder of the bid.

<u>Item #</u>	<u>Unit Price</u>	<u>Value</u>	<u>/Unit</u>
01	Repair of existing precast concrete deck due per specification section 030100.		/sq. ft.

	Unit of Measurement: Per square foot:		
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ALTERNATES

There are no proposed alternates.

ADDENDA RECEIPT

Receipt of the following Addenda is hereby acknowledged:

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

LIST OF REFERENCES

	<u>Name</u>	<u>Affiliation/Company</u>	<u>Cell Phone</u>	<u>Email address</u>
1)	_____	_____	_____	_____
2)	_____	_____	_____	_____
3)	_____	_____	_____	_____

The undersigned agrees to complete the above referenced work in the time allotted based on the bid documents for the above referenced bid prices.

Signature _____ Main Contact # _____

Print Name _____ Address _____

Email Address _____

End of Bid Form

CONTRACT FOR THE EAST LYME NIAN TIC & PATTEGANSETT PUMP HOUSE ROOF REPLACEMENT BETWEEN “the contractor” AND THE TOWN OF EAST LYME

This agreement, made this XX day of MONTH, 2024 by and between the Town of East Lyme, Connecticut, herein called the “Owner”, acting herein through its First Selectman, Mr. Daniel Cunningham, and the “contractor” located in TOWN, in XXX County, and the State of XXX, hereinafter called the Contractor.

WITNESSETH: That for and in consideration the payments and agreements hereinafter mentioned, to be made and performed by the OWNER and the CONTRACTOR hereby agrees with the OWNER to complete the **EAST LYME NIAN TIC AND PATTEGANSETT PUMP HOUSE ROOF REPLACEMENT** in accordance with the following attached Bid Documents and Bid Form that are hereby made part of this contract.

1. Project Specifications (XX pages)
2. Bid Form
3. Other

By signing this document, the Contractor agrees to the following; “That no open flame work will be allowed ON THE PREMISES for this project” per the requirement of the Town’s insurance company CIRMA.

This agreement shall extend from the date it is signed until after all the work is performed.

The parties further agree to be contractually bound to submit themselves to the personal jurisdiction of the courts of Connecticut. The venue for any court proceeding shall be in the Judicial District for New London at New London, Connecticut.

The failure of any party to insist in any one or more instances upon performance of any of the terms or conditions of this Agreement shall not be construed as a waiver or a relinquishment of any right granted hereunder or of the future performance of any such term, covenant, or condition; but the obligations of the parties with respect thereto shall continue in full force and effect.

This Agreement cannot be changed, modified or amended in any respect except by a written instrument signed by the parties hereto. Parties acknowledge and agree that all understandings and agreements heretofore made between the parties are merged in this agreement.

This instrument contains the entire agreement of the parties. It may not be changed orally, but only by an agreement in writing signed by the party against whom enforcement of any waiver, change, modification, extension or discharge is sought.

This agreement may not be assigned by any party hereto without the written consent of the other party. The OWNER agrees to pay the Vendor in current funds for the performance of the contract.

IN WITNESS WHEREOF, the parties to these presents have executed this contract in the year and day first above mentioned.

TOWN OF EAST LYME

CONTRACTOR

(OWNER)

(CONTRACTOR)

BY: _____
Daniel Cunningham

BY: _____
Authorized Representative

TITLE: First Selectman

TITLE: _____

DATE: _____

DATE: _____

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OFFICIAL BID ADVERTISEMENT

TOWN OF EAST LYME

NIANTIC AND PATTEGANSETT PUMP HOUSE ROOF REPLACEMENTS

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The Town of East Lyme reserves the right to accept or reject any or all bids; to waive any informality, or; to accept any bid deemed in the best interests of the Town of East Lyme.

SUPERCEDED

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- **Workers' Compensation:** Shall be in accordance with State of Connecticut requirements at the time of the contract. The policy must contain a waiver of subrogation in favor of the Town of East Lyme executed by the insurance company
- **Umbrella/Excess Liability:** \$5,000,000 each occurrence; \$5,000,000 aggregate and providing coverage over the Commercial General Liability, Commercial Automobile Liability and the Employer Liability section of the Workers Compensation coverage.

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3. The Contractor will perform the work in line with acceptable industry standards for this kind of work.
4. The Contractor may either submit one invoice at the end of their work or submit monthly invoices depending on the length of the work. A schedule of values should be submitted with the bid so that it is clear what the various components of the bid are.
5. The Town of East Lyme agrees to process the invoice(s) as soon as possible but no later than 30 days from the date of the invoice.
6. Pursuant to Section 12-412 of the Connecticut General Statutes, municipalities are exempt from the payment of excise, transportation and sales taxes imposed by the Federal Government and/or the State. Such taxes must not be included in Bid prices. The Town can provide a tax-exempt certificate to the Contractor if requested.

7. The Contractor shall be responsible for, and reimburse the Town, adjacent property owners and/or others for, any and all losses, damage or expense which the Town or those others may suffer, either directly or indirectly or through any claims of any person or party, for any trespass outside the spaces and rights of way provided by the Town to the Contractor, or any violation or disregard of the terms and conditions established for the use or occupancy of those rights or for negligence in the exercise of those rights. The Town may retain or deduct from any sum or sums due or to become due to the Contractor such amount or amounts as may be proper to insure the Town against loss or expense, by reason of the failure of the Contractor to observe the limits and conditions of the rights of way, rights of access, etc., provided by the Town.
8. The Contractor, in contracting with the Town for the services identified above with the Town of East Lyme and its respective officers, agents and servants, agrees to indemnify, defend and save harmless from and against any and all claims, damages, losses, litigation expenses, counsel fees and compensation arising out of any injuries (including death) sustained by, or alleged to have been sustained by, the servants, employees or agents of the Town and its respective officers, agents and servants, or of the Contractors or of any participant or spectator, and from injuries (including death) sustained by, or alleged to have been sustained by, the public or any persons on or near the site or on any other person or damage to property, real or personal, including property of the Town and their respective officers, agents, and servants, caused in whole or in part by the acts or omission of the Contractor or any participant or spectator or anyone directly or indirectly employed or working for the Contractor while engaged in the activity in the Town of East Lyme.
9. All materials delivered must be new, and shall include any and all manufacturer warranties, unless otherwise stated in the Bid specifications.
10. The Contractor shall comply with all requirements of the Occupational Safety and Health Act (OSHA) and will provide the Town with a safety plan in advance of the work as to how they will be in compliance with this requirement.
11. This work should be considered a prevailing wage project. Because of this, the contractor should factor into their bid labor costs that are a minimum of the prevailing wages as attached with these bid documents.
12. It is the responsibility of the contractor to obtain all building permits through the Town's Building Department; however, there will be no cost to the contractor for the building permit fee.

SUPERCEDED

TOWN OF EAST LYME – BID FORM

NIANTIC AND PATTEGANSETT PUMP HOUSE ROOF REPLACEMENTS

FROM: _____ (Bidder)

TO: Town of East Lyme, Attn: Public Works Director, PO Box 519, 108 Pennsylvania Ave,
Niantic, CT 06357

The undersigned proposes to furnish through his bid price all charges, including all supervision, technical personnel, labor, materials, equipment, tools, appurtenances, services, and anything else necessary to perform and complete this Contract pursuant to the Contract specifications for the lump sum price as listed below:

ALLOWANCES

All bidders must provide line-item values for items identified below and a total bid value. Reference allowance section 01 2100.

<u>Item #</u>	<u>Allowance Item</u>	<u>Units</u>	<u>Quantity</u>	<u>Value</u>
01	Roof Deck Repair			\$30,000.00

SUPERCEDED

Lump Sum (Written in numbers) _____

(Written in words) _____

UNIT PRICES

The undersigned proposes and agrees that the following unit prices shall be the basis for computing extra costs to the contract for additional or deleted work. Unit prices shall include costs for all materials, equipment, tools, small tools, labor, permits, fees, overhead, profit, supervision, home office support, project management, estimating, safety, travel, shop drawings and as built drawings for all parties involved in the work. Unit prices shall apply to both the trade contractors and their subcontractors. All work is to be accomplished in accordance with applicable Sections of the Specifications. The Owner reserves the right to selectively reject any of the unit prices without any effect on the remainder of the bid.

<u>Item #</u>	<u>Unit Price</u>	<u>Value</u>	<u>/Unit</u>
01	Repair of existing precast concrete deck per specification section 030100 Unit of Measurement: Per square foot:		/sq. ft.

ALTERNATES

There are no proposed alternates.

ADDENDA RECEIPT

Receipt of the following Addenda is hereby acknowledged:

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

SUPERCEDED

LIST OF REFERENCES

	<u>Name</u>	<u>Affiliation/Company</u>	<u>Cell Phone</u>	<u>Email address</u>
1)	_____	_____	_____	_____
2)	_____	_____	_____	_____
3)	_____	_____	_____	_____

The undersigned agrees to complete the above referenced work in the time allotted based on the bid documents for the above referenced bid prices.

Signature _____ Main Contact # _____

Print Name _____ Address _____

Email Address _____

End of Bid Form

SUPERCEDED

CONTRACT FOR THE EAST LYME NIAN TIC & PATTEGANSETT PUMP HOUSE ROOF REPLACEMENT BETWEEN "the contractor" AND THE TOWN OF EAST LYME

This agreement, made this **XX day of MONTH, 2024** by and between the Town of East Lyme, Connecticut, herein called the "Owner", acting herein through its First Selectman, Mr. Daniel Cunningham, and the "contractor" located in TOWN, in XXX County, and the State of XXX, hereinafter called the Contractor.

WITNESSETH: That for and in consideration the payments and agreements hereinafter mentioned, to be made and performed by the OWNER and the CONTRACTOR hereby agrees with the OWNER to complete the **EAST LYME NIAN TIC AND PATTEGANSETT PUMP HOUSE ROOF REPLACEMENT** in accordance with the following attached Bid Documents and Bid Form that are hereby made part of this contract.

- 1. Project Specifications (XX pages)
- 2. Bid Form
- 3. Other

By signing this document, the Contractor agrees to the following; "That no open flame work will be allowed ON THE PREMISES for this project" per the requirement of the Town's insurance company CIRMA.

This agreement shall extend from the date it is signed until after all the work is performed.

The parties further agree to be contractually bound to submit themselves to the personal jurisdiction of the courts of Connecticut. The venue for any court proceeding shall be in the Judicial District for New London at New London, Connecticut.

SUPERCEDED

The failure of any party to insist in any one or more instances upon performance of any of the terms or conditions of this Agreement shall not be construed as a waiver or a relinquishment of any right granted hereunder or of the future performance of any such term, covenant, or condition; but the obligations of the parties with respect thereto shall continue in full force and effect.

This Agreement cannot be changed, modified or amended in any respect except by a written instrument signed by the parties hereto. Parties acknowledge and agree that all understandings and agreements heretofore made between the parties are merged in this agreement.

This instrument contains the entire agreement of the parties. It may not be changed orally, but only by an agreement in writing signed by the party against whom enforcement of any waiver, change, modification, extension or discharge is sought.

This agreement may not be assigned by any party hereto without the written consent of the other party. The OWNER agrees to pay the Vendor in current funds for the performance of the contract.

IN WITNESS WHEREOF, the parties to these presents have executed this contract in the year and day first above mentioned.

TOWN OF EAST LYME

(OWNER)

BY: _____

Daniel Cunningham

TITLE: First Selectman

DATE: _____

CONTRACTOR

(CONTRACTOR)

BY: _____

Authorized Representative

TITLE: _____

DATE: _____

SUPERCEDED

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**SECTION 003100
AVAILABLE PROJECT INFORMATION**

PART 1 GENERAL

1.01 EXISTING CONDITIONS

- A. Certain information relating to existing surface and subsurface conditions and structures is available to bidders but will not be part of Contract Documents, as follows:
- B. Existing Building Documents
 - 1. Existing building documents will be made available only if determined appropriate by the Owner and will be provided via electronic download only if requested and approved by the Owner.
 - 2. Existing building drawings for the original buildings construction are available for Bidders viewing at the link provided in the in the Invitation to Bid. It shall not be inferred that the drawings made available construe all available existing conditions information. Existing building drawings are not "as-built" documents and therefore they are interpretive (not factual) and shall not be considered as part of the Contract Documents. The Architect, Construction Manager, nor the Owner will be responsible for any interpretations or conclusions drawn therefrom by the Bidder with regard to the existing building drawings made available.
 - 3. Existing Building Document Sets include:
 - a. East Lyme Niantic Wastewater Pumping Station Construction Drawings. Prepared by moser pilon nelson architects. (Dated Dec. 13, 1987)
 - b. East Lyme Pattegansett Wastewater Pumping Station Construction Drawings. Prepared by moser pilon nelson architects. (Dated Nov. 14, 1988)
- C. Hazardous Material Survey: Entitled Limited and Directed Interior Asbestos Bulk Sampling - Revised Report , dated February 13, 2026. Provided by Mystic Air Quality Consultants, Inc.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

NIANTIC & PATTEGANSETT PUMP
HOUSE ROOF REPLACEMENT

FRIAR PROJECT #: 2024-128A

141 MAIN STREET, NIANTIC CT 06357
32A WEST MAIN STREET, NIANTIC CT 06062

Available Project Information
003100 - 1

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Mystic Air Quality Consultants, Inc.

1204 North Road (Rt. 117) Groton, Connecticut 06340

February 13, 2026

Town of East Lyme
Water and Sewer Department
PO Box 519
108 Pennsylvania Avenue
Niantic, Connecticut 06357
Attn: Benjamin North
Chief Operating Officer

Re: Limited and Directed Interior Asbestos Bulk Sampling – Revised Report

**Location Addresses: (1) Pattagansett P.S., 32A West Main Street, Niantic
(2) Niantic P.S., 141 Main Street, Niantic**

Date of Sampling: December 18, 2025

Encl: (1) Bulk Asbestos Sample Analysis Summary

Dear Mr. North:

Mystic Air Quality Consultants, Inc., on December 18, 2025, collected bulk samples in your office of suspect roofing materials. The samples were taken by an employee of the water and sewer department.

This report has been revised now including laboratory results for samples that were also taken from the roof of the Niantic Pump Station. This included sample numbers 2-3 and were read by the laboratory on 1/21/2026. These samples also indicated that the suspect roofing at Niantic Pump Station was also asbestos containing.

Enclosure (1) contains the bulk asbestos sample analysis summary and the chain of custody, which gives the sample description, and location of the samples collected. The samples were analyzed for asbestos by Polarized Light Microscopy. An accredited American Industrial Hygiene Association (AIHA) laboratory performed the analysis.

Communications (24 hours):

Office: (860) 449-8903

website: www.mysticair.com

FAX: (860) 449-8860

e-mail: maqc2@aol.com

Toll Free: 1 (800) 247-7746

The following samples contained 1% or greater total asbestos. These materials must be handled and removed by a licensed asbestos contractor if they are to be disturbed.

<i>Sample #s</i>	<i>Material</i>	<i>Location</i>
1-3	Gray Cementitious Roofing	Roof Shingle from Pattagansett and Niantic Pump Stations

TRACE ASBESTOS (<1% ASBESTOS)

<i>Sample #s</i>	<i>Material</i>	<i>Location</i>
4-5	Black Fibrous Tar Like	Roof – Underlayment
	<ul style="list-style-type: none">• (Bundles of Chrysotile present on surface of felt but does not appear to be present within felt.)• (Potential contamination from associated transite-like material)	

According to the State of Connecticut DPH it was determined by the laboratory that the materials listed above contained less than one percent (<1%) chrysotile asbestos. Although these samples do contain asbestos, the DPH regulations are for asbestos containing materials (ACM) containing greater than one percent (>1%). The DPH does not regulate materials that contain less than one percent asbestos (<1%).

OSHA Work Practices Asbestos (<1%)

Several building materials identified in the bulk sampling contained some asbestos but did not contain >1% asbestos, then the removal of these materials is considered unclassified asbestos work according to OSHA. This means that only certain work practices and engineering control obligations, and prohibitions pertain to the removal. Some of the general ones do not pertain because they apply to installed building materials containing >1% asbestos (ACM). How many of the eligible general work practice and engineering control obligations, and prohibitions are applicable depends on whether the employee levels of exposure to airborne asbestos exceed either of the asbestos PELs.

In further explanation:

(1) If the employees' asbestos exposures exceed neither asbestos PEL, then only two of OSHA standard's general work practice control procedures and three of the standard's general prohibitions pertain to the removal operation; none of the standard's engineering control methods pertain to the removal operation. Those general work practice procedures and general prohibitions the employer must observe under such conditions are those presented at:

29 CFR 1926.1101(g)(1)(ii), which requires: **wet methods, or wetting agents, to control employee exposures during asbestos handling, ... removal, cutting, ... and cleanup, except where employers demonstrate that the use of wet methods is infeasible due to for example, the creation of electrical hazards ... [and] equipment malfunction...**;

29 CFR 1926.1101(g)(1)(iii), which requires: **prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers..**

29 CFR 1926.1101(g)(3)(i), which prohibits: **high-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air**

29 CFR 1926.1101(g)(3)(ii), which prohibits: **compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air; and**

29 CFR 1926.1101(g)(3)(iv), which prohibits: **employee rotation as a means of reducing employee exposure to asbestos.**

(2) If the employees' asbestos exposures exceed either asbestos PEL, then all the standard's relevant general work practice control procedures, engineering control methods, and prohibitions that are not directed specifically at ACM pertain to the removal operation.

Until the contractor produces a negative exposure assessment of the removal operation, the contractor must provide employees with protective clothing as described in 29 CFR 1926.1101(i). At a minimum half mask air purifying respirators equipped with high efficiency filters are required. The contractor must also provide those employees training that meets the mandates of 29 CFR 1926.1101 (k)(9)(viii).

The contractor must provide a negative exposure assessment. The use of objective data, previous air monitoring results, or current air monitoring results can be used. If the contractor cannot produce a negative exposure assessment then the contractor must conduct asbestos exposure monitoring. Until the contractor is able to produce a negative exposure assessment for his/her employees the contractor must comply with the elements of the standard that are applicable with either asbestos PEL is exceeded.

Microscope Limitation Factors

Certain non-friable materials, especially resilient floor coverings and vinyl floor tiles, and their associated mastics when tested by Polarized Light Microscope, often times are found to have less than 1% asbestos because the asbestos fibers are milled to a size smaller than the detection limits of that scope. Samples are recommended to be tested by Transmission Electron Microscopy to assure more accurate results.

The same would be the case with most plasters or wallboards tested and analyzed.

Laboratory Policy

All sample results are strictly confidential and, unless subpoenaed by a court, will not be released to anyone other than the sample submitter without the permission of the client. Mystic Air Quality Consultants, Inc. reserves the right to refuse samples which are not collected on the appropriate sample medium, and cannot be responsible for loss of samples. Mystic Air Quality Consultants, Inc. will employ qualified personnel to analyze submitted samples, and, where possible, will use established state-of-the-art analysis techniques. Mystic Air Quality Consultants, Inc. makes no other warranties expressed or implied.

Limitations of the survey

This survey and report only deal with accessible areas of the building. Additionally, there may be other non-accessible materials above ceilings, behind walls, and below floors that become evident during demolition activities. Should the requisite EPA/OSHA competent person working for the contractor discover such materials they will need to be tested for asbestos content so determinations of their abatement and disposal (if required) can then be made.

Please do not hesitate to contact us with any questions or comments relating to the sample results. We thank you for selecting Mystic Air Quality to perform your bulk sampling collection and analysis.

Sincerely,



David Wiseman, MS, CIAQP, CIAQC, CIEC
Compliance and Inspection Service

Enclosure (1)



7469 Whitepine Rd
 North Chesterfield, VA 23237
 Telephone: 800.347.4010

Asbestos Bulk Analysis Report

Report Number: 25-12-04090

Client: Mystic Air Quality Consultants
 1204 North Road Rt.117
 Groton, CT 06340

Received Date: 12/22/2025
Analyzed Date: 12/22/2025, 01/21/2026
Reported Date: 01/21/2026

Project/Test Address: East Lyme Town; 108 Pennsylvania; Niantic, CT

Client Number:
 07-2564

Fax Number:
 860-449-8860

Laboratory Results

Lab Sample Number	Client Sample Number	Layer Type	Lab Gross Description	Asbestos	Other Materials
25-12-04090-001	1		Gray Cementitious; Homogeneous	15% Chrysotile	85% Non-Fibrous
Total Asbestos: 15%					
25-12-04090-002	2		Gray Cementitious; Homogeneous	15% Chrysotile	85% Non-Fibrous
Total Asbestos: 15%					
25-12-04090-003	3		Gray Cementitious; Homogeneous	15% Chrysotile	85% Non-Fibrous
Total Asbestos: 15%					
25-12-04090-004	4		Black Fibrous Tar-Like; Homogeneous	Trace <1% Chrysotile	18% Cellulose 82% Non-Fibrous
Total Asbestos: Trace <1%					
Bundles of Chrysotile present on surface of Felt, but does not appear to be present within Felt. Potential contamination from associated Transite-Like material.					
25-12-04090-005	5		Black Fibrous Tar-Like; Homogeneous	Trace <1% Chrysotile	18% Cellulose 82% Non-Fibrous
Total Asbestos: Trace <1%					
Bundles of Chrysotile present on surface of Felt, but does not appear to be present within Felt. Potential contamination from associated Transite-Like material.					

Rev 1.0 (Revised On: 01/21/2026): Analyzed pos. stop samples 2-3 per clients request.

Environmental Hazards Services, L.L.C

Client Number: 07-2564

Report Number: 25-12-04090

Project/Test Address: East Lyme Town; 108 Pennsylvania;
Niantic, CT

Lab Sample Number	Client Sample Number	Layer Type	Lab Gross Description	Asbestos	Other Materials
25-12-04090-006	6		Black Fibrous Tar-Like; Homogeneous	NAD	18% Cellulose 82% Non-Fibrous

QC Sample: 102-M12022-4, 110-M22020-2

QC Blank: SRM 1866 Fiberglass

Reporting Limit: 1% Asbestos

Method: EPA Method 600/R-93/116, EPA Method 600/M4-82-020

Analyst: Brendan Landes

Reviewed By Authorized Signatory:



Tasha Eaddy
QA/QC Clerk

These results are based on a comparative visual estimate. The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Each distinct component in an inhomogeneous sample was analyzed separately and reported as a composite. Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C. All information concerning sampling location, date, and time can be found on Chain-of-Custody. Environmental Hazards Services, L.L.C. does not perform any sample collection. . NVLAP #101882-0 VELAP 460172

Environmental Hazards Services, L.L.C. recommends reanalysis by point count (for more accurate quantification) or Transmission Electron Microscopy (TEM), (for enhanced detection capabilities) for materials regulated by EPA NESHAP (National Emission Standards for Hazardous Air Pollutants) and found to contain less than ten percent (<10%) asbestos by polarized light microscopy (PLM). Both services are available for an additional fee.

400 Point Count Analysis, where noted, performed per EPA Method 600/R-93/116 with a Reporting Limit of 0.25%.

LEGEND: NAD = no asbestos detected



Environmental Hazards Services, LLC
 www.leadslab.com 7469 Whitepine Rd
 (800)347-4010 Richmond, VA
 (804)275-4907 (fax) 23237

Asbestos Chain-of-Custody

25-12-04090



Due Date:
12/29/2025
(Monday)
AE

69PM

City/state/zip: Groton, Ct. 06340

Acci. Number: 07-2564

Company Name: Mystic Air Quality Consultants Address: 1204 North Rd., Groton, CT 06340

Phone: 860 449 8903 Fax: 860 449 8903

Email: maqc2@aol.com

Project Name and Address: East Lane Town 108

City/State (required) Mystic Air Client: Groton - Sewer

Collected by: [Signature] Signature (will call ahead)

Turn around time: Standard One day (will call ahead)

No.	Client's Sample No.	Date Collected	PLM Analysis	Other Analysis Specify	Material Description	Sample Location	Comments
1	1-3	12/18/25	✓	5700	Roofing	Roof	
2	4-6	"	"	"	Indoors	"	
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Released by: [Signature] Signature: [Signature]
 Received by: [Signature] Signature: [Signature]
 date: 12/18/25 date: 12/19/25

12:19PM

GR Engineering, LLC

Project : Pump Houses
 Subject : Roof Wind Loading
 Location : East Lyme, CT

File :
 Date :
 Eng : Niantic
 2/7/2026

Design Wind Pressure, p, Equation 30.3-1 (ASCE 7-22).

System Type	Structure Type	Equation
Components and Cladding	Low-Rise Buildings	$p = qh[G_{Cp} - (G_{Cpi})]$
(Envelope Procedure)	with $h \leq 60$ ft Gabled & Hipped Roofs	qh : velocity pressure at h G_{Cp} : Figures 30.3-1 & 30.3-2 G_{Cpi} : Table 26.13-1

Velocity Pressure Calculations:

Velocity pressure qh is calculated in accordance with section 26.10.

qh = Velocity pressure @ mean roof height (h)

$qh = \text{Constant} \cdot K_h \cdot K_{zt} \cdot K_d \cdot V^2$

(Eq 26.10-1)

Where : Constant = Numerical Constant (Section C26.10)
 = $\frac{1}{2} \cdot [(\text{Air density lb/cu ft}) / (32.2 \text{ ft/s}^2)] \cdot [(\text{mi/h}) (5280 \text{ ft/mi}) \cdot (1 \text{ hr}/3600 \text{ s})]^2$
 = 0.00255

Mean Sea Level = 59.00 ft ft (Table C26.9-1)

Air Density @MSL = 0.0763 lb/cu (Table 1.5-1)

Occupancy Category = III (Section 26.7.3)

Exposure Category = 9.50 (Table 26.11-1)

Z_g = 900.00 ft (Table 26.11-1)

(Figure 26.5-1&2 A-D)

Basic Wind Speed = 135.00 mph

Mean Roof Height = 18.00 ft

Where : K_h = Velocity pressure coefficient @ height h (Table 26.10-1)

= $2.01 \cdot (Z/Z_g)^{(2/\alpha)}$ for $15 \text{ ft} \leq Z \leq Z_g$

= $2.01 \cdot (15/Z_g)^{(2/\alpha)}$ for $Z < 15 \text{ ft}$

= 0.88

K_{zt} = Topographic factor (Figure 26.8-1)

= $(1 + K_1 \cdot K_2 \cdot K_3)^2$

Topography = None

$K_{zt@h}$ = 1.00

K_d = Wind directionality factor (Table 26.6-1)

= 0.85

qh = 34.85 (psf)



GR Engineering, LLC

Project : Pump Houses
 Subject : Roof Wind Loading
 Location : East Lyme, CT

File : Niantic
 Date : 2/7/2026
 Eng : GR

Internal Pressure Coefficient, GCpi, Table 26.11-1

Enclosure Classification	GCpi+ 0.18	GCpi- -0.18	Aog (sq. ft.) 60	Vi (cu. ft.) 5,000,000	Ri 1.00	GCpi+ 0.18	GCpi- -0.18
Enclosed Buildings							

External Pressure Coefficients, GCp, Figure 30.3-2 (roof) and Figure 30.3-1 (walls)

Zone	Area 1,000.00	Angle 41.00	GCp+ 0.50	GCp- -0.80	GCp -1.60
1	70.56	41.00	0.56	-0.95	-1.75
2e	70.56	41.00	0.56	-1.35	-2.15
2n	70.56	41.00	0.56	-0.95	-1.75
2r	17.64	41.00	0.80	-2.24	-3.04
3e	17.64	41.00	0.80	-1.81	-2.61
3r	1.00	All	1.00	-1.10	-
4	1.00	All	1.00	-1.40	-
5					

Design Wind Pressure, p, Equation 30.3-1.

Zone	qh (psf) 34.85	GCp+	GCp-	GCpi+	GCpi-	p1+ (psf) 13.26	p2+ (psf) 25.81	p1- (psf) -39.43	p2- (psf) -40.69
1	34.85	0.50	-0.80	0.18	-0.18	13.26	25.81	-34.15 -39.43	-21.60 -26.88
2e	34.85	0.56	-1.35	0.18	-0.18	13.26	25.81	-39.43	-40.69
2n	34.85	0.56	-0.95	0.18	-0.18	13.26	25.81	-53.24 -39.43	-26.88
2r	34.85	0.80	-2.24	0.18	-0.18	21.65	34.20	-84.47	-71.92
3e	34.85	0.80	-1.81	0.18	-0.18	21.65	34.20	-69.36	56.82
3r	34.85	0.80	-1.81	0.18	-0.18	21.65	34.20	-69.36	56.82
4	34.85	1.00	-1.10	0.18	-0.18	28.57	41.12	-44.60	-32.06
5	34.85	1.00	-1.40	0.18	-0.18	28.57	41.12	-55.06	-42.51

Positive and negative values of external and internal pressures are combined to determine four possible pressures:

- p1+ uses GCp+ and GCpi+
- p1- uses GCp- and GCpi+
- p2+ uses GCp+ and GCpi-
- p2- uses GCp- and GCpi-

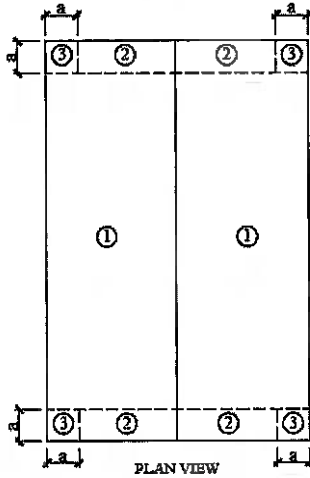
Roof Overhang Pressure, p, Equation 30.9-1.

Wind pressures acting on the roof overhang (soffit pressures not included).

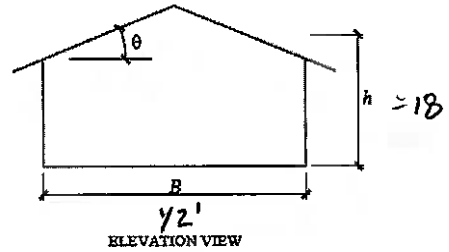
Zone	qh (psf) 34.85	GCp- (R.O.) -1.60	GCpi+	GCpi-	p1- (psf) -62.02	p2- (psf) -49.48
1	34.85	-1.60	0.18	-0.18	-62.02	-49.48
2e	34.85	-1.75	0.18	-0.18	-67.30	-54.76
2n	34.85	-2.15	0.18	-0.18	-81.11	-68.57
2r	34.85	-1.75	0.18	-0.18	-67.30	-54.76
3e	34.85	-3.04	0.18	-0.18	-112.34	-99.80
3r	34.85	-2.61	0.18	-0.18	-97.24	-84.69

NIAN' - ' ' ' E

Diagrams



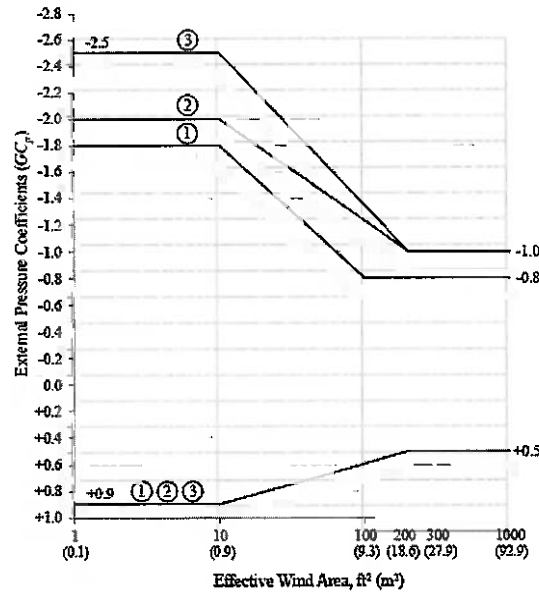
TIC 42 x 59
 $a = 0.4H = 0.4(18') = 7.2\text{ FT}$
 OR
 $a = 0.1(42') = 4.2\text{ FT}$ **OUTROUS**



Notation

a = 10% of least horizontal dimension or $0.4h$, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m). If an overhang exists, the edge distance shall be measured from the outside edge of the overhang. The horizontal dimensions used to compute the edge distance shall not include any overhang dimensions.
 B = Horizontal dimension of building measured normal to wind direction, ft (m).
 h = Mean roof height, in ft (m), except that eave height shall be used for $\theta \leq 10^\circ$.
 θ = Angle of plane of roof from horizontal, degrees.

External Pressure Coefficients (GC_p)



Notes

1. Vertical scale denotes (GC_p) to be used with q_h .
2. Horizontal scale denotes effective wind area A , ft² (m²).
3. Plus and minus signs signify pressures acting toward and away from the surfaces, respectively.
4. Each component shall be designed for maximum positive and negative pressures.
5. Values of (GC_p) for roof overhangs to be determined in accordance with Section 30.7 Roof Overhangs.

Figure 30.3-2D. Components and cladding [$h \leq 60$ ft ($h \leq 18.3$ m)]: external pressure coefficients, (GC_p), for enclosed, partially enclosed, and partially open buildings—gable roofs, $27^\circ < \theta \leq 45^\circ$.

GR Engineering, LLC

Project : Pump Houses
 Subject : Roof Wind Loading
 Location : East Lyme, CT

File : Pattagansett
 Date : 2/7/2026
 Eng : GR

Design Wind Pressure, p, Equation 30.3-1 (ASCE 7-22).

System Type	Structure Type	Equation
Components and Cladding (Envelope Procedure)	Low-Rise Buildings with $h \leq 60$ ft Gabled & Hipped Roofs	$p = qh[(GCp) - (GCpi)]$ qh : velocity pressure at h GCp : Figures 30.3-1 & 30.3-2 $GCpi$: Table 26.13-1

Velocity Pressure Calculations:

Velocity pressure qh is calculated in accordance with section 26.10.

qh = Velocity pressure @ mean roof height (h)

$qh = \text{Constant} \cdot K_h \cdot K_{zt} \cdot K_d \cdot V^2$

(Eq 26.10-1)

Where : Constant = Numerical Constant (Section C26.10)

= $\frac{1}{2} \cdot [(\text{Air density lb/cu ft}) / (32.2 \text{ ft/s}^2)] \cdot [(\text{mi/h}) (5280 \text{ ft/mi}) \cdot (1 \text{ hr/3600 s})]^2$

= 0.00255

Mean Sea Level = 43.00 ft

Air Density @MSL = 0.0764 lb/cu ft (Table C26.9-1)

Occupancy Category = III (Table 1.5-1)

Exposure Category = C (Section 26.7.3)

α = 9.50 (Table 26.11-1)

Z_g = 900.00 ft (Table 26.11-1)

Basic Wind Speed = 135.00 mph (Figure 26.5-1&2 A-D)

Mean Roof Height = 18.00 ft

Where : K_h = Velocity pressure coefficient @ height h
 = $2.01 \cdot (Z/Z_g)^{2/\alpha}$ for $15 \text{ ft} \leq Z \leq Z_g$ (Table 26.10-1)

= $2.01 \cdot (15/Z_g)^{2/\alpha}$ for $Z < 15$ ft

= 0.88

K_{zt} = Topographic factor (Figure 26.8-1)

= $(1 + K_1 \cdot K_2 \cdot K_3)^2$

Topography = None

$K_{zt@h}$ = 1.00

K_d = Wind directionality factor (Table 26.6-1)

= 0.85

qh = 34.85 (psf)



GR Engineering, LLC

Project : Pump Houses
 Subject : Roof Wind Loading
 Location : East Lyme, CT

File : Pattagansett
 Date : 2/7/2026
 Eng : GR

Internal Pressure Coefficient, GCpi, Table 26.11-1

Enclosure Classification	GCpi+ 0.18	GCpi- -0.18	Aog (sq. ft.) 60	Vi (cu. ft.) 5,000,000	Ri 1.00	GCpi+ 0.18	GCpi- -0.18
Enclosed Buildings						0.18	

External Pressure Coefficients, GCp, Figure 30.3-2 (roof) and Figure 30.3-1 (walls)

Zone	Area (sq. ft.)	Angle	GCp+ 0.50	GCp- -0.80	GCp -1.60
1	60.84	41.00	0.59	-1.02	-1.82
2e	60.84	41.00	0.59	-1.40	-2.20
2n	60.84	41.00	0.59	-1.02	-1.82
2r	15.21	41.00	0.83	-2.31	-3.11
3e	15.21	41.00	0.83	-1.86	-2.66
3r	1.00	All	1.00	-1.10	-
4	1.00	All	1.00	-1.40	-
5					

D

Design Wind Pressure, p, Equation 30.3-1.

Zone	qh (psf)	GCp+	GCp-	GCpi+	GCpi-	p1+ (psf)	p2+ (psf)	p1- (psf)	p2- (psf)
1	34.85	0.50	-0.80	0.18	-0.18	11.15	23.09	-34.15	-21.60
2e	34.85	0.59	-1.40	0.18	-0.18	14.16	26.70	-41.67	-42.42
2n	34.85	0.59	-1.02	0.18	-0.18	14.16	26.70	-54.96	-29.12
2r	34.85	0.83	-2.31	0.18	-0.18	22.55	35.09	-86.74	-74.19
3e	34.85	0.83	-1.86	0.18	-0.18	22.55	35.09	-71.09	-58.54
3r	34.85	1.00	-1.10	0.18	-0.18	28.57	41.12	-44.60	-32.06
4	34.85	1.00	-1.40	0.18	-0.18	28.57	41.12	-55.06	-42.51
5									

Positive and negative values of external and internal pressures are combined to determine four possible pressures:

p1+ uses GCp+ and GCpi+ p1- uses GCp- and GCpi+
 p2+ uses GCp+ and GCpi- p2- uses GCp- and GCpi-

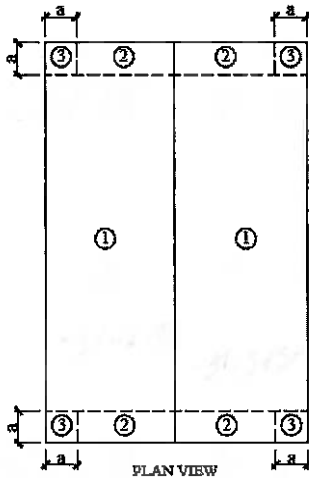
Roof Overhang Pressure, p, Equation 30.9-1.

Wind pressures acting on the roof overhang (soffit pressures not included).

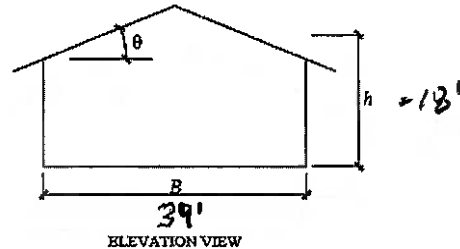
Zone	qh (psf)	GCp- (R.O.)	GCpi+	GCpi-	p1- (psf)	p2- (psf)
1	34.85	-1.60	0.18	-0.18	-62.02	-49.48
2e	34.85	-1.82	0.18	-0.18	-69.54	-57.00
2n	34.85	-2.20	0.18	-0.18	-82.84	-70.29
2r	34.85	-1.82	0.18	-0.18	-69.54	-57.00
3e	34.85	-3.11	0.18	-0.18	-114.61	-102.07
3r	34.85	-2.66	0.18	-0.18	-98.96	-86.42

GANSETT - 39' ± x 42' ±

Diagrams



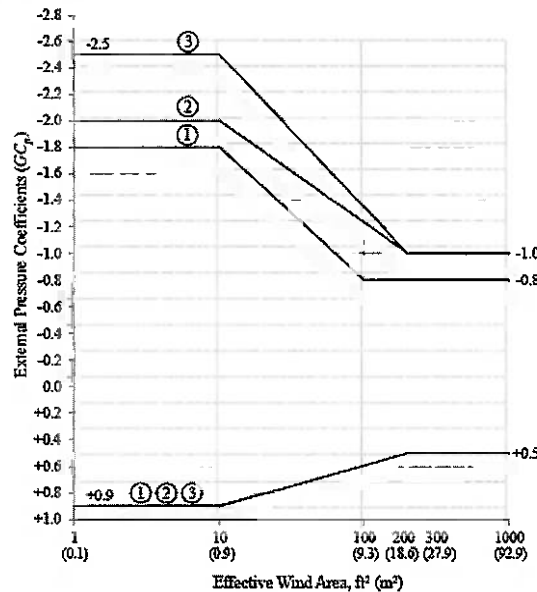
PKTTA
 $a = 0.4H = 0.4(18') = 7.2 \text{ FT}$
 OR
 $a = 0.1(39') = \underline{3.9 \text{ FT}} \leftarrow \text{CONTROLS}$



Notation

a = 10% of least horizontal dimension or $0.4h$, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m). If an overhang exists, the edge distance shall be measured from the outside edge of the overhang. The horizontal dimensions used to compute the edge distance shall not include any overhang dimensions.
 B = Horizontal dimension of building measured normal to wind direction, ft (m).
 h = Mean roof height, in ft (m), except that eave height shall be used for $\theta \leq 10^\circ$.
 θ = Angle of plane of roof from horizontal, degrees.

External Pressure Coefficients (GC_p)



Notes

1. Vertical scale denotes (GC_p) to be used with q_h .
2. Horizontal scale denotes effective wind area A , ft² (m²).
3. Plus and minus signs signify pressures acting toward and away from the surfaces, respectively.
4. Each component shall be designed for maximum positive and negative pressures.
5. Values of (GC_p) for roof overhangs to be determined in accordance with Section 30.7 Roof Overhangs.

Figure 30.3-2D. Components and cladding [$h \leq 60$ ft ($h \leq 18.3$ m)]: external pressure coefficients, (GC_p), for enclosed, partially enclosed, and partially open buildings—gable roofs, $27^\circ < \theta \leq 45^\circ$.

**SECTION 011000
SUMMARY**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Possible proposed phased construction and associated schedule.
 - 4. Work performed by Owner.
 - 5. Multiple Work Packages.
 - 6. Work under Owner's separate contracts.
 - 7. Contractor's use of site and premises.
 - 8. Coordination with occupants.
 - 9. Work restrictions.
 - 10. Specification and Drawing conventions.
 - 11. Miscellaneous provisions.
 - 12. Items for salvage, modification, and reinstallation.
- B. Related Requirements:
 - 1. Section 01 7300 "Execution" for coordination of Owner-installed products.

1.03 DEFINITIONS

- A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.04 PROJECT INFORMATION

- A. Project Identification: Niantic & Pattagansett
 - 1. Project Numbers:
 - a. Architect's Project Number: 2024-128A.
 - 2. Project Location (Niantic Pump House): 141 Main Street, Niantic CT 06357
 - 3. Project Location (Pattagansett Pump House): 32A West Main Street, Niantic CT 06062
- B. Owner: Town of East Lyme.
 - 1. Owner's Representative: Joseph Bragaw.
- C. Architect: Friar Architecture, Inc.
 - 1. Architect's Representative:
 - a. Principal Representative: Michael Sorano, AIA –Principal.
 - b. Project Manager: Scott Mitchell, AIA.
- D. Architect's Consultants: Architect has retained the following design professionals, who have prepared designated portions of the Contract Documents:
 - 1. Specialty Consultant: GR Engineering, LLC.
 - a. Structural Project Engineer: Gary Reola.
- E. Project Coordinator for Multiple Contracts: Owner shall serve as Project coordinator if required.

NIANTIC & PATTEGANSETT PUMP
HOUSE ROOF REPLACEMENT

FRIAR PROJECT #: 2024-128A

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SUMMARY
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1.05 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:
 - 1. The project is the removal and replacement of the roof at two facilities: The Niantic Pump House & The Pattagansett Pump House
- B. Type of Contract:
 - 1. Project will be constructed under a single prime contract.

1.06 CONTRACTOR'S USE OF SITE AND PREMISES

- A. NOTE: this is a public building that will be open throughout the work so the contractor is responsible for protecting entrance and exit areas and working around the usage of the building.
- B. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section. Additional restricted usage of the site is as follows:
- C. Limits on Use of Site: Limit use of Project site to work within the project limit lines indicated on the Contract Documents. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Driveways, Walkways and Entrances:
 - a. Any entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
 - b. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - c. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- D. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.
- E. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.07 WORK RESTRICTIONS

- A. Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to between 7:00 a.m. to 5:00p.m., Monday through Friday, unless otherwise indicated. Work hours may be modified to meet Project requirements if approved by Owner and authorities having jurisdiction.
 - 1. Weekend Hours: Construction Manager to coordinate and present to the Owner and authorities having jurisdiction if project requirements or schedule necessitate the discussion.
 - 2. Early Morning Hours: Construction Manager to coordinate and present to the Owner and authorities having jurisdiction if project requirements or schedule necessitate the discussion.
 - 3. Hours for Utility Shutdowns: Coordinate with the Town of East Lyme, Owner, and authorities having jurisdiction.

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HOUSE ROOF REPLACEMENT

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- C. Noise, Vibration, Dust, and Odors: Coordinate operations that may result in high levels of noise and vibration, dust, odors, or other disruption to Owner occupancy with Owner.
- D. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, smokeless vaporizers, and other controlled substances within the existing building and on Project site is strictly not permitted.
- E. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.
- F. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.
 - 1. Maintain list of approved screened personnel with Owner's representative.

1.08 SPECIFICATION AND DRAWING CONVENTIONS

- A. 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. Imperative mood and streamlined language are generally used in the Specifications. 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.
 - 2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
 - 3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
 - 4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings and as published as part of the U.S. National CAD Standard.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

NIANTIC & PATTEGANSETT PUMP
HOUSE ROOF REPLACEMENT

FRIAR PROJECT #: 2024-128A

SUMMARY
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**SECTION 012100
ALLOWANCES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Contingency allowance.

1.02 RELATED REQUIREMENTS

1.03 CONTINGENCY ALLOWANCE

- A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.
- B. Funds will be drawn from the Contingency Allowance only by Change Order.
- C. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.04 ALLOWANCES SCHEDULE

- A. Section 030-100 Maintenance of Concrete: Include the stipulated sum of \$30,000 for purchase, delivery, and installation of Polymer-Enhanced Cementitious Concrete Repair Material.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

NIANTIC & PATTEGANSETT PUMP
HOUSE ROOF REPLACEMENT

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Allowances
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**SECTION 012200
UNIT PRICES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. List of unit prices, for use in preparing Bids.

1.02 RELATED REQUIREMENTS

- A. Document 002113 - Instructions to Bidders: Instructions for preparation of pricing for Unit Prices.

1.03 COSTS INCLUDED

- A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.04 UNIT QUANTITIES SPECIFIED

- A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

1.05 MEASUREMENT OF QUANTITIES

- A. Take all measurements and compute quantities. Measurements and quantities will be verified by Architect.
- B. Assist by providing necessary equipment, workers, and survey personnel as required.
- C. Measurement by Area: Measured by square dimension using mean length and width or radius.

1.06 PAYMENT

- A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Architect, multiplied by the unit price.
- B. Payment will not be made for any of the following:
 1. Products wasted or disposed of in a manner that is not acceptable.
 2. Products determined as unacceptable before or after placement.
 3. Products not completely unloaded from the transporting vehicle.
 4. Products remaining on hand after completion of the Work.
 5. Loading, hauling, and disposing of rejected Products.

1.07 SCHEDULE OF UNIT PRICES

- A. Item: Polymer-Enhanced Cementitious Concrete Repair Material; Section 030100.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

NIANTIC & PATTEGANSETT PUMP
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Unit Prices
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**SECTION 012500
SUBSTITUTION PROCEDURES**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Document 00 2600 "Contract Modification Procedures" for requirements for substitution requests prior to award of Contract.
 - 2. Section 01 6000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.03 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required to meet other Project requirements but may offer advantage to Contractor or Owner.

1.04 ACTION SUBMITTALS

- A. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use form the form provided in the Project Manual, or an alternate form that is presented to the Architect prior to approval and use.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
 - b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.

NIANTIC & PATTEGANSETT PUMP
HOUSE ROOF REPLACEMENT

FRIAR PROJECT #: 2024-128A

SUBSTITUTION PROCEDURES
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- g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - l. 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.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven <7> days of receipt of a request for substitution. The Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within [fifteen] <15> days of receipt of request, or seven <7> days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.05 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.06 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.07 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than [fifteen] <15> days prior to time required for preparation and review of related submittals.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Requested substitution provides sustainable design characteristics that specified product provided for compliance with IgCC requirements.
 - c. Requested substitution provides sustainable design characteristics that specified product provided for compliance with ASHRAE 189.1 requirements.
 - d. Substitution request is fully documented and properly submitted.

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- e. Requested substitution will not adversely affect Contractor's construction schedule.
 - f. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - g. Requested substitution is compatible with other portions of the Work.
 - h. Requested substitution has been coordinated with other portions of the Work.
 - i. Requested substitution provides specified warranty.
 - j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Architect will consider requests for substitution if received within [fifteen] <15> days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Requested substitution provides sustainable design characteristics that specified product provided for compliance with IgCC requirements.
 - e. Requested substitution provides sustainable design characteristics that specified product provided for compliance with ASHRAE 189.1 requirements.
 - f. Substitution request is fully documented and properly submitted.
 - g. Requested substitution will not adversely affect Contractor's construction schedule.
 - h. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - i. Requested substitution is compatible with other portions of the Work.
 - j. Requested substitution has been coordinated with other portions of the Work.
 - k. Requested substitution provides specified warranty.
 - l. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

NIANTIC & PATTEGANSETT PUMP
HOUSE ROOF REPLACEMENT

FRIAR PROJECT #: 2024-128A

SUBSTITUTION PROCEDURES
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**SECTION 012600
CONTRACT MODIFICATION PROCEDURES**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Section 01 2500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.
 - 2. Section 01 3100 "Project Management and Coordination" for requirements for forms for contract modifications provided as part of web-based Project management software.

1.03 MINOR CHANGES IN THE WORK

- A. Architect will issue through Construction Manager supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on web-based Project management software.

1.04 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Construction Manager will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Construction Manager are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 20 days, when not otherwise specified, 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 to be made. 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 Contractor's 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.
 - e. Quotation Form: Use form provided as part of web-based Project management software.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Construction Manager.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

NIANTIC & PATTEGANSETT PUMP
HOUSE ROOF REPLACEMENT

FRIAR PROJECT #: 2024-128A

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PROCEDURES
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2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. 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 Contractor's 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 Section 01 2500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form provided as part of web-based Project management software.

1.05 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section 01 2100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
- B. Unit-Price Adjustment: See Section 01 2200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.06 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Change Proposal Request, Construction Manager will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 AIA Document G701CMA form provided as part of web-based Project management software.

1.07 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Construction Manager may issue a Construction Change Directive on AIA Document G714 AIA Document G714CMA form provided as part of web-based Project management software. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.08 WORK CHANGE DIRECTIVE

- A. Work Change Directive: Construction Manager may issue a Work Change Directive on form provided as part of web-based Project management software. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.

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CONTRACT MODIFICATION
PROCEDURES
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SECTION 012600
CONTRACT MODIFICATION
PROCEDURES

Contract Documents
March 25, 2026

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

NIANTIC & PATTEGANSETT PUMP
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CONTRACT MODIFICATION
PROCEDURES
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**SECTION 012900
PAYMENT PROCEDURES**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Document 00 4373 "Proposed Schedule of Values Form" for requirements for furnishing proposed schedule of values with bid.
 - 2. Section 01 2100 "Allowances" for procedural requirements governing the handling and processing of allowances.
 - 3. Section 01 2200 "Unit Prices" for administrative requirements governing the use of unit prices.
 - 4. Section 01 2600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 5. Section 01 3200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.03 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.

1.04 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Architect at earliest possible date, but no later than [seven] <7> days before the date scheduled for submittal of initial Applications for Payment.
 - 3. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
 - 4. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract, as described in Section 01 1000 "Summary."
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Owner's name.
 - c. Owner's Project number.
 - d. Name of Architect.

NIANTIC & PATTEGANSETT PUMP
HOUSE ROOF REPLACEMENT

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PAYMENT PROCEDURES
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- e. Architect's Project number.
- f. Contractor's name and address.
- g. Date of submittal.
2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of [five] <5> percent of 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.
 - a. Differentiate between items stored on-site and items stored off-site.
6. 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.
7. Purchase Contracts: Provide a separate line item in the schedule of values for each Purchase contract. Show line-item value of Purchase contract. Indicate Owner payments or deposits, if any, and balance to be paid by Contractor.
8. Overhead Costs, Proportional Distribution: Include total cost and proportionate share of general overhead and profit for each line item.
9. Overhead Costs, Separate Line Items: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
10. Temporary Facilities: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
11. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling [five] <5> percent of the Contract Sum and subcontract amount.
12. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.05 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments, as certified by Architect and Construction Manager and paid for by Owner.

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- B. Payment Application Times: The date for each progress payment is indicated in the Owner/Contractor Agreement. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Submit Application for Payment to Architect by the last day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
 - 1. Submit draft copy of Application for Payment [seven] <7> days prior to due date for review by Architect.
- D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 - 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 - 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 - 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 - 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
 - 1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
 - 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 - 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- G. Transmittal: Submit [three] <3> signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
 - 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment, subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
 - 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.

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2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
 5. Products list (preliminary if not final).
 6. Sustainable design action plans, including preliminary project materials cost data.
 7. Schedule of unit prices.
 8. Submittal schedule (preliminary if not final).
 9. List of Contractor's staff assignments.
 10. List of Contractor's principal consultants.
 11. Copies of building permits.
 12. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 13. Initial progress report.
 14. Report of preconstruction conference.
 15. Certificates of insurance and insurance policies.
 16. **Performance and payment bonds.**
 17. Data needed to acquire Owner's insurance.
- J. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 - a. Complete administrative actions, submittals, and Work preceding this application, as described in Section 01 7700 "Closeout Procedures."
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- K. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Certification of completion of final punch list items.
 3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 4. Updated final statement, accounting for final changes to the Contract Sum.
 5. AIA Document G706.
 6. AIA Document G706A.
 7. AIA Document G707.

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8. Evidence that claims have been settled.
9. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
10. Final liquidated damages settlement statement.
11. Proof that taxes, fees, and similar obligations are paid.
12. Waivers and releases.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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**SECTION 013100
PROJECT MANAGEMENT AND COORDINATION**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project, including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. RFIs.
 - 4. Digital project management procedures.
 - 5. Web-based Project management software package.
 - 6. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Requirements:
 - 1. Section 01 3200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 - 2. Section 01 7300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Section 01 7700 "Closeout Procedures" for coordinating closeout of the Contract.

1.03 DEFINITIONS

- A. BIM: Building Information Modeling.
- B. RFI: Request for Information. Request from Owner, Construction Manager, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.04 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within [15] days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses, cellular telephone numbers, and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
 - 1. Post copies of list in Project meeting room, in temporary field office, in web-based Project software directory, and in prominent location in each built facility. Keep list current at all times.

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1.05 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations 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 to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Coordination of Multiple Contracts: Each contractor shall cooperate with Project coordinator, who shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its own operations with operations 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 performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- C. 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 scheduled activities of other contractors and direction of Project coordinator 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 Contractor's 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. Preinstallation conferences.
 - 7. Project closeout activities.
 - 8. Startup and adjustment of systems.

1.06 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

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1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
 - b. Coordinate the addition of trade-specific information to coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
 - c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
 - e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
 - f. Indicate required installation sequences.
 - g. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
 1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
 2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
 3. Mechanical Rooms: Provide coordination drawings for mechanical rooms, showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
 4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
 5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
 6. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
 7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.

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- c. Panel board, switchboard, switchgear, transformer, busway, generator, and motor-control center locations.
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
 8. Fire-Protection System: Show the following:
 - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
 9. Review: Architect will review coordination drawings to confirm that, in general, the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make suitable modifications and resubmit.
 10. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 01 3300 "Submittal Procedures."
- C. Coordination Drawing Process: Prepare coordination drawings in the following manner:
1. Schedule submittal and review of Fire Sprinkler, Plumbing, HVAC, and Electrical Shop Drawings to make required changes prior to preparation of coordination drawings.
 2. Commence routing of coordination drawing files with HVAC Installer, who will provide drawing plan files denoting approved ductwork. HVAC Installer will locate ductwork and piping on a single layer, using orange color. Forward drawings to Plumbing Installer.
 3. Plumbing Installer will locate plumbing and equipment on a single layer, using blue color.
 4. Fire Sprinkler Installer will locate piping and equipment, using red color. Fire Sprinkler Installer shall forward drawing files to Electrical Installer.
 5. Electrical Installer will indicate service and feeder conduit runs and equipment in green color. Electrical Installer shall forward drawing files to Communications and Electronic Safety and Security Installer.
 6. Communications and Electronic Safety and Security Installer will indicate cable trays and cabling runs and equipment in purple color. Communications and Electronic Safety and Security Installer shall forward completed drawing files to Contractor.
 7. Contractor shall perform the final coordination review. As each coordination drawing is completed, Contractor will meet with Architect to review and resolve conflicts on the coordination drawings.
- D. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
1. File Preparation Format:
 - a. Same digital data software program, version, and operating system as original Drawings.
 - b. DWG, Current Year Version, operating in Microsoft Windows operating system.
 2. File Submittal Format: Submit or post coordination drawing files using PDF format.
 3. BIM File Incorporation: Construction Manager will incorporate Contractor's coordination drawing files into BIM established for Project.
 - a. Construction Manager will perform three-dimensional component conflict analysis as part of preparation of coordination drawings. Resolve component conflicts prior to submittal. Indicate where conflict resolution requires modification of design requirements by Architect.
 4. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
 - a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
 - b. Contractor shall execute a data licensing agreement in the form of Agreement included in this Project Manual.

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1.07 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 - 1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
 - 2. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 - 1. Project name.
 - 2. Owner name.
 - 3. Owner's Project number.
 - 4. Name of Architect and General Contractor.
 - 5. Architect's Project number.
 - 6. Date.
 - 7. Name of Contractor.
 - 8. RFI number, numbered sequentially.
 - 9. RFI subject.
 - 10. Specification Section number and title and related paragraphs, as appropriate.
 - 11. Drawing number and detail references, as appropriate.
 - 12. Field dimensions and conditions, as appropriate.
 - 13. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 - 14. Contractor's signature.
 - 15. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: AIA Document G716 or Form bound in Project Manual.
 - 1. Attachments shall be electronic files in PDF format.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow [seven] days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
 - 1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 - 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect or Construction Manager of additional information.

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3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect and Construction Manager in writing within [5] days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
 1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number, including RFIs that were returned without action or withdrawn.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's and Construction Manager's response was received.
 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within [seven] days if Contractor disagrees with response.

1.08 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. Architect's Data Files Not Available: Architect will not provide Architect's digital data files for Contractor's use during construction.
- B. Web-Based Project Management Software Package: If requested by the Owner, provide, administer, and use Contractor's web-based Project management software package for purposes of hosting and managing Project communication and documentation until Final Completion.
 1. Web-based Project management software includes, at a minimum, the following features:
 - a. Compilation of Project data, including Contractor, subcontractors, Architect, Architect's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.
 - b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
 - c. Document workflow planning, allowing customization of workflow between project entities.
 - d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
 - e. Track status of each Project communication in real time, and log time and date when responses are provided.
 - f. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
 - g. Processing and tracking of payment applications.
 - h. Processing and tracking of contract modifications.

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- i. Creating and distributing meeting minutes.
 - j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
 - k. Management of construction progress photographs.
 - l. Mobile device compatibility, including smartphones and tablets.
2. Provide up to [seven] Project management software user licenses for use of Owner, Owner's Commissioning Authority, Contractor, Architect, and Architect's consultants. Provide [eight] <8> hours of software training at Architect's office for web-based Project software users.
 3. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Architect. Provide data in locked format to prevent further changes.
- C. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:
1. Assemble complete submittal package into a single indexed file, incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.09 PROJECT MEETINGS

- A. General: Construction Manager will schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of [seven] <7 > days prior to meeting.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Contractor, and Architect, within [three] <5> days of the meeting.
- B. Preconstruction Conference: Contractor will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than [15] days after execution of the Agreement.
1. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Contractor, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Critical work sequencing and long lead items.
 - e. Designation of key personnel and their duties.
 - f. Lines of communications.
 - g. Use of web-based Project software.

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- h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for testing and inspecting.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of the Contract Documents.
 - m. Submittal procedures.
 - n. Sustainable design requirements.
 - o. Preparation of Record Documents.
 - p. Use of the premises and existing building.
 - q. Work restrictions.
 - r. Working hours.
 - s. Owner's occupancy requirements.
 - t. Responsibility for temporary facilities and controls.
 - u. Procedures for moisture and mold control.
 - v. Procedures for disruptions and shutdowns.
 - w. Construction waste management and recycling.
 - x. Parking availability.
 - y. Office, work, and storage areas.
 - z. Equipment deliveries and priorities.
 - aa. First aid.
 - bb. Security.
 - cc. Progress cleaning.
3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other Sections and when required for coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, Contractor, and Owner's Commissioning Authority of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Sustainable design requirements.
 - i. Review of mockups.
 - j. Possible conflicts.
 - k. Compatibility requirements.
 - l. Time schedules.
 - m. Weather limitations.
 - n. Manufacturer's written instructions.
 - o. Warranty requirements.

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- p. Compatibility of materials.
 - q. Acceptability of substrates.
 - r. Temporary facilities and controls.
 - s. Space and access limitations.
 - t. Regulations of authorities having jurisdiction.
 - u. Testing and inspecting requirements.
 - v. Installation procedures.
 - w. Coordination with other work.
 - x. Required performance results.
 - y. Protection of adjacent work.
 - z. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Contractor will schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than [90] days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 2. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Contractor, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of Record Documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Procedures for completing and archiving web-based Project software site data files.
 - d. Submittal of written warranties.
 - e. Requirements for completing sustainable design documentation.
 - f. Requirements for preparing operations and maintenance data.
 - g. Requirements for delivery of material samples, attic stock, and spare parts.
 - h. Requirements for demonstration and training.
 - i. Preparation of Contractor's punch list.
 - j. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - k. Submittal procedures.
 - l. Coordination of separate contracts.
 - m. Owner's partial occupancy requirements.
 - n. Installation of Owner's furniture, fixtures, and equipment.
 - o. Responsibility for removing temporary facilities and controls.
 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

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- E. Progress Meetings: Contractor will schedule and conduct progress meetings at least weekly or biweekly intervals as required by the Owner.
1. Coordinate dates of meetings with preparation of payment requests.
 2. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority, Contractor, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Resolution of BIM component conflicts.
 - 4) Status of submittals.
 - 5) Status of sustainable design documentation.
 - 6) Deliveries.
 - 7) Off-site fabrication.
 - 8) Access.
 - 9) Site use.
 - 10) Temporary facilities and controls.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) Status of RFIs.
 - 16) Status of Proposal Requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
 4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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**SECTION 013200
CONSTRUCTION PROGRESS DOCUMENTATION**

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Startup construction schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Construction schedule updating reports.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Site condition reports.
 - 7. Unusual event reports.
- B. Related Requirements:
 - 1. Section 01 2900 "Payment Procedures" for schedule of values and requirements for use of cost-loaded schedule for Applications for Payment.
 - 2. Section 01 4000 "Quality Requirements" for schedule of tests and inspections.

1.02 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine the critical path of Project and when activities can be performed.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is per the discretion of the Owner and to be coordinated with the Owner by the Construction Manager.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Resource Loading: The allocation of labor and equipment necessary for completing an activity as scheduled.

1.03 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:

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1. Working electronic copy of schedule file.
 2. PDF file.
 3. No paper documents are to be provided unless specifically requested by the Architect or Owner.
- B. Startup construction schedule.
1. Submittal of cost-loaded startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.
- D. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports to contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
 2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.
 3. Total Float Report: List of activities sorted in ascending order of total float.
 4. Earnings Report: Compilation of Contractor's total earnings from commencement of the Work until most recent Application for Payment.
- E. Construction Schedule Updating Reports: Submit with Applications for Payment.
- F. Daily Construction Reports: Submit at weekly intervals or at the Construction Manager's discretion.
- G. Material Location Reports: Submit at monthly intervals or at the Construction Manager's discretion.
- H. Site Condition Reports: Submit at time of discovery of differing conditions.
- I. Unusual Event Reports: Submit at time of unusual event.
- J. Qualification Data: For scheduling consultant.

1.04 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.
- B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 01 3100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's Construction Schedule, including, but not limited to, the following:
1. Review software limitations and content and format for reports.
 2. Verify availability of qualified personnel needed to develop and update schedule.
 3. Discuss constraints, including phasing, work stages, area separations, interim milestones, and potential partial Owner occupancy.
 4. Review delivery dates for Owner-furnished products.
 5. Review schedule for work of Owner's separate contracts.

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6. Review submittal requirements and procedures.
7. Review time required for review of submittals and resubmittals.
8. Review requirements for tests and inspections by independent testing and inspecting agencies.
9. Review time required for Project closeout and Owner startup procedures, including commissioning activities.
10. Review and finalize list of construction activities to be included in schedule.
11. Review procedures for updating schedule.

1.05 COORDINATION

- A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 1. Secure time commitments for performing critical elements of the Work from entities involved.
 2. Coordinate each construction activity in the network with other activities, and schedule them in proper sequence.

1.06 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
 1. Use Microsoft Project, Primavera, Meridian Prolog or equivalent for current Windows operating systems.
- B. Time Frame: Extend schedule from date established for commencement of the Work to date of Substantial Completion and anticipated Final Completion.
 1. Contract completion date to not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat building roof area as a separate numbered activity for each main element of the Work. Comply with the following:
 1. Activity Duration: Define activities so no activity is longer than [20] days, unless specifically allowed by Architect.
 2. Submittal Review Time: Include review and resubmittal times indicated in Section 01 3300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
 3. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Architect's and Construction Manager's administrative procedures necessary for certification of Substantial Completion.
 4. Punch List and Final Completion: Include not more than [30] days for completion of punch list items and Final Completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
 1. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 01 1000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 2. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.

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- c. Purchases.
 - d. Fabrication.
 - e. Sample testing.
 - f. Deliveries.
 - g. Installation.
3. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
 - F. Contractor's Construction Schedule Updating: At bi-weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - G. Recovery Schedule: When periodic update indicates the Work is [5] or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.
 - H. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, and other parties identified by Contractor with a need-to-know schedule responsibility.

1.07 STARTUP CONSTRUCTION SCHEDULE

- A. Gantt-Chart Schedule: Submit startup, horizontal, Gantt-chart-type construction schedule within [seven] <7> days of date established for commencement of the Work.

1.08 REPORTS

- A. Weekly Construction Reports: Prepare a weekly construction report recording the following information concerning events at Project site:
 1. Approximate count of personnel at Project site.
 2. Material deliveries.
 3. High and low temperatures and general weather conditions, including presence of rain or snow.
 4. Accidents.
 5. Meetings and significant decisions.
 6. Unusual events.
 7. Stoppages, delays, shortages, and losses.
 8. Orders and requests of authorities having jurisdiction.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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**SECTION 013233
PHOTOGRAPHIC DOCUMENTATION**

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Periodic construction photographs.
 - 3. Final Completion construction photographs.
- B. Related Requirements:
 - 1. Section 01 7700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.

1.02 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit image files within [seven] <7> days of taking photographs.
 - 1. Submit photos by uploading to web-based Project management software site or via emailed. Include copy of key plan indicating each photograph's location and direction.
 - 2. Identification: Provide the following information with each image description in web-based Project management software site:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect and Contractor.
 - d. Date photograph was taken.
 - e. Description of location, vantage point, and direction.
 - f. Unique sequential identifier keyed to accompanying key plan.
- C. Printed Photographs: not required unless specifically requested by either the Owner or Architect for a validated and approved reason.

1.03 QUALITY ASSURANCE

- A. Photographer Qualifications: An individual who has been proven to be able to provide clear, non-blurry photographs of construction-related activities. A professional photographer is not required but images provided do need to be clear, non-blurry and show accurately the condition they are intending to portray.

1.04 FORMATS AND MEDIA

- A. Digital Photographs: Provide color images in JPG or PDF format, produced by a digital camera with minimum sensor size of [12] megapixels, and at an image resolution of not less than 3200 by 2400 pixels. Use flash in low light levels or backlit conditions.
- B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
- C. File Names: Name media files with project number, date, and specific Project area where taken and sequential numbering suffix.

1.05 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a qualified photographer to take construction photographs.

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- B. General: Take photographs with maximum depth of field and in focus.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect and/or Construction Manager.
 - 1. Take a suitable number of photographs to show existing conditions before starting the Work.
- D. Periodic Construction Photographs: Take a suitable number of photographs coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- E. Final Completion Construction Photographs: Take a suitable number of photographs after date of Substantial Completion for submission as Project Record Documents. The architect will inform the photographer of desired vantage points and confirm that the provided amount and quality of photographs taken are acceptable.
- F. Additional Photographs: Architect may request photographs in addition to periodic photographs specified. Additional photographs will be paid for in the allowance for construction photographs.
 - 1. Three days' notice will be given, where feasible.
 - 2. Circumstances that could require additional photographs include, but are not limited to, the following:
 - a. Immediate follow-up when on-site events result in construction damage or losses.
 - b. Substantial Completion of a major phase or component of the Work.
 - c. Extra record photographs at time of final acceptance.
 - d. Owner's request for special publicity photographs.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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**SECTION 013300
SUBMITTAL PROCEDURES**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
1. Submittal schedule requirements.
 2. Administrative and procedural requirements for submittals.
- B. Related Requirements:
1. Section 01 2900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
 2. Section 01 3100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
 3. Section 01 3200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
 4. Section 01 3233 "Photographic Documentation" for submitting preconstruction photographs, periodic construction photographs, and Final Completion construction photographs.
 5. Section 01 4000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
 6. Section 01 7700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
 7. Section 01 7823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.

1.03 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's and Construction Manager's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's and Construction Manager's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.04 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and Construction Manager and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 2. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required

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- to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.
 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal Category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's and Contractor's final release or approval.
 - g. Scheduled dates for purchasing.
 - h. Scheduled date of fabrication.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.05 SUBMITTAL FORMATS

- A. Submittal Information: Include the following information in each submittal:
 1. Project name.
 2. Date.
 3. Name of Architect.
 4. Name of Contractor.
 5. Name of firm or entity that prepared submittal.
 6. Names of subcontractor, manufacturer, and supplier.
 7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier and alphanumeric suffix for resubmittals.
 8. Category and type of submittal.
 9. Submittal purpose and description.
 10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
 11. Drawing number and detail references, as appropriate.
 12. Indication of full or partial submittal.
 13. Location(s) where product is to be installed, as appropriate.
 14. Other necessary identification.
 15. Remarks.
 16. Signature of transmitter.
- B. Options: Clearly and boldly identify options requiring selection by Architect or Architect's consultants.
- C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect and Construction Manager on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. Paper Submittals: paper submittals are not to be submitted unless specifically requested by the Owner, Architect, or Construction Manager. If paper copies are required, the required quantity will be formally requested.

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- E. Electronic Submittals: Prepare submittals as a single combined multi-page PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.
- F. Submittals Utilizing Web-Based Project Software: Prepare submittals as PDF files or other format indicated by Project management software.

1.06 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Email: Prepare submittals as PDF package and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.
 - a. Architect, through Contractor, will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.
 - 2. Web-Based Project Management Software: If required by the Owner, prepare submittals in PDF form, and upload to web-based Project management software website. Enter required data in web-based software site to fully identify submittal.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 - 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 - 4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of the need to review multiple submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow [15] days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Resubmittal Review: Allow [15] days for review of each resubmittal.
 - 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow [21] days for initial review of each submittal.
 - a. The types of sequential reviews include submittals where the Architect's consultants need to review the data first and then provide back to the Architect for selection of colors, finishes, etc.
 - b. Examples of these types of submittals include but are not limited to light fixtures, any electrical equipment requiring a finish color selection, etc.

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- D. Resubmittals: Make resubmittals in the same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block, and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's and Contractor's action stamp.
 - 4. Resubmittals with annotations marked by the Architect or Architect's consultants more than twice in a row per submittal without adequate correction by contractor or subcontractor will result in billed time to the contractor using the Architect's or Architect's consultants standard hourly rates.
- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.07 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are unsuitable 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. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 - 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 - 5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.
- B. 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. The Architect's nor the Architect's Consultant's drawings will be provided for the use of shop drawings.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.

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- e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. PDF digital print "sheet" file 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 24" x 36".
- C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package.
 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
 3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics and identification information for record.
 4. Web-Based Project Management Software: If required by the Owner. prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
 5. Paper Transmittal: Include paper transmittal, including complete submittal information indicated when submitting a physical sample.
 6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 7. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit [three] <3> full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect, through Construction Manager, will return submittal with options selected.
 8. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured, and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: 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.

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- a. Number of Samples: Submit [three] <3> sets of Samples. Architect will retain [one] <1> Sample sets; remainder will be returned. Retain one returned Sample set as a project record Sample.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least [three] <3> sets of paired units that show approximate limits of variations.
- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.
- 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, contact information of architects and owners, and other information specified.
- F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
- G. Certificates:
 1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 2. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 4. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.
 5. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.
 6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.
- H. Test and Research Reports:
 1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.

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2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. 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.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.
 - d. Product and manufacturers' names.
 - e. Description of product.
 - f. Test procedures and results.
 - g. Limitations of use.

1.08 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note all corrections and field dimensions. Mark with approval stamp before submitting to Architect and Owner.
- B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp with indication in web-based Project management software. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 1. Architect will not review submittals received from Contractor that do not have their stamp confirming review and approval to Contract Documents.

1.09 ARCHITECT'S REVIEW

- A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required, and return.
 1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action, as follows:
 - a. Authorizing purchasing, fabrication, delivery, and installation:
 - 1) "No Exceptions Taken", or language with same legal meaning.
 - 2) "Make Corrections Noted", or language with same legal meaning.
 - (a) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
 - 3) "Revise and Resubmit", or language with same legal meaning.
 - 4) "Submit Specified Item", or language with same legal meaning.

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- 5) "Rejected and Resubmit", Not Authorizing fabrication, delivery, and installation and resubmission required.
- b. Architect's consultants' actions on items submitted for information:
 - 1) Items for which no action was taken:
 - (a) "Received" - to notify the Contractor that the submittal has been received for record only.
 - 2) Items for which action was taken:
 - (a) "Reviewed" - no further action is required from Contractor.
- B. Informational Submittals: Architect will review each submittal and will not return it or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Architect will return without review submittals received from sources other than Contractor.
- F. Submittals not required by the Contract Documents will be returned by Architect without action.

1.10 REFERENCE STANDARDS

- A. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2021, with Errata (2023).

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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**SECTION 014000
QUALITY REQUIREMENTS**

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, Commissioning Authority, Construction Manager, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Requirements:
 - 1. Section 01 2100 "Allowances" for testing and inspection allowances.

1.02 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of [five] <5> previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
 - 1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).
- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.
- E. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) in accordance with 29 CFR 1910.7, by a testing agency accredited in accordance with NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" has the same meaning as the term "testing agency."

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- H. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- I. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.03 CONFLICTING REQUIREMENTS

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified is the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.04 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data: For Contractor's quality-control personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
 - 1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
 - 2. Primary wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.
 - 5. Identification of test and inspection methods.
 - 6. Number of tests and inspections required.
 - 7. Time schedule or time span for tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.
- F. Reports: Prepare and submit certified written reports and documents as specified.
- G. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee

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payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.05 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, telephone number, and email address of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample-taking and testing and inspection.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, telephone number, and email address of technical representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Statement that products at Project site comply with requirements.
 - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 6. Statement of whether conditions, products, and installation will affect warranty.
 - 7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, telephone number, and email address of factory-authorized service representative making report.
 - 2. Statement that equipment complies with requirements.
 - 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 4. Statement of whether conditions, products, and installation will affect warranty.
 - 5. Other required items indicated in individual Specification Sections.

1.06 QUALITY ASSURANCE

- A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

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- B. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems 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. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. **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.
- D. **Installer Qualifications:** A firm or individual experienced in installing, erecting, applying, 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.
- E. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.
- F. **Specialists:** Certain Specification Sections require that specific construction activities be performed by entities who are recognized experts in those operations. Specialists will satisfy qualification requirements indicated and engage in the activities indicated.
 - 1. Requirements of authorities having jurisdiction supersede requirements for specialists.
- G. **Testing and Inspecting Agency Qualifications:** An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
- H. **Manufacturer's Technical Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. **Preconstruction Testing:** Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. **Contractor's Responsibilities:**
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups, using installers who will perform same tasks for Project.
 - e. When testing is complete, remove test specimens and test assemblies; do not reuse products on Project.

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2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Commissioning Authority, through Construction Manager, with copy to Contractor. Interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from the Contract Documents.

1.07 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
 2. Payment for these services will be made from testing and inspection allowances specified in Section 01 2100 "Allowances," as authorized by Change Orders.
 3. 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.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Engage a qualified testing agency to perform quality-control services.
 - a. Contractor will not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 3. Notify testing agencies at least [24] hours in advance of time when Work that requires testing or inspection will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Architect, Commissioning Authority, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 1. Notify Architect, Commissioning Authority, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.

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6. Do not perform duties of Contractor.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 3300 "Submittal Procedures."
- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspection equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
 1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's Construction Schedule. Update and submit with each Application for Payment.
 1. Schedule Contents: Include tests, inspections, and quality-control services, including Contractor- and Owner-retained services, commissioning activities, and other Project-required services paid for by other entities.
 2. Distribution: Distribute schedules to Owner, Architect, Commissioning Authority, Construction Manager, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.08 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in the Statement of Special Inspections attached to this Section, and as follows:
 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect, Commissioning Authority, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

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3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect and Owner with copy to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections, and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected Work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection logs for Architect's, Commissioning Authority's, and Contractor's reference during normal working hours.
 1. Submit log at Project closeout as part of Project Record Documents.

3.02 REPAIR AND PROTECTION

- A. General: On completion of testing, inspection, sample-taking, and similar services, repair damaged construction and restore substrates and finishes.
 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 7300 "Execution."
- 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

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**SECTION 014200
REFERENCES**

PART 1 GENERAL

1.01 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms, including "requested," "authorized," "selected," "required," and "permitted," have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms, including "shown," "noted," "scheduled," and "specified," have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.02 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
 - 1. For standards referenced by applicable building codes, comply with dates of standards as listed in building codes.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.03 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

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- B. Industry Organizations, List: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities in the following list. The information in this list is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. AABC - Associated Air Balance Council; www.aabc.com.
 2. AAMA - American Architectural Manufacturers Association; (see FGIA).
 3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
 4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
 6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
 7. ABMA - American Boiler Manufacturers Association; www.abma.com.
 8. ACI - American Concrete Institute; www.concrete.org.
 9. ACP - American Clean Power; (Formerly: American Wind Energy Association); www.cleanpower.org.
 10. ACPA - American Concrete Pipe Association; www.concretepipe.org.
 11. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
 12. AF&PA - American Forest & Paper Association; www.afandpa.org.
 13. AGA - American Gas Association; www.aga.org.
 14. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
 15. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
 16. AI - Asphalt Institute; www.asphaltinstitute.org.
 17. AIA - American Institute of Architects (The); www.aia.org.
 18. AISC - American Institute of Steel Construction; www.aisc.org.
 19. AISI - American Iron and Steel Institute; www.steel.org.
 20. AITC - American Institute of Timber Construction; (see PLIB).
 21. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
 22. AMPP - Association for Materials Protection and Performance; www.ampp.org.
 23. ANSI - American National Standards Institute; www.ansi.org.
 24. AOSA/SCST - Association of Official Seed Analysts (The)/Society of Commercial Seed Technologists (The); www.analyze-seeds.com.
 25. APA - APA - The Engineered Wood Association; www.apawood.org.
 26. APA - Architectural Precast Association; www.archprecast.org.
 27. API - American Petroleum Institute; www.api.org.
 28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
 29. ASA - Acoustical Society of America; www.acousticalsociety.org.
 30. ASCE - American Society of Civil Engineers; www.asce.org.
 31. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (see ASCE).
 32. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
 33. ASME - ASME International; American Society of Mechanical Engineers (The)
 34. ASSE - ASSE International; (American Society of Sanitary Engineering); www.asse-plumbing.org.
 35. ASSP - American Society of Safety Professionals; www.assp.org.
 36. ASTM - ASTM International; www.astm.org.
 37. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
 38. AVIXA - Audiovisual and Integrated Experience Association; www.avixa.org.

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39. AWI - Architectural Woodwork Institute; www.awinet.org.
40. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
41. AWPA - American Wood Protection Association; www.awpa.com.
42. AWS - American Welding Society; www.aws.org.
43. AWWA - American Water Works Association; www.awwa.org.
44. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
45. BIA - Brick Industry Association (The); www.gobrick.com.
46. BICSI - BICSI, Inc.; www.bicsi.org.
47. BIFMA - Business and Institutional Furniture Manufacturer's Association; www.bifma.org.
48. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
49. BWF - Badminton World Federation; www.bwfbadminton.com.
50. CARB - California Air Resources Board; www.arb.ca.gov.
51. CDA - Copper Development Association Inc.; www.copper.org.
52. CE - Conformance Europeenne (European Commission); www.ec.europa.eu/growth/single-market/ce-marking.
53. CEA - Canadian Electricity Association; www.electricity.ca.
54. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
55. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
56. CGA - Compressed Gas Association; www.cganet.com.
57. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
58. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
59. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
60. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
61. CPA - Composite Panel Association; www.compositepanel.org.
62. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
63. CRRC - Cool Roof Rating Council; www.coolroofs.org.
64. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
65. CSA - CSA Group; www.csagroup.org.
66. CSI - Cast Stone Institute; www.caststone.org.
67. CSI - Construction Specifications Institute (The); www.csiresources.org.
68. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
69. CTA - Consumer Technology Association; www.cta.tech.
70. CTI - Cooling Technology Institute; www.coolingtechnology.org.
71. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
72. DHA - Decorative Hardwoods Association; www.decorativehardwoods.org.
73. DHI - Door and Hardware Institute; www.dhi.org.
74. ECIA - Electronic Components Industry Association; www.ecianow.org.
75. EIMA - EIFS Industry Members Association; www.eima.com.
76. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
77. EOS/ESD - EOS/ESD Association, Inc.; Electrostatic Discharge Association; www.esda.org.
78. ESTA - Entertainment Services and Technology Association; www.esta.org.
79. EVO - Efficiency Valuation Organization; www.evo-world.org.
80. FCI - Fluid Controls Institute; www.fluidcontrolsintitute.org.
81. FGIA - Fenestration and Glazing Industry Alliance; <https://fgiaonline.org>.
82. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.

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83. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
84. FM Approvals - FM Approvals LLC; www.fmapprovals.com.
85. FM Global - FM Global; www.fmglobal.com.
86. FRSA - Florida Roofing and Sheet Metal Contractors Association, Inc.; www.floridarroof.com.
87. FSA - Fluid Sealing Association; www.fluidsealing.com.
88. FSC - Forest Stewardship Council U.S.; www.fscus.org.
89. GA - Gypsum Association; www.gypsum.org.
90. GS - Green Seal; www.greenseal.org.
91. HI - Hydraulic Institute; www.pumps.org.
92. HMMA - Hollow Metal Manufacturers Association; (see NAAMM).
93. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
94. IAS - International Accreditation Service; www.iasonline.org.
95. ICC - International Code Council; www.iccsafe.org.
96. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
97. ICPA - International Cast Polymer Association (The); www.theicpa.com.
98. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
99. IEC - International Electrotechnical Commission; www.iec.ch.
100. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
101. IES - Illuminating Engineering Society; www.ies.org.
102. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
103. IGMA - Insulating Glass Manufacturers Alliance; (see FGIA).
104. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.org.
105. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
106. Intertek - Intertek Group; www.intertek.com.
107. ISA - International Society of Automation (The); www.isa.org.
108. ISFA - International Surface Fabricators Association; www.isfanow.org.
109. ISO - International Organization for Standardization; www.iso.org.
110. ITU - International Telecommunication Union; www.itu.int.
111. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
112. LPI - Lightning Protection Institute; www.lightning.org.
113. MBMA - Metal Building Manufacturers Association; www.mbma.com.
114. MCA - Metal Construction Association; www.metalconstruction.org.
115. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
116. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
117. MHI - Material Handling Industry; www.mhi.org.
118. MMPPA - Moulding & Millwork Producers Association; www.wmmpa.com.
119. MPI - Master Painters Institute; www.paintinfo.com.
120. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry, Inc.; www.msshq.org.
121. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
122. NACE - NACE International; (National Association of Corrosion Engineers International); (see AMPP).
123. NADCA - National Air Duct Cleaners Association; www.nadca.com.
124. NAIMA - North American Insulation Manufacturers Association; www.insulationinstitute.org.

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125. NALP - National Association of Landscape Professionals; www.landscapeprofessionals.org.
126. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
127. NBI - New Buildings Institute; www.newbuildings.org.
128. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
129. NCMA - National Concrete Masonry Association; www.ncma.org.
130. NEBB - National Environmental Balancing Bureau; www.nebb.org.
131. NECA - National Electrical Contractors Association; www.necanet.org.
132. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
133. NEMA - National Electrical Manufacturers Association; www.nema.org.
134. NETA - InterNational Electrical Testing Association; www.netaworld.org.
135. NFHS - National Federation of State High School Associations; www.nfhs.org.
136. NFPA - National Fire Protection Association; www.nfpa.org.
137. NFPA - NFPA International; (see NFPA).
138. NFRC - National Fenestration Rating Council; www.nfrc.org.
139. NGA - National Glass Association; www.glass.org.
140. NHLA - National Hardwood Lumber Association; www.nhla.com.
141. NLGA - National Lumber Grades Authority; www.nlga.org.
142. NOFMA - National Oak Flooring Manufacturers Association; (see NWFA).
143. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
144. NRCA - National Roofing Contractors Association; www.nrca.net.
145. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
146. NSF - NSF International; www.nsf.org.
147. NSI - Natural Stone Institute; www.naturalstoneinstitute.org.
148. NSPE - National Society of Professional Engineers; www.nspe.org.
149. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
150. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
151. NWFA - National Wood Flooring Association; www.nwfa.org.
152. NWRA - National Waste & Recycling Association; www.wasterecycling.org.
153. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
154. PDI - Plumbing & Drainage Institute; www.pdionline.org.
155. PLASA - PLASA; www.plasa.org.
156. PLIB - Pacific Lumber Inspection Bureau; www.plib.org.
157. PVCPA - Uni-Bell PVC Pipe Association; www.uni-bell.org.
158. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
159. RFCI - Resilient Floor Covering Institute; www.rfci.com.
160. RIS - Redwood Inspection Service; (see WWPA).
161. SAE - SAE International; www.sae.org.
162. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
163. SDI - Steel Deck Institute; www.sdi.org.
164. SDI - Steel Door Institute; www.steeldoor.org.
165. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
166. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (see ASCE).
167. SIA - Security Industry Association; www.securityindustry.org.
168. SJI - Steel Joist Institute; www.steeljoist.org.
169. SMA - Screen Manufacturers Association; www.smainfo.org.

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170. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
 171. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
 172. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
 173. SPIB - Southern Pine Inspection Bureau; www.spib.org.
 174. SPRI - Single Ply Roofing Industry; www.spri.org.
 175. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
 176. SSINA - Specialty Steel Industry of North America; www.ssina.com.
 177. SSPC - SSPC: The Society for Protective Coatings; (see AMPP).
 178. STI/SPFA - Steel Tank Institute/Steel Plate Fabricators Association; www.steeltank.com.
 179. SWI - Steel Window Institute; www.steelwindows.com.
 180. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
 181. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
 182. TCNA - Tile Council of North America, Inc.; www.tcnatile.com.
 183. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.kbcdco.tema.org.
 184. TIA - Telecommunications Industry Association (The); www.tiaonline.org.
 185. TMS - The Masonry Society; www.masonrysociety.org.
 186. TPI - Truss Plate Institute; www.tpinst.org.
 187. TPI - Turfgrass Producers International; www.turfgrasssod.org.
 188. TRI - Tile Roofing Industry Alliance; www.tilerroofing.org.
 189. UL - Underwriters Laboratories Inc.; www.ul.org.
 190. UL LLC - UL LLC; www.ul.com.
 191. USAV - USA Volleyball; www.usavolleyball.org.
 192. USGBC - U.S. Green Building Council; www.usgbc.org.
 193. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
 194. WA - Wallcoverings Association; www.wallcoverings.org.
 195. WCLIB - West Coast Lumber Inspection Bureau; (see PLIB).
 196. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
 197. WDMA - Window & Door Manufacturers Association; www.wdma.com.
 198. WI - Woodwork Institute; www.woodworkinstitute.com.
 199. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
 200. WWPA - Western Wood Products Association; www.wwpa.org.
- C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.
1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
 2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
 3. ICC - International Code Council; www.iccsafe.org.
 4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.
- D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.
1. CPSC - U.S. Consumer Product Safety Commission; www.cpsc.gov.
 2. DOC - U.S. Department of Commerce; www.commerce.gov.
 3. DOD - U.S. Department of Defense; www.defense.gov.
 4. DOE - U.S. Department of Energy; www.energy.gov.
 5. DOJ - U.S. Department of Justice; www.ojp.usdoj.gov

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6. DOS - U.S. Department of State; www.state.gov.
 7. EPA - United States Environmental Protection Agency; www.epa.gov.
 8. FAA - Federal Aviation Administration; www.faa.gov.
 9. GPO - U.S. Government Publishing Office; www.gpo.gov.
 10. GSA - U.S. General Services Administration; www.gsa.gov.
 11. HUD - U.S. Department of Housing and Urban Development; www.hud.gov.
 12. LBNL - Lawrence Berkeley National Laboratory; Energy Technologies Area; www.lbl.gov/.
 13. NIST - National Institute of Standards and Technology; www.nist.gov.
 14. OSHA - Occupational Safety & Health Administration; www.osha.gov.
 15. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
 16. USACE - U.S. Army Corps of Engineers; www.usace.army.mil.
 17. USDA - U.S. Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
 18. USDA - U.S. Department of Agriculture; Rural Utilities Service; www.usda.gov.
 19. USP - U.S. Pharmacopeial Convention; www.usp.org.
 20. USPS - United States Postal Service; www.usps.com.
- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CFR - Code of Federal Regulations; Available from U.S. Government Publishing Office; www.govinfo.gov.
 2. DOD - U.S. Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.dsp.dla.mil/Specs-Standards/.
 3. DSCC - Defense Supply Center Columbus; (see FS).
 4. FED-STD - Federal Standard; (see FS).
 5. FS - Federal Specification; Available from DLA Document Services; www.dsp.dla.mil/Specs-Standards/.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from U.S. General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org.
 6. MILSPEC - Military Specification and Standards; (see DOD).
 7. USAB - United States Access Board; www.access-board.gov.
 8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (see USAB).
- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. BEARHFTI; California Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; (see BHGS).
 2. BHGS; State of California Bureau of Household Goods and Services; (Formerly: California Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation); www.bhgs.dca.ca.gov.
 3. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.oal.ca.gov/publications/ccr/.

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4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cdph.ca.gov/Programs/CCDCPHP/DEODC/EHLB/IAQ/Pages/Main-Page.aspx.
5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.
7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; <https://tfsweb.tamu.edu/>.

1.04 REFERENCE STANDARDS

- A. MBMA - Metal Roofing Systems Design Manual; 2012.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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**SECTION 016000
PRODUCT REQUIREMENTS**

PART 1 GENERAL

1.01 SUMMARY

- A. The Work of This Section Includes: Administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 01 1000 "Summary" for Contractor requirements related to Owner-furnished products.
 - 2. Section 01 2100 "Allowances" for products selected under an allowance.
 - 3. Section 01 2300 "Alternates" for products selected under an alternate.
 - 4. Section 01 2500 "Substitution Procedures" for requests for substitutions.
 - 5. Section 01 4200 "References" for applicable industry standards for products specified.
 - 6. Section 01 7700 "Closeout Procedures" for submitting warranties.

1.02 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products unless otherwise indicated.
 - 3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.
 - 1. Evaluating Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.
- C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that

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does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.

- D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:
 - 1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
 - 2. Data indicating compliance with the requirements specified in "Comparable Products" Article.
- E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 01 3300 "Submittal Procedures."
- F. Substitution: Refer to Section 01 2500 "Substitution Procedures" for definition and limitations on substitutions.

1.03 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 - 1. Resolution of Compatibility Disputes between Multiple Contractors:
 - a. Contractors are responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - b. If a dispute arises between the multiple contractors over concurrently selectable but incompatible products, Architect will determine which products will be used.

1.04 COORDINATION

- A. Modify or adjust affected work as necessary to integrate work of approved comparable products and approved substitutions.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and that products are undamaged and properly protected.
- C. Storage:
 - 1. Provide a secure location and enclosure at Project site for storage of materials and equipment.
 - 2. Store products to allow for inspection and measurement of quantity or counting of units.
 - 3. Store materials in a manner that will not endanger Project structure.

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4. Store products that are subject to damage by the elements under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection from wind.
5. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.
8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.06 PRODUCT WARRANTIES

- A. Warranties specified in other Sections are to be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of Owner or endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of Owner or endorsed by manufacturer to Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.
 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 01 7700 "Closeout Procedures."

PART 2 PRODUCTS

2.01 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Descriptive, performance, and reference standard requirements in Specifications establish salient characteristics of products.
 6. Or Equal: For products specified by name and accompanied by the term "or equal," "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

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- a. Submit additional documentation required by Architect through Construction Manager to establish equivalency of proposed products. Unless otherwise indicated, evaluation of "or equal" product status is by Architect, whose determination is final.
- B. Product Selection Procedures:
1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole product may be indicated by the phrase "Subject to compliance with requirements, provide the following."
 2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole manufacturer/source may be indicated by the phrase "Subject to compliance with requirements, provide products by the following."
 3. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed or an unnamed product that complies with requirements.
 - a. Non-limited list of products is indicated by the phrase "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following."
 - b. Provision of an unnamed product is not considered a substitution, if the product complies with requirements.
 4. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
 - a. For approval of products by unnamed manufacturers, comply with requirements in Section 01 2500 "Substitution Procedures" for substitutions for convenience.
- C. Visual Matching Specification: Where Specifications require the phrase "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01 2500 "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or a similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.02 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with the following requirements:

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1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects, with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.
- B. Submittal Requirements, Single-Step Process: When acceptable to Architect, incorporate specified submittal requirements of individual Specification Section in combined submittal for comparable products. Approval by Architect of Contractor's request for use of comparable product and of individual submittal requirements will also satisfy other submittal requirements.

PART 3 EXECUTION (NOT USED)

END OF SECTION

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**SECTION 017300
EXECUTION**

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering.
 - 3. Installation.
 - 4. Cutting and patching.
 - 5. Coordination of Owner's portion of the Work.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.
 - 9. Correction of the Work.
- B. Related Requirements:
 - 1. Section 01 1000 "Summary" for coordination of items to be salvaged and reinstalled and limits on use of Project site.
 - 2. Section 01 3300 "Submittal Procedures" for submitting surveys.
 - 3. Section 01 7700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
 - 4. Section 02 4119 "Selective Demolition" for demolition and removal of selected portions of the building.

1.02 PREINSTALLATION MEETINGS

- A. The contractor is to conduct as many preinstallation meetings as required to ensure that all sub-contractors are aware that the building is a public building and needs to remain safe and in operation during construction.

PART 2 PRODUCTS – NOT USED.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine existing roofing exterior penetrations of mechanical, plumbing, and any electrical systems to verify actual locations of connections before roofing replacement.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.02 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before

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fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- B. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect through Construction Manager in accordance with requirements in Section 01 3100 "Project Management and Coordination."

3.03 INSTALLATION

- A. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- B. Install products at the time and under conditions that will ensure satisfactory results as judged by Architect. Maintain conditions required for product performance until Substantial Completion.
- C. Sequence the Work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.
- D. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels. Any tools utilizing open flames are strictly prohibited.
- E. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.
- F. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect, as judged by Architect. Fit exposed connections together to form hairline joints.

3.04 CUTTING AND PATCHING

- 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 in-place 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. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of Work as required to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements in Section 01 1000 "Summary."
- F. Cutting: Cut in-place construction by sawing, grinding, and similar operations using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations. Absolutely no torch or open flame cutting is to be used.
- G. 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

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practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.
4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

3.05 PROGRESS CLEANING

- A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- 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 would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces in accordance with 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 that will 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 Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 7419 "Construction Waste Management and Disposal."

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- H. 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 Substantial Completion.
- I. 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.
- J. 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.

3.06 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- C. Comply with manufacturer's written instructions for temperature and relative humidity.

3.07 CORRECTION OF THE WORK

- A. Repair or remove and replace damaged, defective, or nonconforming Work. Restore damaged substrates and finishes.
- B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

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**SECTION 017419
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

- A. Owner requires that this project generate the least amount of trash and waste possible.
- B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.
- D. Required Recycling, Salvage, and Reuse: The following may not be disposed of in landfills or by incineration:
 - 1. Aluminum and plastic beverage containers.
 - 2. Corrugated cardboard.
 - 3. Wood pallets.
 - 4. Clean dimensional wood.
 - 5. Metals, including packaging banding, metal studs, sheet metal, structural steel, piping, reinforcing bars, door frames, and other items made of steel, iron, galvanized steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
- E. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, incineration, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.
- F. Contractor shall develop and follow a Waste Management Plan designed to implement these requirements.
- G. Methods of trash/waste disposal that are not acceptable are:
 - 1. Burning on the project site.
 - 2. Burying on the project site.
 - 3. Dumping or burying on other property, public or private.
 - 4. Other illegal dumping or burying.
- H. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 RELATED REQUIREMENTS

- A. Section 01 1000 - Summary: List of items to be salvaged from the existing building for relocation in project or for Owner.
- B. Section 01 6000 - Product Requirements: Waste prevention requirements related to delivery, storage, and handling.

1.03 DEFINITIONS

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
- C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

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- D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.
- E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- I. Return: To give back reusable items or unused products to vendors for credit.
- J. Reuse: To reuse a construction waste material in some manner on the project site.
- K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.
- M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- N. Toxic: Poisonous to humans either immediately or after a long period of exposure.
- O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Submit Waste Management Plan within 10 calendar days after receipt of Notice of Award of Bid, or prior to any trash or waste removal, whichever occurs sooner; submit projection of all trash and waste that will require disposal and alternatives to landfilling.
- C. Waste Management Plan: Include the following information:
 - 1. Analysis of the trash and waste projected to be generated during the entire project construction cycle, including types and quantities.
 - 2. Landfill Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).
- D. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.
 - 1. Submit Report on a form acceptable to Owner.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 WASTE MANAGEMENT PROCEDURES

- A. See Section 01 1000 for list of items to be salvaged from the existing building for relocation in project or for Owner.

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- B. See Section 01 3000 for additional requirements for project meetings, reports, submittal procedures, and project documentation.
- C. See Section 01 6000 for waste prevention requirements related to delivery, storage, and handling.

3.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

- A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.
- B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, and Architect.
- C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.
- D. Meetings: Discuss trash/waste management goals and issues at project meetings.
 - 1. Prebid meeting.
 - 2. Preconstruction meeting.
 - 3. Regular job-site meetings.
- E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
- F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

END OF SECTION

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**SECTION 017700
CLOSEOUT PROCEDURES**

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final Completion procedures.
 - 3. List of incomplete items.
 - 4. Submittal of Project warranties.
 - 5. Final cleaning.
- B. Related Requirements:
 - 1. Section 01 2900 "Payment Procedures" for requirements for Applications for Payment for Substantial Completion and Final Completion.
 - 2. Section 01 3233 "Photographic Documentation" for submitting Final Completion construction photographic documentation.
 - 3. Section 01 7823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.

1.02 DEFINITIONS

- A. List of Incomplete Items: Contractor-prepared list of items to be completed or corrected, prepared for the Architect's use prior to Architect's inspection, to determine if the Work is substantially complete.

1.03 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.04 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items required by other Sections.

1.05 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of [10] days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect, and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
 - 1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for Final Completion.

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1.06 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:
 - 1. Submit a final Application for Payment in accordance with Section 01 2900 "Payment Procedures."
 - 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list will state that each item has been completed or otherwise resolved for acceptance.
 - 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - 4. Submit Final Completion photographic documentation.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect, and Contractor will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.07 LIST OF INCOMPLETE ITEMS

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize roof area by wing or space below.
 - 2. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.
 - 3. Submit list of incomplete items in the following format:
 - a. MS Excel Electronic File: Architect will return annotated file.
 - b. PDF Electronic File: Architect will return annotated file.
 - c. Web-Based Project Software Upload: If required by Owner, utilize software feature for creating and updating list of incomplete items (punch list).

1.08 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
- C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Warranties in Paper Form:

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1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

PART 2 PRODUCTS

2.01 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 that might damage finished surfaces.
 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 EXECUTION

3.01 FINAL CLEANING

- A. General: Perform 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 for entire Project or for a designated portion of Project:
 - a. Clean Project site of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
- C. Construction Waste Disposal: Comply with waste-disposal requirements in Section 01 5000 "Temporary Facilities and Controls" and Section 01 7419 "Construction Waste Management and Disposal."

3.02 CORRECTION OF THE WORK

- A. Complete repair and restoration operations required by "Correction of the Work" Article in Section 01 7300 "Execution" before requesting inspection for determination of Substantial Completion.

END OF SECTION

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CLOSEOUT PROCEDURES
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**SECTION 017823
OPERATION AND MAINTENANCE DATA**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory manuals.
 - 2. Product maintenance manuals.
- B. Related Requirements:
 - 1. Section 01 3300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.03 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.04 CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
- B. Format: Submit operation and maintenance manuals in the following format:
 - 1. Submit by emailing to PDF to Architect and Owner.
- C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion.
 - 1. Correct or revise each manual to comply with Architect's and Owner's comments. Submit copies of each corrected manual within [15] days of receipt of Architect's and Owner's comments.
- D. Comply with Section 01 7700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.05 FORMAT OF OPERATION AND MAINTENANCE MANUALS

- A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
 - 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 - 2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

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- B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.
1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. Enclose title pages and directories in clear plastic sleeves.
 4. Supplementary Prepared on 8-1/2-by-11-inch white bond paper.
 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.06 REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
1. Title page.
 2. Table of contents.
 3. Manual contents.
- B. Title Page: Include the following information:
1. Subject matter included in manual.
 2. Name and address of Project.
 3. Name and address of Owner.
 4. Date of submittal.
 5. Name and contact information for Contractor.
 6. Name and contact information for Architect.
 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

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1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.07 PRODUCT MAINTENANCE MANUALS

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Product Information: Include the following, as applicable:
 1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- E. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 1. Inspection procedures.
 2. Types of cleaning agents to be used and methods of cleaning.
 3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.
- F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 1. Include procedures to follow and required notifications for warranty claims.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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**SECTION 024119
SELECTIVE DEMOLITION**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Demolition and removal of selected portions of building or structure.
- B. Related Requirements:
 - 1. Section 01 1000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
 - 2. Section 01 7300 "Execution" for cutting and patching procedures.

1.02 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and carefully store for reinstallation as per the Contract Documents.
- C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.03 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.04 PREINSTALLATION MEETINGS

- A. Pre-demolition Walk-through and Conference: A mandatory pre-demolition walk-through conference is required for all Bidders at the Project site.
 - 1. NOTE: this is a public building that will be open throughout the work so the contractor is responsible for protecting entrance and exit areas and working around the usage of the building.
 - 2. Inspect and discuss condition of construction to be selectively demolished, as well as visual inventory of any and all items to be removed and disposed of as part of the project scope.
 - 3. Review supporting of existing abandoned mechanical exhaust flue as part of the demolition work.
 - 4. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 5. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - 6. Review areas where existing construction is to remain and requires protection.

1.05 INFORMATIONAL SUBMITTALS

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- A. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's building manager's and other tenants' on-site operations are uninterrupted.
 - 2. Coordination of Owner's continuing occupancy of the existing building and of Owner's partial occupancy of completed Work.

1.06 FIELD CONDITIONS

- A. Owner will occupy the building during the demolition. Conduct selective demolition so Owner's operations will not be disrupted.
- B. It is required of all prospective bidders to attend the pre-demolition walk-through and conference to fully understand extents of demolition scope.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: Existing Synthetic Slate Shingles tested positive for ACM. Refer to Appendix for Hazardous Materials Report.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

PART 2 PRODUCTS – NOT USED.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Review Project Record Documents of existing construction or other existing conditions and provided by the Owner upon request. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

3.03 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 2. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
- B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

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1. Strengthen or add new supports when required during progress of selective demolition.
- C. Remove temporary barricades and protections where hazards no longer exist.

3.04 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically and in a logical manner.
 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Use of cutting torches or any open flame tools is strictly prohibited. All cutting is required to be performed by mechanical tools. For cutting abandoned mechanical exhaust flue, maintain portable fire-suppression devices during cutting operations.
 5. Maintain fire watch during and for at least one hour after interior metal cutting operations.
 6. Maintain adequate ventilation when cutting metal.
 7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 9. Dispose of demolished items and materials promptly. Comply with requirements in Section 01 7419 "Construction Waste Management and Disposal."
- B. Removed and Salvaged Items:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area to be coordinated with the Owner.
 4. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.05 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing so that building interior remains watertight and weathertight.
1. Remove existing roof membrane, flashings, copings, and roof accessories as identified on the Contract Documents. If there are any questions as to what should be removed, notify the Architect immediately.
 2. Remove existing roofing system down to substrate.

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3. Remove rotted substrates as required to ensure proper installation of new roofing system.
 4. Photograph and advise the Architect if any substrate is in poor or significantly damaged condition.
- B. Exterior Cementitious Envelope Assembly: Remove no more exterior cementitious envelope assembly than required beyond what is water or moisture damaged. Exterior envelope must remain closed to the weather in the event of inclement weather.
1. Photograph and advise the Architect if any substrate is in poor or significantly damaged condition.

3.06 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and recycle or dispose of them according to Section 01 7419 "Construction Waste Management and Disposal."
1. Do not allow demolished materials to accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 4. Comply with requirements specified in Section 01 7419 "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.

3.07 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

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SELECTIVE DEMOLITION
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**SECTION 030100
MAINTENANCE OF CONCRETE**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Resurfacing of concrete surfaces having spalled areas and other damage.

1.02 REFERENCE STANDARDS

- A. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2024a.
- B. ASTM C150/C150M - Standard Specification for Portland Cement; 2024.
- C. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2024.
- D. ASTM C928/C928M - Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs; 2025.
- E. ASTM D3039/D3039M - Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials; 2017 (Reapproved 2025).
- F. ICC-ES AC178 - Acceptance Criteria for Inspection and Verification of Concrete and Reinforced and Unreinforced Masonry Strengthening Using Fiber-Reinforced Polymer (FRP) or Steel-Reinforced Polymer (SRP) Composite Systems; 2017, with Editorial Revision (2020).
- G. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair; 2013.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS

- A. Degreaser:
 - 1. Manufacturers:
 - a. Euclid Chemical Company; Euco Clean and Strip: www.euclidchemical.com/#sle.
 - b. LATICRETE International, Inc; CITREX: www.laticrete.com/#sle.
 - c. W. R. Meadows, Inc; _____: www.wrmeadows.com/#sle.
 - d. Substitutions: See Section 016000 - Product Requirements.
- B. Detergent: Non-ionic detergent.

2.02 CEMENTITIOUS PATCHING AND REPAIR MATERIALS

- A. Manufacturers:
- B. Cementitious Repair Mortar, Trowel Grade: One- or two-component, factory-mixed, polymer-modified cementitious mortar.
 - 1. Mixed with water or latex type bonding agent in proportions as recommended by manufacturer.
 - 2. Dry Material: Complies with ASTM C928/C928M.
 - 3. Manufacturers:
 - a. LATICRETE International, Inc; L&M DURACRETE: www.laticrete.com/#sle.
 - b. Mapei Corporation; Planitop X: www.mapei.com/#sle.
 - c. SILPRO Corporation; SilPro Rapid: www.silpro.com/#sle.
 - d. Substitutions: See Section 016000 - Product Requirements.

2.03 ACCESSORIES

- A. Portland Cement: ASTM C150/C150M, Type I, grey.
- B. Sand: ASTM C33/C33M or ASTM C404; uniformly graded, clean.

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PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Beginning of installation means acceptance of substrate.

3.02 PREPARATION

- A. Prepare concrete surfaces to be repaired according to ICRI 310.2R, CSP 3.
- B. Surface Preparation for CFRP Systems:
 - 1. Repair cracks according to CFRP manufacturer's written instructions.
 - 2. Cleaning: Remove loose and unsound materials. Remove contaminants that would inhibit bond, such as laitance, dust, dirt, oil, curing compound, existing paint or coatings, efflorescence, and other matter that could interfere with bond of CFRP system concrete surfaces.
 - 3. Concrete: Roughen surface according to CFRP manufacturer's written instructions.
 - 4. Apply CFRP system within 72 hours of surface preparation.

3.03 CONCRETE SURFACE REPAIR USING CEMENTITIOUS MATERIALS

- A. Clean concrete surfaces, cracks, and joints of dirt, laitance, corrosion, and other contamination using method(s) specified above and allow to dry.
- B. Apply coating of bonding agent to entire concrete surface to be repaired.
- C. Fill voids with cementitious mortar flush with surface.
- D. Apply repair mortar by steel trowel to a minimum thickness of 1/4 inch (6 mm) over entire surface, terminating at a vertical change in plane on all sides.
- E. Trowel finish to match adjacent concrete surfaces.

3.04 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements for additional requirements.
- B. An independent testing agency, as specified in Section 014000, will perform field inspection and testing.
 - 1. Field Quality Control for CFRP:
 - a. Inspect installation and test for compliance with ICC-ES AC178.
 - b. Inspect for voids, bubbles, and delaminations by performing a visual and acoustic tap test of layered surface after 24 hours of initial resin saturant cure.
 - c. Test for material properties of CFRP in accordance with ASTM D3039/D3039M.
 - d. Nonconforming Work: Repair defective work after minimum cure time for CFRP laminates.

END OF SECTION

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**SECTION 061000
ROUGH CARPENTRY**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Roof Sheathing.
- B. Fire retardant treated wood materials.
- C. Miscellaneous framing and sheathing.

1.02 RELATED REQUIREMENTS

- A. Section 072500 - Weather Barriers: Water-resistive barrier over sheathing.
- B. Section 076200 - Sheet Metal Flashing and Trim: Flashings.

1.03 REFERENCE STANDARDS

- A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2025.
- B. PS 20 - American Softwood Lumber Standard; 2025.

1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide technical data on insulated sheathing and application instructions.
- C. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

1.06 WARRANTY

- A. See Section 017800 - Closeout Submittals for additional warranty requirements.
- B. Correct defective work with a two-year period commencing on date of substantial completion.
- C. Manufacturer Warranty: Provide 2-year manufacturer warranty for materials and workmanship commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
 - 2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
 - 3. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

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2.02 CONSTRUCTION PANELS

- A. Roof Sheathing, Vented: Wood construction panel and 1 inch (25 mm) solid wood spacers attached to insulation board.
 - 1. Construction Panel: 5/8 inch (16 mm) CDX plywood.
 - 2. Insulation Board: Rigid polyisocyanurate (ISO) insulation board, ASTM C1289, Type II, Class 1 - Faced with glass fiber reinforced cellulosic felt facers on both major surfaces of the core foam.
 - 3. Products:
 - a. Hunter Panels; Cool-Vent: www.hunterpanels.com/#sle.
 - b. Atlas Roofing Corporation; AC Foam Cross Vent: www.atlaswi.com/#sle..
 - c. Petersen; PAC-Shield Nail Base: www.pac-clad.com/#sle.
 - d. Substitutions: See Section 016000 - Product Requirements.
- B. Roof Sheathing: Roof sheathing plywood.
 - 1. Location: Miscellaneous I
 - 2. Bond Classification: Exterior
 - 3. Size: Varies, field cut sections in largest possible single pieces.
 - 4. Panel Thickness: 5/8", nominal
 - 5. Per

2.03 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Fire-Retardant-Treated Wood:
 - a. Nails, timber rivets, wood screws, and lag screws: Type 316 stainless steel.
 - 2. High Humidity Wood Locations: Type 316 stainless steel.
 - 3. Untreated Wood: Type 316 stainless steel.

2.04 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 - 1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
- B. Fire Retardant Treatment:
 - 1. Exterior Type: AWPA U1, Category UCFB, Commodity Specification H, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes both before and after accelerated weathering test performed in accordance with ASTM D2898.
 - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
 - b. Treat exterior rough carpentry items.
 - c. Do not use treated wood in direct contact with the ground.

PART 3 EXECUTION

3.01 PREPARATION

- A. Coordinate installation of rough carpentry members specified in other sections

3.02 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.

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- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 ROOF-RELATED CARPENTRY

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

3.04 INSTALLATION OF CONSTRUCTION PANELS

- A. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
 - 1. At long edges use sheathing clips where joints occur between roof framing members.
 - 2. Nail panels to framing; staples are not permitted.

3.05 CLEANING

- A. Waste Disposal: See Section 017419 - Construction Waste Management and Disposal.
 - 1. Comply with applicable regulations.
 - 2. Do not burn scrap on project site.
 - 3. Do not burn scraps that have been pressure treated.
 - 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

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**SECTION 062000
FINISH CARPENTRY**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cellular PVC Trim Boards

1.02 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with installation of associated and adjacent components.

1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data:
 - 1. Provide manufacturer's product data, storage and handling instructions for factory-fabricated units.
 - 2. Provide instructions for attachment hardware.
- C. Samples: Submit two samples of cellular PVC trim
- D. Manufacturer's Instructions: Provide manufacturer's installation instructions for factory-fabricated units.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1.06 MOCK-UPS

- A. Locate where directed.
- B. Mock-up may remain as part of the work.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

- A. Exterior Woodwork Items:
 - 1. Cellular PVC Fascia Boards, prefinished

2.02 FASTENINGS

- A. Fasteners for Exterior Applications: Stainless steel; length required to penetrate wood substrate 1-1/2 inch (38 mm) minimum.

2.03 ACCESSORIES

- A. Adhesive: Type recommended by fabricator to suit application.
- B. Cellular PVC Trim and Moldings: Extruded, expanded PVC; UV-resistant, heat-stabilized, and rigid material; for exterior use only.
 - 1. Profiles: As selected from manufacturer's standard range.
 - 2. Density: 31 pounds per cubic foot (500 kg/cu m), minimum.
 - 3. Flame Spread: ASTM E84, 75, maximum.
 - 4. Manufacturers:
 - a. AZEK Building Products, Inc; PVC Trim Boards: www.azek.com/#sle.

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- b. Royal Corinthian; RoyalPVC: www.royalcorinthian.com/#sle.
- c. Versatex Building Products, LLC; Trimboard: www.versatex.com/#sle.
- d. Substitutions: See Section 016000 - Product Requirements.

2.04 FABRICATION

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

- A. Set and secure materials and components in place, plumb and level.
- B. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch (0.79 mm). Do not use additional overlay trim to conceal larger gaps.

END OF SECTION

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**SECTION 070150.19
PREPARATION FOR RE-ROOFING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Replacement of existing roofing system in preparation for entire new roofing system.
- B. Removal of existing flashing and counter-flashings.
- C. Temporary roofing protection.

1.02 RELATED REQUIREMENTS

- A. Section 07 6200 - Sheet Metal Flashing and Trim: Replacement of flashing and counter-flashings.

1.03 REFERENCE STANDARDS

- A. ASTM D41/D41M - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing; 2011 (Reapproved 2023).
- B. ASTM D312/D312M - Standard Specification for Asphalt Used in Roofing; 2016a (Reapproved 2023).
- C. ASTM D2178/D2178M - Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing; 2015a (Reapproved 2021).
- D. ASTM D4601/D4601M - Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing; 2004 (Reapproved 2020).

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with affected mechanical and electrical work associated with roof penetrations.
- B. Preinstallation Meeting: Convene one week before starting work of this section.
 - 1. Attendees:
 - a. Architect.
 - b. Contractor.
 - c. Owner.
 - d. Installer.
 - e. Roofing system manufacturer's field representative.
 - f. Inspection and Testing Agency Representatives.
 - 2. Meeting Agenda: Provide agenda to participants prior to meeting in preparation for discussions on the following:
 - a. Removal and installation schedule.
 - b. Necessary preparatory work.
 - c. Protection before, during, and after roofing system installation.
 - d. Removal of existing roofing system.
 - e. Installation of new roofing system.
 - f. Temporary roofing and daily terminations.
 - g. Transitions and connection to and with other work.
 - h. Inspections of installed systems.
- C. Schedule work to coincide with commencement of installation of new roofing system.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.

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- B. Product Data: Submit for each type of material.
- C. Shop Drawings: Indicate size, configuration, and installation details.
- D. Preconstruction Test Reports.
- E. Materials Removal Company Qualification Statement.
- F. Installer's Qualification Statement.
- G. Preconstruction Testing Agency Qualification Statement.

1.06 QUALITY ASSURANCE

- A. Materials Removal Company Qualifications: Company specializing in performing work of type specified with at least three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.
- C. Preconstruction Testing: Conduct testing by an independent test agency, in accordance with provisions of Section 01 4000 - Quality Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.

1.08 FIELD CONDITIONS

- A. Existing Roofing Systems:
 - 1. Pitched / Gabled roofing: Built-up asphalt shingle roofing.
- B. Do not remove existing roofing assemblies when weather conditions threaten the integrity of building contents or intended continued occupancy.
- C. Maintain continuous temporary protection prior to and during installation of new roofing system.
- D. Provide notice at least three days before starting activities that will affect normal building operations.
- E. Owner will occupy building areas directly below re-roofing area.
 - 1. Provide Owner with at least 48 hours written notice of roofing activities that may affect their operations and to allow them to prepare for upcoming activities as necessary.
 - 2. Do not disrupt Owner's operations or activities.
 - 3. Maintain access of Owner's personnel to corridors, existing walkways, and adjacent buildings.

1.09 WARRANTY

- A. See Section 01 7700 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 COMPONENTS

- A. See the following sections for additional information on components relating to this work:
 - 1. Replacement and removal of existing roofing system in preparation for entire new roofing system, see Section 07 3113.
 - 2. Remove existing flashing and counter-flashings in preparation for replacement of these materials as part of this work, see Section 07 7200 for material requirements.

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2.02 MATERIALS

- A. Patching Materials: Provide necessary materials in accordance with requirements of existing roofing system.
- B. Temporary Roofing Protection Materials:
 - 1. Contractor's responsibility to select appropriate materials for temporary protection of roofing areas as determined necessary for this work.
 - 2. Plastic Sheeting: Provide polyethylene sheets; use weights to retain sheeting in position.

2.03 ACCESSORIES

- A. Fasteners: Type and size as required and compatible with existing and new roofing system to resist local wind uplift.
- B. Sheathing Paper: Red rosin paper type, at least 3 lb/100 sq ft (1.36 kg/9.3 sq m).
- C. Roofing Asphalt: Type III or Type IV, in accordance with ASTM D312/D312M.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing roof surface has been cleared of materials being removed from existing roofing system and ready for next phase of work as required.
- B. Verify that any rotted or damaged wood roof edging or substrates have been properly removed and infilled with suitable product prior to installation of new roofing assemblies.

3.02 PREPARATION

- A. Sweep roof surface clean of loose matter.
- B. Remove loose refuse and dispose of properly off-site.

3.03 MATERIAL REMOVAL

- A. Remove only existing roofing materials that can be replaced with new materials the same day.
- B. Remove roofing membrane, perimeter base flashings, flashings around roof protrusions, pitch pans and pockets.
- C. Remove vapor retarder, sheathing paper, and underlay.
- D. Remove any rotted or damaged wood edging or substrates as required.

3.04 INSTALLATION

- A. Coordinate scope of this work with requirements for installation of new roofing system, see Section 07 3113 and Section 07 7200 for additional requirements.

3.05 PROTECTION

- A. Provide temporary protective sheeting over uncovered roof surfaces.
- B. Provide for surface drainage from sheeting to existing drainage facilities or to a location on the ground that has been reviewed with and approved by the Owner.
- C. Do not permit traffic over unprotected or repaired deck surface.
- D. Install cover board for any areas left open more than 24 hours.

END OF SECTION

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**SECTION 072100
THERMAL INSULATION**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Board insulation at over roof deck and over roof sheathing.

1.02 RELATED REQUIREMENTS

- A. Section 061000 - Rough Carpentry: Installation requirements for board insulation over steep slope roof sheathing or roof structure.

1.03 REFERENCE STANDARDS

- A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2025.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026.

1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.
- C. ABAA Field Quality Control Submittals: Submit third-party reports of testing and inspection required by ABAA QAP.
- D. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.
- E. ABAA Manufacturer Qualification: Submit documentation of current evaluation of proposed manufacturer and materials.
- F. ABAA Installer Qualification: Submit documentation of current contractor accreditation and current installer certification. Keep copies of contractor accreditation and installer certification on project site during and after installation. Present on-site documentation upon request.

1.05 QUALITY ASSURANCE

- A. Air Barrier Association of America (ABAA) Quality Assurance Program (QAP); www.airbarrier.org/#sle:
 - 1. Installer Qualification: Use accredited contractors, certified installers, evaluated materials, and third-party field quality control audit.
 - 2. Manufacturer Qualification: Use evaluated materials from a single manufacturer regularly engaged in air barrier material manufacture. Use secondary materials approved in writing by primary material manufacturer.

1.06 FIELD CONDITIONS

- A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 APPLICATIONS

- A. Insulation over Roof Deck: Polyisocyanurate board.

2.02 FOAM BOARD INSULATION MATERIALS

- A. Polyisocyanurate (ISO) Board Insulation: Rigid cellular foam, comply with ASTM C1289.

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1. Classifications:
 - a. Type II: Faced with either cellulosic facers or glass fiber mat facers on both major surfaces of the core foam.
 - 1) Class 1 - Faced with glass fiber reinforced cellulosic facers on both major surfaces of core foam.
 - 2) Compressive Strength: Classes 1-2-3, Grade 1 - 16 psi (110 kPa), minimum.
 - 3) Thermal Resistance, R-value (RSI-value): At 1-1/2 inch (38.1 mm) thick; Class 1, Grades 1-2-3 - 8.4 (1.48), minimum, at 75 degrees F (24 degrees C).
2. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
3. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
4. Board Size: 48 inch by 96 inch (1220 mm by 2440 mm).
5. Board Thickness: 1.7 inch (43 mm).
6. Products:
 - a. Atlas Roofing Corporation; ACFoam-III CGF Roof Insulation: www.atlasroofing.com/#sle.
 - b. GAF; EnergyGuard Ultra Polyiso Insulation: www.gaf.com/#sle.
 - c. Hunter Panels; Xci CG: www.hunterpanels.com/#sle.
 - d. Substitutions: See Section 016000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.
- B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION OVER STEEP SLOPE ROOF SHEATHING OR ROOF STRUCTURE

- A. Installation of board insulation over steep slope roof structure or roof sheathing, see Section 073113.

3.03 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements for additional requirements.
- B. Coordination of Air Barrier Association of America (ABAA) Tests and Inspections:
 1. Provide testing and inspection required by ABAA Quality Assurance Program (QAP).
 2. Notify ABAA in writing of schedule for air barrier work, and allow adequate time for testing and inspection.
 3. Cooperate with ABAA testing agency.
 4. Allow access to air barrier work areas and staging.
 5. Do not cover air barrier work until tested, inspected, and accepted.

3.04 PROTECTION

- A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

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Thermal Insulation
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**SECTION 072700
AIR BARRIERS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Air barriers.

1.02 DEFINITIONS

- A. Air Barrier: Airtight barrier made of material that is virtually air impermeable but water vapor permeable, both to amount as specified, with sealed seams and sealed joints to adjacent surfaces.

1.03 REFERENCE STANDARDS

- A. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2025.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026.
- C. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2024a.
- D. ASTM E2178 - Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials; 2021a.
- E. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components; 2025.

1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on material characteristics, performance criteria, and limitations.
- C. Manufacturer's Installation Instructions: Indicate preparation, installation methods, and storage and handling criteria.
- D. ABAA Manufacturer Qualification: Submit documentation of current evaluation of proposed manufacturer and materials.
- E. ABAA Installer Qualification: Submit documentation of current contractor accreditation and current installer certification; keep copies of each contractor accreditation and installer certification on site during and after installation, and present on-site documentation upon request.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.
- B. Manufacturer Qualification: Use evaluated materials from a single manufacturer regularly engaged in air barrier material manufacture, and use secondary materials approved in writing by primary material manufacturer.
- C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

1.06 MOCK-UPS

- A. See Section 014000 - Quality Requirements for additional requirements.
- B. Locate where directed.

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1.07 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by materials manufacturers before, during, and after installation.

PART 2 PRODUCTS

2.01 AIR BARRIER MATERIALS (AIR IMPERMEABLE AND WATER VAPOR PERMEABLE)

- A. Air Barrier Sheet, Self-Adhered:
 - 1. Air Permeance: 0.004 cfm/sq ft (0.02 L/(s sq m)), maximum, when tested in accordance with ASTM E2178.
 - 2. Water Vapor Permeance: 10 perms (572 ng/(Pa s sq m)), minimum, when tested in accordance with ASTM E96/E96M using Procedure A - Desiccant Method, at 73.4 degrees F (23 degrees C).
 - 3. Ultraviolet (UV) and Weathering Resistance: Approved by manufacturer for up to 90 days of weather exposure.
 - 4. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 450 or less, Class A when tested in accordance with ASTM E84.
 - 5. Seam and Perimeter Tape: As recommended by sheet manufacturer.
 - 6. Products:
 - a. Carlisle Coatings and Waterproofing, Inc; Fire Resist 705 VP: www.carlisleccw.com/#sle.
 - b. Henry, a Carlisle Company; Blueskin VP160: www.henry.com/#sle.
 - c. IMETCO; IntelliWrap SA: www.imetco.com/#sle.

2.02 ACCESSORIES

- A. Sealants, Tapes, and Accessories for Sealing Air Barrier and Adjacent Substrates: As indicated or in compliance with air barrier manufacturer's installation instructions.
- B. Primer: As required and as recommended for substrate by air-barrier material manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and conditions are ready for work of this section.
- B. Where existing conditions are responsibility of another installer, notify Architect of unsatisfactory conditions.
- C. Do not proceed with this work until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.
- B. Clean and prime substrate surfaces to receive adhesives and sealants in accordance with manufacturer's installation instructions.

3.03 INSTALLATION

- A. Install materials in accordance with manufacturer's installation instructions.
- B. Air Barriers: Install continuous airtight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
- C. Apply sealants and adhesives within recommended temperature range in accordance with manufacturer's installation instructions.
- D. Self-Adhered Sheets:

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1. Prepare substrate in accordance with sheet manufacturer's installation instructions; fill and tape joints in substrate and between dissimilar materials.
 2. Lap sheets shingle fashion to shed water and seal laps airtight.
 3. Once sheets are in place, press firmly into substrate with resilient hand roller; ensure that laps are firmly adhered with no gaps or fishmouths.
 4. Use same material, or other material approved by sheet manufacturer, to seal to adjacent substrates, and as flashing.
 5. At wide joints, provide extra flexible membrane allowing joint movement.
- E. Openings and Penetrations in Exterior Air Barriers:
1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches (125 mm) onto air barrier and at least 6 inches (150 mm) up jambs; mechanically fasten stretched edges.
 2. At openings with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches (100 mm) wide; do not seal sill flange.
 3. At openings with nonflanged frames, seal air barrier to each side of framing at opening using flashing at least 9 inches (230 mm) wide, and covering entire depth of framing.
 4. At head of openings, install flashing under air barrier extending at least 2 inches (50 mm) beyond face of jambs; seal air barrier to flashing.
 5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
 6. Service and Other Penetrations: Form flashing around penetrating item and seal to air barrier surface.

3.04 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements for additional requirements

3.05 PROTECTION

- A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

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**SECTION 073113
ASPHALT SHINGLES**

SUMMARY

1.01 THIS SECTION INCLUDES THE FOLLOWING:

- A. Asphalt shingles for sloped roofs.
- B. Ridge vents.
- C. Underlayment and self-adhering sheet underlayment.
- D. All hoisting and scaffolding necessary for the completion of the roof work.
- E. Waste disposal.

1.02 RELATED SECTIONS INCLUDE THE FOLLOWING:

- A. Section 01 2500 Substitution Procedures.
- B. Section 06 1000 Rough Carpentry.
- C. Section 07 0150.19 Preparation for Re-Roofing.
- D. Section 07 2100 Thermal Insulation.
- E. Section 07 7200 Roof Accessories.

1.03 DEFINITIONS

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

1.04 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of asphalt shingle indicated.
- C. Samples for Verification: For the following products, of sizes indicated, to verify color selected.
 - 1. Asphalt Shingle: Full-size asphalt shingle strip.
 - 2. Ridge Vent: 12-inch- long Sample.
 - 3. Ridge Cap Shingles: Full-size ridge and hip cap asphalt shingle.
 - 4. Self-Adhering Underlayment: 12 inches square.
- D. Qualification Data: For Installer.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency or by manufacturer and witnessed by a qualified testing agency, for asphalt shingles.
- F. Research/Evaluation Reports: For asphalt shingles.
- G. Maintenance Data: For asphalt shingles to include in maintenance manuals.
- H. Warranties: Special warranties specified in this Section.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual that is approved, authorized, or licensed by asphalt shingle roofing system manufacturer to install roofing system indicated.
- B. Fire-Test-Response Characteristics: Provide asphalt shingle and related roofing materials with the fire- test-response characteristics indicated, as determined by testing identical products per test method below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

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1. Exterior Fire-Test Exposure: Class A; ASTM E 108 or UL 790, for application and roof slopes indicated.
- C. Wind-Resistance-Test Characteristics: Provide asphalt shingles and related products identical to those tested according to ASTM D 7158 Class H 150 mph wind resistance and passed. Identify each bundle of asphalt shingles with appropriate markings from the applicable testing and inspecting agency.
- D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.06 DELIVERY, STORAGE, AND HANDLING

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

1.07 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit asphalt shingle roofing to be performed according to manufacturer's written instructions and warranty requirements.
- B. Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended by manufacturer.

1.08 WARRANTY

- A. Standard Warranty: Standard form in which manufacturer agrees to repair or replace asphalt shingles that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Manufacturing defects.
 - b. Structural failures including failure of asphalt shingles to self-seal after a reasonable time.
 2. Material Warranty Period: 50 years, pro-rated, with the first 20 years non-prorated.
 3. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds up to 130 mph for 15 years from date of Substantial Completion.
 4. Algae-Discoloration Warranty Period: Asphalt shingles will not discolor 10 years from date of Substantial Completion.
- B. Special Extended Warranty: Amend manufacturer's standard form in which manufacturer agrees to repair or replace asphalt shingle roofing system that fails in materials or workmanship within specified warranty period. Warranty includes unlimited manufacturer's guarantee for water tightness covering material and labor costs on the entire roofing system including repair or replacement, tear-off protection, disposal, and workmanship defects.
 1. Failures include, but are not limited to, the following:
 - a. Workmanship defects.
 - b. Manufacturing defects.
 - c. Water leaks.
 - d. Structural failures including failure of asphalt shingles to self-seal after a reasonable time.

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2. Warranty includes asphalt shingles, hip and ridge shingles, self-adhering sheet underlayment, ridge vents, flashing and metal drip edges required for a complete roofing installation.
 3. Workmanship Warranty Period: 20 years from date of Substantial Completion.
- C. Special Project Warranty: Roofing Installer's Warranty, signed by roofing Installer, covering the Work of this Section, in which roofing Installer agrees to repair or replace components of asphalt shingle roofing that fail in materials or workmanship within specified warranty period.
1. Warranty Period: Two years from date of Substantial Completion.

1.09 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Asphalt Shingles: 100 sq. ft of each type, in unbroken bundles.

1.10 MOCK-UPS

- A. Construct mock-up of typical asphalt shingles application in minimal area of 5' x 5' at approved location approved by Owner and Architect. Include all associated underlayments and associated scopes of work (edging, air/moisture barriers, etc.).
- B. Mock-up may remain as part of the Work if it is approved by Owner and Architect.

PART 2 - PRODUCTS

2.01 GLASS-FIBER-REINFORCED ASPHALT SHINGLES

- A. Laminate Strip Asphalt Shingles: ASTM D 3462, laminated multi ply overlay construction, glass fiber reinforced, mineral granule, surfaced and self-sealing, and rated to perform at 130 mph.
1. Basis-of-Design Product:
 - a. Provide CertainTeed; Landmark Pro Max Def
 - b. Color: Max Def Cobblestone Gray.
 - 1) All substitution colors must match basis of design as closely as possible.
 2. Other Manufacturer's, subject to compliance with Basis of Design:
 - a. GAF; Timberline HD.
 - b. Owens Corning; TruDefinition Duration.
 - c. Other substitutions refer to Section 01 2500 Substitution Procedures.
 3. Butt Edge: Straight cut.
 4. Strip Size: Manufacturer's standard.
 5. Weight/Square: 300 lbs.
 6. Algae Resistance: Granules treated to resist algae discoloration.
 7. Color: As selected by Architect from manufacturer's full range.
- B. Ridge Shingles: Manufacturer's standard units to match asphalt shingles.

2.02 UNDERLAYMENT MATERIALS

- A. Self-Adhering Sheet Underlayment, Granular Faced: ASTM D 1970, minimum of 60-mil- thick x 36" wide, slip- resisting, Granular-reinforced top surface laminated to SBS-modified asphalt adhesive, with release paper backing; cold applied.
1. Obtain self-adhering sheet underlayment from same manufacturer of asphalt shingles, or equal product approved in writing by manufacturer, as required to maintain specified warranty of system.
 2. Provide cement, fasteners, and all accessories recommended by the manufacturer for a complete system.
 3. Products: Subject to compliance with requirements, provide one of the following:

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4. CertainTeed; WinterGuard Granular.
 - a. GAF; WeatherWatch.
 - b. Owens Corning; WeatherLock G.

2.03 RIDGE VENTS

- A. Rigid Ridge Vent: Manufacturer's standard rigid section high-density polypropylene or other UV-stabilized plastic ridge vent with nonwoven geotextile filter strips; for use under ridge shingles.
 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Air Vent Inc., a CertainTeed Company; ShingleVent II.
 - b. Cor-A-Vent; V-600.
 - c. Quarrix Building Products; Ridge Vent.
 2. Minimum Net Free Area: 18 sq. in. /ft.
 3. Width: 12 inches.
- B. Slot Vent: Manufacturer's standard rigid section high-density polypropylene or other UV-stabilized plastic vent with nonwoven geotextile filter strips; for use at mid-roof intake and shingled over.
 1. Provide a minimum of 9 square inches of net free area per linear foot.
 2. Size: 10'-1/2" wide, tapers 3/4-inch to 1/8-inch, 36 inches long.
 3. Product: Subject to compliance with requirements, provide one of the following, or equal:
 - a. Cor-A-Vent; In-Vent.
 - b. DCI; SmartVent Attic Intake.

2.04 FASCIA VENT

- A. Prefabricated Eave Intake Vent: Manufacturer's standard corrugated polyethylene plastic vent panel.
 1. Products: Subject to compliance with requirements, provide.
 - a. Cor-A-Vent, S-400 Strip Vent
 - b. DCI; FasciaVent
 2. Dimensions: Longest feasible sections.
 3. Color: White or Selected by Architect from Manufacturers standard range

2.05 ACCESSORIES

- A. Roofing Nails: Stain Steel 316 , steel wire shingle nails, minimum 0.120-inch- diameter, barbed shank, sharp-pointed, with a minimum 3/8-inch- diameter flat head and of sufficient length to penetrate 3/4 inch into solid wood decking or extend at least 1/8 inch through plywood sheathing.
 1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.

2.06 METAL FLASHING AND TRIM

- A. General: Comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."
- B. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item.
 1. Step Flashings: Fabricate with a headlap of 2 inches and a minimum extension of 5 inches over the underlying asphalt shingle and up the vertical surface.
 2. Drip Edges: Fabricate in lengths not exceeding 10 feet with 2-inch roof deck flange and 1-1/2- inch fascia flange with 3/8-inch drip at lower edge.

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- C. Vent Pipe Flashings: ASTM B 749, Type L51121, at least 1/16 inch thick. Provide sleeve sized to slip over and turn down into pipe, soldered to skirt at slope of roof and extending at least 4 inches from pipe onto roof.

PART 3 - EXECUTION

3.01 EXAMINATION

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

3.02 UNDERLAYMENT INSTALLATION

- A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
- B. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install over full extent of nailing surface, lapped in direction to shed water. Lap sides not less than 3- 1/2 inches. Lap ends not less than 6 inches staggered 24 inches between courses. Roll laps with roller. Cover underlayment within seven days.
- C. Concealed Valley Lining: For woven valleys. Comply with recommendations in NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
 - 1. Lap roof-deck underlayment over valley lining at least 6 inches.
 - 2. Install a 36-inch- wide strip of granular-surfaced valley lining, with granular-surface face up, centered in valley and fastened to roof deck.
 - 3. Lap ends of strips at least 12 inches in direction to shed water, and seal with asphalt roofing cement.
 - 4. Fasten to roof deck.

3.03 METAL FLASHING INSTALLATION

- A. General: Install metal flashings and other sheet metal to comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."
- B. Step Flashings: Install with a headlap of 2 inches and extend over the underlying asphalt shingle and up the vertical surface. Fasten to nailing surface only.
- C. Rake Drip Edges: Install rake drip edge flashings over underlayment and fasten to roof deck.
- D. Eave Drip Edges: Install eave drip edge flashings under underlayment and fasten to roof sheathing.
- E. Pipe Flashings: Form flashing around pipe penetrations and asphalt shingles. Fasten and seal to asphalt shingles as recommended by manufacturer.

3.04 ASPHALT SHINGLE INSTALLATION

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- A. Install asphalt shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."
 - 1. Fasten asphalt shingles to roof sheathing with roofing nails.
 - 2. Fasten asphalt shingles with a minimum of six fasteners per shingle in accordance with the Connecticut State Building Code. STAPLING OF SHINGLES IS NOT ALLOWED.
- B. Install starter strip along lowest roof edge, consisting of an asphalt shingle strip at least 7 inches wide with self-sealing strip face up at roof edge.
 - 1. Extend asphalt shingles 1/2 inch over fascia at eaves and rakes.
 - 2. Install starter strip along rake edge.
- C. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with 5- inch offset pattern at succeeding courses, maintaining uniform exposure.
- D. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.
- E. Fasten asphalt shingle strips with a minimum of six roofing nails located according to manufacturer's written instructions.
 - 1. Where roof slope is less than 4:12, seal asphalt shingles with asphalt roofing cement spots.
 - 2. When ambient temperature during installation is below 50 deg F, seal asphalt shingles with asphalt roofing cement spots.
- F. Woven Valleys: Extend succeeding asphalt shingle courses from both sides of valley 12 beyond center of valley, weaving intersecting shingle-strip courses over each other. Use one-piece shingle strips without joints in valley.
 - 1. Do not nail asphalt shingles within 6 inches of valley center.
- G. Ridge Vents: Install continuous ridge vents over asphalt shingles according to manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing.
- H. Ridge Cap Shingles: Maintain same exposure of cap shingles as roofing shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds. Fasten with roofing nails of sufficient length to penetrate sheathing.
 - 1. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.

3.05 WASTE DISPOSAL

- A. Disposal: At completion of roofing work, transport demolished materials and waste off Owner's property.

END OF SECTION

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**SECTION 079200
JOINT SEALANTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nonsag gunnable joint sealants.
- B. Joint backings and accessories.

1.02 REFERENCE STANDARDS

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2015 (Reapproved 2022).
- B. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants; 2018 (Reapproved 2022).
- C. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2024.
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).
- E. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2023.
- F. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.
- G. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2022.
- H. ASTM C1311 - Standard Specification for Solvent Release Sealants; 2022.
- I. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2023.
- J. ASTM C1382 - Standard Test Method for Determining Tensile Adhesion Properties of Sealants when Used in Exterior Insulation and Finishing Systems (EIFS) Joints; 2016 (Reapproved 2023).
- K. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints; 2019 (Reapproved 2025).
- L. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2024.
- M. SWRI (VAL) - SWR Institute Validated Products Directory; Current Edition.
- N. UL 263 - Standard for Fire Tests of Building Construction and Materials; Current Edition, Including All Revisions.

1.03 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Backing material recommended by sealant manufacturer.
 - 4. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 5. Substrates the product should not be used on.
 - 6. Substrates for which use of primer is required.
 - 7. Substrates for which laboratory adhesion and/or compatibility testing is required.

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8. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
9. Sample product warranty.
- C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- E. Samples for Verification: Where custom sealant color is specified, obtain directions from Architect and submit at least two physical samples for verification of color of each required sealant.
- F. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.
- G. Installation Plan: Submit at least four weeks prior to start of installation.
- H. Preinstallation Field Adhesion Test Plan: Submit at least two weeks prior to start of installation.
- I. Field Quality Control Plan: Submit at least two weeks prior to start of installation.
- J. Preinstallation Field Adhesion Test Reports: Submit filled out Preinstallation Field Adhesion Test Reports log within 10 days after completion of tests; include bagged test samples and photographic records.
- K. Installation Log: Submit filled-out log for each length or instance of sealant installed.
- L. Field Quality Control Log: Submit filled-out log for each length or instance of sealant installed, within 10 days after completion of inspections/tests; include bagged test samples and photographic records, if any.
- M. Manufacturer's qualification statement.
- N. Installer's qualification statement.
- O. Executed warranty.

1.04 QUALITY ASSURANCE

- A. Maintain one copy of each referenced document covering installation requirements on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.
- D. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.
- E. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
 1. Adhesion Testing: In accordance with ASTM C794.
 2. Compatibility Testing: In accordance with ASTM C1087.
 3. Allow sufficient time for testing to avoid delaying the work.
 4. Deliver sufficient samples to manufacturer for testing.
 5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
- F. Installation Plan: Include schedule of sealed joints, including the following:

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1. Method to be used to protect adjacent surfaces from sealant droppings and smears, with acknowledgment that some surfaces cannot be cleaned to like-new condition and therefore prevention is imperative.
2. Installation Log Form: Include the following data fields, with known information filled out.
 - a. Unique identification of each length or instance of sealant installed.
 - b. Location on project.
 - c. Substrates.
 - d. Sealant used.
 - e. Stated movement capability of sealant.
 - f. Size and actual backing material used.
 - g. Date of installation.
 - h. Name of installer.
 - i. Actual joint width; provide space to indicate maximum and minimum width.
 - j. Actual joint depth to face of backing material at centerline of joint.
 - k. Air temperature.
- G. Preinstallation Field Adhesion Test Plan: Include destructive field adhesion testing of one sample of each combination of sealant type and substrate, except interior acrylic latex sealants, and include the following for each tested sample.
 1. Identification of testing agency.
 2. Preinstallation Field Adhesion Test Log Form: Include the following data fields, with known information filled out.
 - a. Test date.
 - b. Copy of test method documents.
 - c. Age of sealant upon date of testing.
 - d. Test results, modeled after the sample form in the test method document.
 - e. Indicate use of photographic record of test.
- H. Field Quality Control Plan:
 1. Visual inspection of entire length of sealant joints.
 2. Field testing agency's qualifications.
 3. Field Quality Control Log Form: Show same data fields as on Preinstallation Field Adhesion Test Log, with known information filled out and lines for multiple tests per sealant/substrate combinations; include visual inspection and specified field testing; allow for possibility that more tests than minimum specified may be necessary.
- I. Field Adhesion Test Procedures:
 1. Allow sealants to fully cure as recommended by manufacturer before testing.
 2. Have a copy of the test method document available during tests.
 3. Take photographs or make video records of each test, with joint identification provided in the photos/videos; for example, provide small erasable whiteboard positioned next to joint.
 4. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
 5. When performing destructive tests, also inspect the opened joint for proper installation characteristics recommended by manufacturer, and report any deficiencies.
 6. Deliver the samples removed during destructive tests in separate sealed plastic bags, identified with project, location, test date, and test results, to Owner.
 7. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.
- J. Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Destructive Tail Procedure.

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1. Sample: At least 18 inches (457 mm) long.
2. Minimum Elongation Without Adhesive Failure: Consider the tail at rest, not under any elongation stress; multiply the stated movement capability of the sealant in percent by two; then multiply 1 inch (25.4 mm) by that percentage; if adhesion failure occurs before the 1-inch mark is that distance from the substrate, the test has failed.
3. If either adhesive or cohesive failure occurs before minimum elongation, take necessary measures to correct conditions and retest; record each modification to products or installation procedures.

1.05 WARRANTY

- A. See Section 017800 - Closeout Submittals for additional warranty requirements.
- B. Manufacturer Warranty: Provide 2-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.
- C. Correct defective work within a five-year period after Date of Substantial Completion.
- D. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Nonsag Sealants:
 1. Dow; _____: www.dow.com/#sle.
 2. Pecora Corporation; _____: www.pecora.com/#sle.
 3. Sika Corporation; _____: usa.sika.com/#sle.
 4. Substitutions: See Section 016000 - Product Requirements.
- B. Self-Leveling Sealants:
 1. Dow; _____: www.dow.com/#sle.
 2. Pecora Corporation; _____: www.pecora.com/#sle.
 3. Sika Corporation; _____: usa.sika.com/#sle.

2.02 JOINT SEALANT APPLICATIONS

- A. Scope:
 1. Exterior Joints:
 - a. Use non-sag non-staining silicone sealant unless otherwise indicated.
 - b. Do not seal exterior joints unless indicated on drawings as sealed.
 - c. Seal the following joints:
 - 1) Wall expansion and control joints.
 - 2) Joints between different exposed materials.
 2. Do Not Seal:
 - a. Intentional weep holes in masonry.
 - b. Joints indicated to be covered with expansion joint cover assemblies.
 - c. Joints where sealant installation is specified in other sections.

2.03 JOINT SEALANTS - GENERAL

- A. Colors: As indicated on drawings.

2.04 NONSAG JOINT SEALANTS

- A. Nonstaining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.

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1. Movement Capability: Plus and minus 50 percent, minimum.
 2. Nonstaining to Porous Stone: Nonstaining to light-colored natural stone when tested in accordance with ASTM C1248.
 3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
 4. Color: To be selected by Architect from manufacturer's standard range.
 5. Products:
 - a. Dow; DOWSIL 790 Silicone Building Sealant: www.dow.com/#sle.
 - b. Pecora Corporation; Pecora 890 NST (Non-Staining Technology): www.pecora.com/#sle.
 - c. Tremco Commercial Sealants & Waterproofing; Spectrem 1: www.tremcosealants.com/#sle.
 - d. Substitutions: See Section 016000 - Product Requirements.
- B. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
1. Color: _____.
 2. Products:
 - a. Adfast USA Inc; ADSEAL KB 4800 Series: www.adfastcorp.com/#sle.
 - b. Everkem Diversified Products, Inc; TruSil 100: www.everkemproducts.com/#sle.
 - c. Pecora Corporation; Pecora 898 NST (Non-Staining Technology): www.pecora.com/#sle.
 - d. Sika Corporation; Sikasil GP: usa.sika.com/#sle.
 - e. Substitutions: See Section 016000 - Product Requirements.
- C. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 50 percent, minimum.
 2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
 3. Color: To be selected by Architect from manufacturer's standard range.
 4. Service Temperature Range: Minus 40 to 180 degrees F (Minus 40 to 82 degrees C).
 5. Products:
 - a. Master Builders Solutions; MasterSeal NP1: www.master-builders-solutions.com/en-us/#sle.
 - b. Pecora Corporation; DynaTrol II: www.pecora.com/#sle.
 - c. Sika Corporation; Sikaflex-1A: usa.sika.com/#sle.
 - d. Tremco Commercial Sealants & Waterproofing; Dymonic 100: www.tremcosealants.com/#sle.
 - e. Substitutions: See Section 016000 - Product Requirements.

2.05 ACCESSORIES

- A. Sealant Backing Materials, General: Materials placed in joint before applying sealants; assists sealant performance and service life by developing optimum sealant profile and preventing three-sided adhesion; type and size recommended by sealant manufacturer for compatibility with sealant, substrate, and application.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Joint Cleaner: Noncorrosive and nonstaining type, type recommended by sealant manufacturer; compatible with joint forming materials.

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- E. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Preinstallation Adhesion Testing: Install a sample for each test location indicated in the test plan.
 - 1. Test each sample as specified in PART 1 under QUALITY ASSURANCE article.
 - 2. Notify Architect of date and time that tests will be performed, at least seven days in advance.
 - 3. Record each test on Preinstallation Adhesion Test Log as indicated.
 - 4. If any sample fails, review products and installation procedures, consult manufacturer, or take other measures that are necessary to ensure adhesion; retest in a different location; if unable to obtain satisfactory adhesion, report to Architect.
 - 5. After completion of tests, remove remaining sample material and prepare joints for new sealant installation.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

- A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Provide joint sealant installations complying with ASTM C1193.
- C. Install bond breaker backing tape where backer rod cannot be used.
- D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- E. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- F. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.04 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements for additional requirements.
- B. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.
- C. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

END OF SECTION

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