



Project Manual
for
West Weber 1, 3
Roof & Seismic
Ogden Utah Weber North
Stake
4100 west 900 south, West
Weber, Utah 84404
for
The Church of
Jesus Christ of Latter-Day
Saints

April 2024

McNeil Group, Inc.
8610 South Sandy Parkway, Suite 200
Sandy, Utah 84070

Office: (801) 255-7700
Fax: (801) 255-8071
info@mcneileng.com
www.mcneileng.com

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BIDDING REQUIREMENTS

FOR SMALL PROJECTS (U.S.)

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INVITATION TO BID (U.S.)

1. CONTRACTORS INVITED TO BID THE PROJECT:

Hall Construction - Ed Hall, Peter built Construction, RAM Construction, Saunders Construction, Toro Construction

2. PROJECT:

West Weber 1, 3 Roof and Seismic

3. LOCATION:

4100 west 900 s, West Weber, UT 84404

4. OWNER:

The Church of Jesus Christ of Latter-day Saints, a Utah corporation sole
c/o
Utah North PM Office
435 N Wall Ave, Suite D
Ogden, UT 84404

5. CONSULTANT:

McNeil Engineering

6. DESCRIPTION OF PROJECT:

- A. Removal and replacement asphalt shingle roof and structural up grades
- B. Products or systems may be provided through relationships the Owner has negotiated with suppliers as indicated in the Specifications.

7. TYPE OF BID: Bids will be on a lump-sum basis. Segregated bids will not be accepted.

8. TIME OF SUBSTANTIAL COMPLETION: The time limit for substantial completion of this work will be 90 calendar days and will be as noted in the Agreement.

9. BID OPENING: Bids will be received by Owners preferred method at (11:00 am May 1st 2024) to be announced. Bids will be publicly opened at (11:00 am May 1st 2024) to be announced.

10. BIDDING DOCUMENTS:

- A. Bidding Documents may be obtained from the Architect.
- B. Bidding Documents may be obtained from Owner's electronic bidding tool.

11. BIDDER'S QUALIFICATIONS: Bidding by the Contractors will be by invitation only.

12. OWNER'S RIGHT TO REJECT BIDS: Owner reserves the right to reject any or all bids and to waive any irregularity therein.

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INSTRUCTIONS TO BIDDERS (U.S.)

1. DOCUMENTS:

- A. Bidding Documents include Bidding Requirements and proposed Contract Documents. Proposed Contract Documents consist of:
 - 1) Agreement Between Owner and Contractor for Small Project (U.S.)
 - 2) Other documents included by reference
 - 3) Addenda.
- B. Bidding Requirements are those documents identified as such in proposed Project Manual.
- C. Addenda are written or graphic documents issued prior to execution of the Contract which modify or interpret the Bidding Documents. They become part of the Contract Documents as noted in the Agreement Between Owner and Contractor for Small Project (U.S.) upon execution of the Agreement by Owner.

2. BIDDER'S REPRESENTATIONS:

- A. By submitting a bid proposal, bidder represents that
 - 1) Bidder has carefully studied and compared Bidding Documents with each other. Bidder understands the Bidding Documents and the bid is fully in accordance with the requirements of those documents,
 - 2) Bidder has thoroughly examined the site and any building located thereon, has become familiar with local conditions which might directly or indirectly affect contract work, and has correlated its personal observations with requirements of proposed Contract Documents, and
 - 3) Bid is based on materials, equipment, and systems required by Bidding Documents without exception.

3. BIDDING DOCUMENTS:

- A. Copies
 - 1) Owner will provide the Bidding Documents as set forth in the Invitation to Bid.
 - 2) Partial sets of Bidding Documents will not be issued.
- B. Interpretation or Correction of Bidding Documents
 - 1) Bidders will request interpretation or correction of any apparent errors, discrepancies, and omissions in the Bidding Documents.
 - 2) Corrections or changes to Bidding Documents will be made by written Addenda.
- C. Substitutions and Equal Products
 - 1) Generally speaking, substitutions for specified products and systems, as defined in the Uniform Commercial Code, are not acceptable. However, equal products may be approved upon compliance with Contract Document requirements.
 - 2) Base bid only on materials, equipment, systems, suppliers or performance qualities specified in the Bidding documents.
 - 3) Where a specified product is identified as a "quality standard", products of other manufacturers that meet the performance, properties, and characteristics of the specified "quality standard" may be used without specific approval as a substitute.
- D. Addenda - Addenda will be sent to bidders and to locations where Bidding Documents are on file no later than 2 business days prior to bid opening.

4. BIDDING PROCEDURES:

- A. Form and Style of Bids

- 1) Use Owner's online bidding tool.
- 2) Fill in all blanks on online bidding tool. Signatures will be executed by representative of bidder duly authorized to make contracts.
- 3) Bids will bear no information other than that requested on bid form. Do not delete from or add to the information requested on the bid form.

B. Submission of Bids

- 1) Follow the instructions in the Owner's bidding tool when submitting your bid.
- 2) It is bidder's sole responsibility to see that its bid is received at specified time.
- 3) No oral, facsimile transmitted, telegraphic, or telephonic bids, modifications, or cancellations will be considered.

C. Modification or Withdrawal of Bid

- 1) Bidder guarantees there will be no revisions or withdrawal of bid amount for 45 days after bid opening.
- 2) Prior to bid opening, bidders may withdraw bid from Owner's bidding tool.

5. CONSIDERATION OF BIDS:

A. Opening Of Bids - See Invitation to Bid.

B. Rejection of Bids - Owner reserves right to reject any or all bids and to waive any irregularity therein.

C. Acceptance Of Bid

- 1) No bidder will consider itself under contract after opening and reading of bids until Agreement between Owner and Contractor is fully executed.
- 2) Bidder's past performance, organization, subcontractor selection, equipment, and ability to perform and complete its contract in manner and within time specified, together with amount of bid, will be elements considered in award of contract.

6. FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR:

A. Agreement form will be "Small Project Agreement Between Owner and Contractor (U.S.)" and "Supplementary Conditions for Small Project Agreement (U.S.)."

7. MISCELLANEOUS:

A. Pre-Bid Conference. A pre-bid conference may be held at a time and place to be announced.

B. Examination Schedule for Existing Building and Site

- 1) Contact Shad Hales 385-239-2368 shad.hales@churchofjesuschrist.org

END OF DOCUMENT

INFORMATION AVAILABLE TO BIDDERS (U.S.)

1. GEOTECHNICAL DATA

- A. Geotechnical Report -
- 1) Owner has secured the services of a geotechnical engineer to aid in design of the Project. Following conditions apply -
 - a) A geotechnical report has been prepared by _____, referred to as the Geotechnical Engineer.
 - b) A copy of this report will be issued to each invited Contractor.
 - c) This report was obtained solely for use in design by Consultant and is not a part of the Contract Documents. It is not intended that Contractor rely on geotechnical engineer's report.
 - d) Reports are provided for Contractor's information but are not a warranty of subsurface conditions.
 - 2) Prior to bidding, Contractor may make his own subsurface investigations to satisfy himself with site and subsurface conditions.

2. ASBESTOS-CONTAINING MATERIAL (ACM)

- A. The building upon which work is being performed has been examined for asbestos-containing material. The following have been identified as containing asbestos in the areas of the building being worked on as part of this Project:
- 1)
- B. Refer to Section _____, Article _____ for requirements to be followed.

END OF DOCUMENT

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CONSTRUCTION MATERIAL ASBESTOS STATEMENT (U.S.)

**PROJECTS FOR:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS,
a Utah corporation sole**

Building Name: _____

Building Plan Type: _____

Building Address: _____

Building Owner: The Church of Jesus Christ of Latter-day Saints, a Utah corporation sole.

Project Number: _____

Completion Date: _____

As PROJECT CONSULTANT and principal in charge; based on my best knowledge, information, inspection, and belief; I certify that on the above referenced Project, no asbestos-containing building materials were specified in the construction documents or given approval in shop drawings or submittals.

Project Consultant and Principal in Charge (signature) Date

Company Name

As GENERAL CONTRACTOR in charge of construction; based on my best knowledge, information, inspection, and belief; I affirm that on the above-referenced Project, no asbestos-containing building materials were used in the construction.

General Contractor (signature) Date

Company Name

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SMALL PROJECT AGREEMENT BETWEEN OWNER AND CONTRACTOR Fixed Sum (U.S.)

The Church of Jesus Christ of Latter-day Saints, a Utah corporation sole ("Owner") and _____ ("Contractor") enter into this *Small Project Agreement Between Owner and Contractor (U.S.)* ("Agreement") and agree as follows:

1. **Property/Project.**

Property/Project Number: _____
Property Address ("Project Site"): _____
Project Type: _____
Project Name ("Project"): _____
Stake Name: _____

2. **Scope of Work.** Contractor will furnish all labor, materials, tools, and equipment necessary to complete the Work in accordance with the Contract Documents. The Work is all labor, materials, tools, equipment, construction, and services required by the Contract Documents (the "Work").

3. **Contract Documents.** Contract Documents consist of:

- a. This Agreement;
- b. Supplementary Conditions for Small Project Agreement Between Owner and Contractor (U.S.);
- c. The Specifications (Division 01 and Divisions _____);
- d. Drawings entitled and dated _____;
- e. Addendum No. with date(s) _____;
- g. All written Field Changes, written Construction Change Directives and written Change Orders when prepared and signed by Owner and Contractor.

4. **Compensation.** Owner will pay Contractor for performance of Contractor's obligations under the Contract Documents the sum of _____ Dollars (\$ _____) (the "Contract Sum"). This Contract Sum includes all labor, materials, equipment, tools, costs, expenses, work and services of Contractor and its subcontractors necessary to perform the Work in accordance with the terms of this Agreement, including without limitation travel, communications, and copying costs.

5. **Payment.**

- a. If the Contract Sum is over \$100,000 or if otherwise requested by Owner, Contractor will submit to Owner a schedule of values which allocates the Contractor's Bid Proposal Amount to various portions of the Work. This schedule, when accepted by Owner will be used as a basis for reviewing Contractor's payment requests.
- b. Not more than once each month, Contractor will submit a payment request to Owner. Owner will pay Contractor for work completed within thirty (30) days after Owner receives:
 - 1) Contractor's payment request for work to date;
 - 2) a certification by Contractor that Contractor has paid for all labor, materials, and equipment relating to the Work covered by prior payment requests and that Contractor will pay for all labor, materials, and equipment relating to the Work covered by the current payment request; and
 - 3) releases of all mechanics' liens and claims of subcontractors, laborers, or material suppliers who supplied labor and/or materials for the Work covered by the payment request.
 - 4) updated Construction Schedule.
- c. Owner may modify or reject the payment request if, in Owner's opinion, the Work for which payment is requested is not acceptable or is less complete than represented on the payment request.
- d. Contractor will timely pay subcontractors their portion of fees and expenses that Owner has paid to Contractor.

6. **Extras and Change Orders.**

- a. Owner may order changes in the Work by altering, adding to, or deducting from the Work. In the event of such a change, the Contract Sum and/or the time of completion will be adjusted to reflect the change by means of a written Change Order signed by Contractor and Owner. Contractor will not commence work on any change until either: (a) Contractor and Owner have executed a Change Order; or (b) Owner has issued a written order for the change acknowledging that there is a dispute regarding the compensation adjustment relating to the change. If Contractor proceeds with a change in the Work without complying with the preceding sentence, Contractor agrees that it will not be entitled to any additional compensation for such change.
- b. For any Change Order, Contractor will timely furnish a proposal for the Change Order containing a price breakdown itemized as required by Owner. The break down will be in sufficient detail to allow Owner to determine any increase or decrease in the Contractor's direct out of pocket cost to perform the Change Order Work. Any amount claimed for Subcontractors will be supported by a similar price breakdown and will itemize the Subcontractor's direct out of pocket costs as well as profit and overhead charges resulting from the Change in the Work. Profit and overhead will be subject to the following limitations:
 1. The Subcontractor's profit and overhead will not exceed eight (8%) percent of Subcontractor's Direct Costs.
 2. Contractor's profit and overhead mark-up on work performed by its own crews will not exceed five (5%) percent of Contractor's direct out of pocket costs for such work.
 3. Contractor's profit and overhead mark up on work performed by Subcontractors will not exceed five percent (5%).
 4. Amounts due Owner as a result of a credit change will be the actual net decrease in the Contractor's direct out of pocket costs to perform the Work as a result of the Change in the Work. Overhead and profit for the Change Order will be calculated based on the net increase or decrease in Contractor's direct out of pocket costs resulting from the Change in the Work.

7. **Warranty and Correction of Work.** For all Work, services, labor, materials, products, and equipment provided under the Contract Documents, Contractor provides and extends to Owner all statutory, common law, and standard industry warranties as well as those warranties set forth in Owner's Contract Documents. Unless a longer period is specified by Owner's Contract Documents or otherwise, Contractor, at a minimum and in addition to all other warranties, warrants all Work under the Contract Documents for at least one year. Specifically, and without limitation, Contractor will promptly correct at its own expense:

- a. any portion of the Work which
 - 1) fails to conform to the requirements of the Contract Documents, or
 - 2) is rejected by the Owner as defective or because it is damaged or rendered unsuitable during installation or resulting from failure to exercise proper protection.
- b. any defects due to faulty materials, equipment, or workmanship which appear within a period of one year from the date of completion of the Work or within such longer period of time as may be prescribed by law or the terms of any applicable special warranty required by the Contract Documents.

8. **Time of Completion.** Contractor will complete the Work and have it ready for Owner's inspection within _____ (_____) calendar days from Notice to Proceed issued by Owner. Time is of the essence. If Contractor is delayed at any time in the progress of the Work by any act or neglect of Owner, or by changes in the Work, or by strikes, lockouts, unusual delay in transportation, unavoidable casualties, or acts of nature beyond Contractor's control, then the time for completion will be extended by the time that completion of the Work is delayed. However, Contractor expressly waives any damages for any such delays.

9. **Owner Provided Items.** Owner may provide furnishings, equipment, and/or other items for the Project. Contractor will install items furnished by Owner and/or receive, store, and protect such items on site until the date Owner accepts the Project.

10. **Product Requirements.** Contractor will provide products that comply with Contract Documents, are undamaged, and, unless otherwise indicated, are new and unused at time of installation. Contractor will provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for complete installation and for intended use and effect.

11. **Permits, Surveys, and Taxes.** Contractor will obtain and pay for all permits and licenses, and also pay any applicable taxes. Contractor will also obtain and pay for any surveys it needs to perform the Work.
12. **Independent Contractor Relationship.** Contractor is not an agent or employee of Owner but is an independent contractor.
13. **Comply with Laws.** Contractor will comply, and ensure that all subcontractors comply, with all applicable laws, ordinances, rules, regulations, covenants, and restrictions.
14. **Indemnity and Hold Harmless.**
 - a. Contractor will indemnify and hold harmless Owner and Owner's representatives, employees, agents, architects, and consultants from and against any and all claims, liens, damages, liability, demands, costs, judgments, awards, settlements, causes of action, losses and expenses (collectively "Claims" or "Claim"), including but not limited to attorney fees, consultant fees, expert fees, copy costs, and other expenses, arising out of or resulting from performance of or failure to perform the Work, attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of real or personal property, including loss of use resulting therefrom, except to the extent that such liability arises out of the negligence of Owner, its representatives, agents, and employees. This indemnity includes, without limitation, indemnification of Owner from all losses or injury to Owner's property, except to the extent that such loss or injury arises out of the negligence of Owner, its representatives, agents, and employees. This indemnity applies, without limitation, to include Claims occurring both during performance of the Work and/or subsequent to completion of the Work. In the event that any Claim is caused in part by a party indemnified hereunder, that party will bear the cost of such Claim to the extent it was the cause thereof. In the event that a claimant asserts a Claim for recovery against any party indemnified hereunder, the party indemnified hereunder may tender the defense of such Claim to Contractor. If Contractor rejects such tender of defense and it is later determined that the negligence of the party indemnified hereunder did not cause all of the Claim, Contractor will reimburse the party indemnified hereunder for all costs and expenses incurred by that party in defending against the Claim. Contractor will not be liable hereunder to indemnify any party for damages resulting from the sole negligence of that party.
 - b. In addition to the foregoing, Contractor will be liable to defend Owner in any lawsuit filed by any Subcontractor relating to the Project. Where liens have been filed against Owner's property, Contractor (and/or its bonding company which has issued bonds for the Project) will obtain lien releases and record them in the appropriate county and/or local jurisdiction and provide Owner with a title free and clear from any liens of Subcontractors. In the event that Contractor and/or its bonding company are unable to obtain a lien release, Owner in its absolute discretion may require Contractor to provide a bond around the lien or a bond to discharge the lien, at Contractor's sole expense.
 - c. In addition to the foregoing, Contractor will indemnify and hold Owner harmless from any claim of any other contractor resulting from the performance, nonperformance or delay in performance of the Work by Contractor.
 - d. The indemnification obligation herein will not be limited by a limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or a Subcontractor under workers compensation acts, disability benefit acts, or other employee benefit acts.
15. **Work Restrictions.** Contractor will ensure that Contractor, its agents, employees, and subcontractors:
 - a. Do not use or consume alcohol or cannabis, or illegally use drugs, on the Project Site or enter on or perform any Work on the Project Site while under their influence.
 - b. Do not smoke or vape anything on the Project Site. Do not use tobacco in any form on the Project Site.
 - c. Do not perform Work on the Project Site on Sundays except for emergency work.
 - d. Refrain from using profanity or being discourteous or uncivil to others on the Project Site or while performing Work under this Agreement.
 - e. Do not view or allow pornographic or other indecent materials on the Project Site.
 - f. Do not play obnoxious and/or loud music on the Project Site. Do not play any music within existing facilities.
 - g. Refrain from wearing immodest, offensive, or obnoxious clothing, while on the Project Site.
 - h. Do not bring weapons on the Project Site.

16. **Safety Hazards.** Contractor will ensure that no work or services will be performed that may pose an undue safety hazard to Contractor, Contractor's employees, or any other person.
17. **Contractor's Insurance.** Prior to performing any work, Contractor will obtain and maintain during the term of this Agreement the following insurance:
- a. Workers Compensation Insurance or evidence of exemption.
 - b. Employers Liability Insurance with minimum limits of the greater of \$500,000 E.L. each accident, \$500,000 E. L. disease-each employee, \$500,000 E.L. disease-policy limit or as required by the law of the state in which the Project is located.
 - c. Commercial General Liability Insurance – ISO Form CG 00 01 (12/07) or equivalent Occurrence policy which will provide primary coverage to the additional insureds (the Owner and the Architect) in the event of any Occurrence, Claim, or Suit with:
 - 1) Limits of the greater of: Contractor's actual coverage amounts or the following:
 - a) \$2,000,000 General Aggregate;
 - b) \$2,000,000 Products - Comp/Ops Aggregate;
 - c) \$1,000,000 Personal and Advertising Liability;
 - d) \$1,000,000 Each Occurrence; and
 - e) \$50,000 Fire Damage to Rented Premises (Each Occurrence)
 - 2) Endorsements attached to the General Liability policy including the following or their equivalent:
 - a) ISO Form CG-25-03 (05/09), Amendment of Limits of Insurance (Designated Project or Premises) describing the Agreement and specifying limits as shown above.
 - b) ISO Form CG 20 10 (07/04), Additional Insured – Owners, Lessees, Or Contractors (Form B), naming Owner and Architect as additional insureds.
 - d. Automobile Liability Insurance, with:
 - 1) Combined Single Limit each accident in the amount of no less than \$500,000; and
 - 2) Coverage applying to "Any Auto" or its equivalent.

Contractor will provide evidence of these insurance coverages to Owner by providing an ACORD 25 (2010/05) Form or its equivalent: (1) listing Owner as the Certificate Holder and Additional Insured on the general liability and any excess liability policies, (2) listing the insurance companies providing coverage (all companies listed must be rated in A.M. Best Company Key Rating Guide-Property-Casualty and each company must have a rating of B+ Class VII or higher), (3) attaching the endorsements set forth above for the Certificate of Liability Insurance, and (4) bearing the name, address and telephone number of the producer and signed by an authorized representative of the producer. (The signature may be original, stamped, or electronic.) Notwithstanding the foregoing, Owner may, in writing and at its sole discretion, modify these insurance requirements.

18. **Resolution of Disputes.** In the event there is any dispute arising under the Contract Documents which cannot be resolved by agreement between the parties, either party may submit the dispute with all documentation upon which it relies to Director of Architecture, Engineering, and Construction, 50 East North Temple, Salt Lake City, Utah 84150, who will convene a dispute resolution conference within thirty (30) days. The dispute resolution conference will constitute settlement negotiations and any settlement proposal made pursuant to the conference will not be admissible as evidence of liability. In the event that the parties do not resolve their dispute pursuant to the dispute resolution conference, either party may commence legal action to resolve the dispute. Any such action must be commenced within six (6) months from the first day of the dispute resolution conference or be time barred. Submission of the dispute to the Director as outlined above is a condition precedent to the right to commence legal action to resolve any dispute. In the event that either party commences legal action to adjudicate any dispute without first submitting the dispute to the Director, the other party will be entitled to obtain an order dismissing the litigation without prejudice and awarding such other party any costs and attorney fees incurred by that party in obtaining the dismissal, including without limitation copy costs, and expert and consultant fees and expenses. Pending final resolution of a dispute hereunder, Contractor will proceed diligently with the performance of its obligations pursuant to this Agreement.
19. **Termination by Contractor.** In the event Owner materially breaches any term of the Contract Documents, Contractor will promptly give Written Notice of the breach to Owner. If Owner fails to cure the breach within

ten (10) days of the Written Notice, Contractor may terminate this Agreement by giving Written Notice to Owner and recover from Owner the percentage of the Contract Sum represented by the Work completed on the Project site as of the date of termination together with any out of pocket loss Contractor has sustained with respect to materials and equipment as a result of the termination prior to completion of the Work, less any offsets. Contractor will not be entitled to unearned profits or any other compensation or damages as a result of the termination and hereby waives any claim therefor. Contractor will provide to Owner all warranty, as built, inspection, and other close out documents as well as materials that Contractor has in its possession or control at the time of termination. Without limitation, Contractor's indemnities and obligations as well as all warranties relative to Work provided through the date of termination survive a termination hereunder.

20. **Termination by Owner for Cause.** Should Contractor fail to timely provide Owner with the certificates of insurance, make a general assignment for the benefit of its creditors, fail to apply enough properly skilled workmen or specified materials to properly prosecute the Work in accordance with Contractor's schedule, or otherwise materially breach any provision of the Contract Documents, then Owner may, without any prejudice to any other right or remedy, give Contractor Written Notice thereof. If Contractor fails to cure its default within ten (10) days, Owner may terminate this Agreement by giving Written Notice to Contractor. In such case, Owner may, in Owner's sole discretion, take legal assignment of subcontracts and other contractual rights of Contractor and/or take possession of the premises and all materials, tools, equipment, and appliances thereon, and finish the Work by whatever method Owner deems expedient. Contractor will not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Sum exceeds the expense of finishing the Work, including compensation for additional administrative, architectural, consultant, and legal services (including without limitation attorney fees, expert fees, copy costs, and other expenses), such excess will be paid to Contractor, less any offsets. If such expense exceeds the unpaid balance, Contractor will pay the difference to Owner. Contractor will provide to Owner all warranty, as built, inspection, and other close out documents as well as materials that Contractor has in its possession or control at the time of termination. Without limitation, Contractor's indemnities and obligations as well as all warranties relative to Work provided through the date of termination survive a termination hereunder.
21. **Termination by Owner for Convenience.** Notwithstanding any other provision contained in the Contract Documents, Owner may, without cause and in its absolute discretion, terminate this Agreement at any time. In the event of such termination, Contractor will be entitled to recover from Owner the percentage of the Contract Sum equal to the percentage of the Work which Owner and/or its architect determines has been completed on the Project site as of the date of termination together with any out of pocket loss Contractor has sustained with respect to materials and equipment as a result of the termination prior to completion of the Work, less any offsets. Contractor will not be entitled to unearned profits or any other compensation as a result of the termination and hereby waives any claim therefor. Contractor will provide to Owner all warranty, as built, inspection, and other close out documents as well as materials that Contractor has in its possession or control at the time of termination. Owner may, in Owner's sole discretion, take legal assignment of subcontracts and other contractual rights of Contractor. Without limitation, Contractor's indemnities and obligations as well as all warranties relative to Work provided through the date of termination survive a termination hereunder.
22. **Enforcement.** In the event either party commences legal action to enforce or rescind any term of this Agreement, the prevailing party will be entitled to recover its attorney fees, costs and legal expenses, including without limitation all copy costs and expert and consultant fees and expenses, incurred in that action and on all appeals, from the other party.
23. **Ownership of Materials, Products, and Intellectual Property Rights.** Owner will retain ownership and intellectual property rights in all plans, designs, drawings, documents, concepts, and materials provided by or on behalf of Owner to Contractor and to all work products of Contractor and its subcontractors for products, services, and Work provided under this Agreement, such products, services, and Work of Contractor and its subcontractors constituting works made for hire. Neither Contractor nor its subcontractors will reuse any portion of such items provided by Owner or work products developed by Contractor or its subcontractors for Owner pursuant to this Agreement or disclose any such items to any third party without the prior written consent of Owner. Owner may withhold its consent in its absolute discretion. Contractor shall obtain the written agreement of each of its subcontractors to the terms of this section prior to permitting the subcontractor to perform any

services contemplated by this Agreement.

24. **Comply with Intellectual Property Rights of Others.** Contractor represents and warrants that no Work or services (with its means, methods, goods, and services attendant thereto), provided to Owner will infringe or violate any right of any third party and that Owner may use and exploit such Work, means, methods, goods, and services without liability or obligation to any person or entity (specifically and without limitation, such Work, means, methods, goods, and services will not violate rights under any patent, copyright, trademark, or other intellectual property right or application for the same).
25. **Ownership and Use of Renderings and Photographs.** Renderings, photographs, and/or other images of or representing the services, Work, or any improvement on or relative to the Project Site, whether created before, during, or at completion of construction (and whether created by Owner, Contractor, or Contractor's subcontractors), are the property of the Owner. Contractor hereby transfers and assigns to Owner all ownership and intellectual property rights that Contractor and/or its subcontractors may have in and to all such renderings, photographs, and other images. The Owner reserves all rights including copyrights and other intellectual property rights to such renderings, photographs, and other images. No such renderings, photographs, or other images shall be used or distributed without written consent of the Owner.
26. **Public Statements.** Contractor will not make any statements or provide any information to the media about the Project or Work without the prior written consent of Owner. If Contractor receives any requests for information from media, Contractor will refer such requests to Owner.
27. **Confidentiality.** Contractor shall ensure that Contractor and its subcontractors, and the employees, agents and representatives of Contractor and its subcontractors, maintain in strict confidence, and shall use and disclose only as authorized by Owner all Confidential Information of Owner that Contractor receives in connection with the performance of this Agreement. Notwithstanding the foregoing, Contractor may use and disclose any information to the extent required by an order of any court or governmental authority, but only after it has notified Owner and Owner has had an opportunity to obtain reasonable protection for such information in connection with such disclosure. For purposes of this Agreement, "Confidential Information" means:
- The name or address of any affiliate, customer or contractor of Owner or any information concerning the transactions of any such person with Owner;
 - Any contracts, agreements, business plans, budgets or other financial information, renderings, photographs, and materials provided by Owner, relating to the Work or any improvement on the Project Site to the extent such has not been made available to the public by the Owner;
 - Any other information that is marked or noted as confidential at the time of its disclosure.
28. **No Commercial Use of Transaction or Relationship.** Without the prior written consent of Owner, which Owner may grant or withhold in its sole discretion, neither Contractor nor Contractor's affiliates, officers, directors, agents, representatives, shareholders, members, Subcontractors, or employees shall make any private commercial use of their relationship to Owner or the Project, including, without limitation:
- By referring to the Owner or Project verbally or in any sales, marketing or other literature, letters, client lists, press releases, brochures or other written materials except as may be necessary for Contractor to perform Contractor's obligations under the terms of this Agreement;
 - By using or allowing the use of any photographs of the Work or Project or any part thereof, or of any service marks, trademarks or trade names or other intellectual property now or which may hereafter be associated with, owned by or licensed by Owner, in connection with any work, service or product; or
 - By contracting with or receiving money or anything of value from any person or commercial entity to facilitate such person or entity obtaining any type of commercial identification, advertising or visibility in connection with the Owner or Project.
- Notwithstanding the foregoing, Contractor may include a reference to Owner or the Project in a professional résumé or other similar listing of Contractor's references without seeking Owner's written consent in each instance, provided that such reference to Owner or the Project is included with at least several other similar references to projects of different owners and is given no more prominence than such other references.
29. **Entire Agreement.** This Agreement contains the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral, relating to the

Project. This Agreement may be amended only by a writing signed by both parties. This Agreement will not be construed to create a contractual relationship of any kind between any persons or entities other than Owner and Contractor.

30. **Assignment.** Contractor will not assign any right or obligation hereunder without the prior written consent of the Owner, which consent may be granted or withheld in Owner's absolute discretion.

31. **Governing Law.** The parties acknowledge that the Contract Documents have substantial connections to the State of Utah. The Contract Documents will be deemed to have been made, executed, and delivered in Salt Lake City, Utah. To the maximum extent permitted by law, (i) the Contract Documents and all matters related to their creation and performance will be governed by and enforced in accordance with the laws of the State of Utah, excluding conflicts of law rules, and (ii) all disputes arising from or related to the Contract Documents will be decided only in a state or federal court located in Salt Lake City, Utah and not in any other court or state. Toward that end, the parties hereby consent to the jurisdiction of the state and federal courts located in Salt Lake City, Utah and waive any other *venue* to which they might be entitled by virtue of domicile, habitual residence, place of business, or otherwise.

32. **Effective Date.** The effective date of this Agreement is the date indicated by Owner's signature.

OWNER:

The Church of Jesus Christ of Latter-day Saints,
a Utah corporation sole

CONTRACTOR:

Signature:

Signature:

Print Name:

Print Name:

Title:

Title:

Address:

Address:

Telephone No:

Telephone No:

Facsimile No:

Facsimile No:

Email:

Email:

Effective Date:

Fed. I.D. or SSN:

License No:

Reviewed By:

Date Signed:

Sample Form of Agreement

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SUPPLEMENTARY CONDITIONS

FOR SMALL PROJECT AGREEMENT BETWEEN OWNER AND CONTRACTOR (U.S.)

ITEM 1 - GENERAL

1. Conditions of the Small Project Agreement Between Owner and Contractor (U.S.) apply to each Division of the Specifications.
2. Provisions contained in Division 01 apply to all Divisions of the Specifications.

ITEM 2 - LIQUIDATED DAMAGES PAYABLE TO OWNER

This section may be included as a separate additional paragraph to the Small Project Agreement Between Owner and Contractor (U.S.), at Owner's discretion:

Delay in Completion of the Work. For each day after the expiration of the designated Time of Completion that Contractor has not completed the Work, Contractor will pay Owner the amount of Two Hundred Fifty dollars (\$250.00) per day as liquidated damages for Owner's loss of use and the added administrative expense to Owner to administer the Project during the period of delay. In addition, Contractor will reimburse Owner for any additional Architect's fees, attorneys' fees, expert fees, consultant fees, copy costs, and other expenses incurred by Owner as a result of the delay. Owner may deduct any liquidated damages or reimbursable expenses from any money due or to become due to Contractor. If the amount of liquidated damages and reimbursable expenses exceeds any amounts due to Contractor, Contractor will pay the difference to Owner within ten (10) days after receipt of a written request from Owner for payment.

ITEM 3 - STATE SPECIFIC SUPPLEMENTARY CONDITIONS

Utah

UTAH STATE SALES TAX:

Add the following to the Small Project Agreement Between Owner and Contractor (U.S.):

1. Contractors should be exempt on purchases of material installed or converted into real property to be used by the Owner. The Contractor will furnish each vendor with a completed Exemption Certificate Form TC-721. The certificate will be prepared by the Contractor for each vendor in order to obtain the exemption.
2. The Owner's tax exempt number is 11871701-002-STC.

UTAH NOTICE OF INTENT TO OBTAIN FINAL COMPLETION:

Add the following to the Small Project Agreement Between Owner and Contractor (U.S.):

- A. Contractor shall file with the State Construction Registry, on its own behalf and/or on behalf of Owner, a notice of intent to obtain final completion at least 45 days before the day on which the Owner or Contractor files or could file a notice of completion under Utah Code Ann. Section 38-1a-506 if:
 1. The completion of performance time under the original contract for construction work is greater than 120 days;
 2. The total original construction contract price exceeds \$500,000; and
 3. The original contractor or owner has not obtained a payment bond in accordance with Utah Code Ann. Section 14-2-1.

UTAH NOTICE OF COMPLETION:

Add the following to the Small Project Agreement Between Owner and Contractor (U.S.):

- A. Within five (5) calendar days of final completion of the Project and in compliance with Section 38-1a-507 Utah Code Annotated, Contractor shall file with the State Construction Registry, and copy to Owner, a notice of completion which shall include, without limitation, the following:
 1. The name, address, telephone number, and email address of the person filing the notice of completion;
 2. The name of the county in which the Project and/or Project site is located;
 3. The date on which final completion is alleged to have occurred;
 4. The method used to determine final completion; and
 5. One of the following:
 - a. The tax parcel identification number of each parcel included in the Project and/or Project site;
 - b. The entry number of a preliminary notice on the same project that includes the tax parcel identification number of each parcel included in the Project and/or Project site; or
 - c. The entry number of the building permit issued for the Project.
- B. Notwithstanding any other provision of the Contract Documents to the contrary, Contractor and Owner agree that any breach or failure to comply with this Section by the Contractor will constitute a breach of contract and the Contractor will be liable for any direct, indirect, or consequential damages to the Owner flowing from this breach.

UTAH STATE PROGRESS PAYMENTS AND FINAL PAYMENT:

Replace paragraph 5 of the Small Project Agreement Between Owner and Contractor (U.S.) with the following:

5. Payment

- a. If the Contractor's Bid Proposal Amount is over \$100,000, Contractor will submit to Owner a schedule of values which allocates the Contractor's Bid Proposal Amount to various portions of the Work. This schedule, when accepted by Owner, will be used as a basis for reviewing Contractor's payment requests.
- b. Progress Payments: Not more than once each month, Contractor will submit a payment request to Owner. Owner will pay Contractor progress payments for work completed within fifteen (15) days after Owner receives:
 1. Contractor's progress payment request for work to date;
 2. A certification by Contractor that Contractor has paid for all labor, materials, and equipment relating to the Work covered by prior payment requests and that Contractor will pay for all labor, materials, and equipment relating to the Work covered by the current payment request; and
 3. Conditional Waiver and Release Upon Progress Payment documents submitted by Contractor (in content complying with Utah Code § 38-1a-802) executed by each of the subcontractors performing work and/or providing materials covered by the Contractor's progress payment request.
- c. Final Payment: Owner will make full and final payment of the Contract Sum due within thirty (30) days of the completion of all of the following requirements:
 1. Contractor has submitted its final payment request;
 2. Contractor has submitted a certification that Contractor has paid for all labor, materials, and equipment relating to the Work covered by prior payment requests and that Contractor will pay for all labor, materials, and equipment relating to the Work covered by the final payment request; and
 3. Contractor has submitted Waiver and Release Upon Final Payment documents (in content complying with Utah Code § 38-1a-802) executed by each of the subcontractors performing work and/or providing materials covered by the Contractor's final payment request.

Acceptance of final payment by Contractor or any Subcontractor will constitute a waiver of claims by the payee except for those claims previously made to Owner in writing and identified by Contractor in its affidavit as still pending.

If the aggregate of previous payments made by Owner exceeds the amount due Contractor, Contractor will reimburse the difference to Owner.

- d. Owner may modify or reject any payment request if, in Owner's opinion, the Work for which payment is requested is not acceptable or is less complete than represented on the payment request.
- e. Upon receipt of any payment from Owner, Contractor will pay to each Subcontractor the amount paid to Contractor on account of such Subcontractor's portion of the Work.
- f. Contractor will maintain a copy of each payment request at the Project site for review by the Subcontractors.
- g. No payment made, either in whole or in part, by Owner will be construed to be an acceptance of defective or improper materials or workmanship.

END OF DOCUMENT

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DIVISION 01: GENERAL REQUIREMENTS

01 1000 SUMMARY

01 1100 SUMMARY OF WORK
01 1400 WORK RESTRICTIONS

01 2000 PRICE AND PAYMENT PROCEDURES

01 2900 PAYMENT PROCEDURES

01 3000 ADMINISTRATIVE REQUIREMENTS

01 3100 PROJECT MANAGEMENT AND COORDINATION
01 3200 CONSTRUCTION PROGRESS DOCUMENTATION
01 3300 SUBMITTAL PROCEDURES

01 4000 QUALITY REQUIREMENTS

01 4000 QUALITY REQUIREMENTS
01 4200 REFERENCES
01 4301 QUALITY ASSURANCE - QUALIFICATIONS
01 4523 TESTING AND INSPECTION SERVICES

01 5000 TEMPORARY FACILITIES AND CONTROLS

01 5100 TEMPORARY UTILITIES
01 5200 CONSTRUCTION FACILITIES
01 5400 CONSTRUCTION AIDS
01 5600 TEMPORARY BARRIERS AND ENCLOSURES
01 5800 PROJECT IDENTIFICATION

01 6000 PRODUCT REQUIREMENTS

01 6100 COMMON PRODUCT REQUIREMENTS
01 6200 PRODUCT OPTIONS
01 6600 PRODUCT DELIVERY, STORAGE, AND HANDLING REQUIREMENTS

01 7000 EXECUTION AND CLOSEOUT REQUIREMENTS

01 7300 EXECUTION
01 7400 CLEANING AND WASTE MANAGEMENT
01 7700 CLOSEOUT PROCEDURES
01 7800 CLOSEOUT SUBMITTALS

END OF TABLE OF CONTENTS

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SECTION 01 1100**SUMMARY OF WORK****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements Summary of Work requirements.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Provisions contained in Division 01 apply to Sections of Divisions 02 through 49 of Specifications. Instructions contained in Specifications are directed to Contractor. Unless specifically provided otherwise, obligations set forth in Contract Documents are obligations of Contractor.
- B. Contractor shall furnish total labor, materials, equipment, and services necessary to perform The Work in accordance with Contract Documents.

1.3 WORK BY OWNER

- A. Owner will furnish and install some portions of The Work with its own forces. Contractor will be provided with schedule of when these items are to be performed.
1. General:
 - a. Complete work necessary to accommodate work to be performed by Owner before scheduled date for performance of such work. Contractor will be back charged for actual expenses incurred by Owner for failure to timely complete such work.
 - b. Store and protect completed work provided by Owner until date of Substantial Completion.
 2. Work furnished and installed by Owner include, but are not limited to, following:
 - a. High Security Cylinders and Cores:
 - b. Selected Commercial Toilet Accessories.
 - c. Carpet and Carpet Base.
 - d. Owner will terminate building telephone cables at terminal board.

PART 2 - PRODUCTS Not Used**PART 3 - EXECUTION Not Used****END OF SECTION**

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SECTION 01 1400

WORK RESTRICTIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
 1. Administrative and procedural requirements for Work Restrictions.

1.2 PROJECT CONDITIONS

- A. During construction period, Contractor will have use of premises for construction operations. Contractor will ensure that Contractor, its employees, subcontractors, and their employees comply with following requirements:
 1. Confine operations to areas within Contract limits shown on Drawings. Do not disturb portions of site beyond Contract limits.
 2. Do not allow alcoholic beverages, illegal drugs, or persons under their influence on Project site.
 3. Do not allow use of tobacco in any form on Project Site.
 4. Do not allow pornographic or other indecent materials on site.
 5. Do not allow work on Project site on Sundays except for emergency work.
 6. Refrain from using profanity or being discourteous or uncivil to others on Project Site or while performing The Work.
 7. Wear shirts with sleeves, wear shoes, and refrain from wearing immodest, offensive, or obnoxious clothing, while on Project Site.
 8. Do not allow playing of obnoxious and loud music on Project Site. Do not allow playing of any music within existing facilities.
 9. Do not build fires on Project Site.
 10. Do not allow weapons on Project Site, except those carried by law enforcement officers or other uniformed security personnel who have been retained by Owner or Contractor to provide security services.
- B. Existing Facilities:
 1. Reasonably accommodate use of existing facilities by Owner.
- C. Do not load or permit any part of the structure to be loaded with a weight that will endanger its safety. Questions of structural loading as part of construction means and methods shall be addressed by a licensed structural engineer engaged by Contractor, subject to the review by Architect.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

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SECTION 01 2900**PAYMENT PROCEDURES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements to prepare and process Applications for Payments.

1.2 PAYMENT REQUESTS

- A. Use Payment Request forms provided by Owner.
- B. Each Payment Request will be consistent with previous requests and payments certified by Architect and paid for by Owner.
- C. Request Preparation:
1. Complete every entry on Payment Request form.
 2. Entries will match data on approved schedule of values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.
 3. Submit signed Payment Request to Architect with current Construction Schedule.
- D. Provide following submittals before or with submittal of Initial Payment Request:
1. List of Subcontractors.
 2. Initial progress report.
 3. Contractor's Construction Schedule.
 4. Submittal Schedule.
- E. Provide Affidavit of Contractor and Consent of Surety with Payment Request following Substantial Completion.

1.3 SCHEDULE OF VALUES

- A. Submit schedule of values on Owner's standard form to Architect 20 days minimum before submission of Initial Payment Request as a necessary condition before payment will be processed. Coordinate preparation of schedule of values with preparation of Contractor's Construction Schedule. Correlate line items in Schedule of Values with other required administrative schedules and forms, including:
1. Contractor's Construction Schedule.
 2. Payment Request form.
 3. Schedule of Allowances.
 4. Schedule of Alternates.

PART 2 - PRODUCTS Not Used**PART 3 - EXECUTION Not Used****END OF SECTION**

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SECTION 01 3100**PROJECT MANAGEMENT AND COORDINATION****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Project Management and Coordination on Projects.

1.2 PROJECT COORDINATION

- A. This Project designation will be included on documents generated for Project by Contractor and Subcontractors, or be present on a cover letter accompanying such documents.
- B. Project designation for this Project is LDS 5405319, Layton Utah YSA Stake.
- C. This Project designation will be included on documents generated for Project by Contractor and Subcontractors, or be present on a cover letter accompanying such documents.

1.3 MULTIPLE CONTRACT COORDINATION

- A. Contractor shall be responsible for accurately maintaining and reporting schedule of The Work from Notice to Proceed to date of Substantial Completion.
- B. Contractor shall be responsible for providing Temporary Facilities And Controls for those who perform work on Project from Notice to Proceed to date of Substantial Completion.
- C. Contractor shall be responsible for providing Construction Waste Management And Disposal services for those who perform work on Project from Notice to Proceed to date of Substantial Completion.
- D. Contractor shall be responsible for Final Cleaning for entire Project.

1.4 PROJECT MEETINGS AND CONFERENCES

- A. Preconstruction Conference:
 - 1. Attend preconstruction conference and organizational meeting scheduled by Architect at Project site or other convenient location.
 - 2. Be prepared to discuss items of significance that could affect progress, including such topics as:
 - a. Construction schedule.
 - b. Critical Work sequencing.
 - c. Current problems.
 - d. Designation of responsible personnel.
 - e. Distribution of Contract Documents.
 - f. Equipment deliveries and priorities.
 - g. General schedule of inspections by Architect and its consultants.
 - h. General inspection of tests.
 - i. Office, work, and storage areas.
 - j. Preparation of record documents and O & M manuals.
 - k. Procedures for processing interpretations and Modifications.
 - l. Procedures for processing Payment Requests.
 - m. Project cleanup.

- n. Security.
 - o. Status of permits.
 - p. Submittal of Product Data, Shop Drawings, Samples, Quality Assurance / Control submittals.
 - q. Use of the premises.
 - r. Work restrictions.
 - s. Working hours.
3. Architect will record minutes of meetings and distribute copies to Owner and Contractor within three (3) working days.
- B. Progress Meetings:
1. Attend progress meetings at Project site at regularly scheduled intervals determined by Architect, at least once a month.
 2. Progress meetings will be open to Owner, Architect, Subcontractors, and anyone invited by Owner, Architect, and Contractor.
 3. Be prepared to discuss items of significance that could affect progress, including following:
 - a. Progress since last meeting.
 - b. Whether Contractor is on schedule.
 - c. Activities required to complete Project within Contract Time.
 - d. Labor and materials provided under separate contracts.
 - e. Off-site fabrication problems.
 - f. Access.
 - g. Site use.
 - h. Temporary facilities and services.
 - i. Hours of work.
 - j. Hazards and risks.
 - k. Project cleanup.
 - l. Quality and Work standards.
 - m. Status of pending modifications.
 - n. Documentation of information for Payment Requests.
 - o. Maintenance of Project records.
 4. Architect will prepare minutes of progress meetings and distribute copies of minutes to Owner and Contractor within three (3) working days.
- C. Pre-Installation Conferences:
1. Attend pre-installation conferences specified in Contract Document.
 - a. If possible, schedule these conferences on same day as regularly scheduled Progress Meetings. If this is not possible, coordinate scheduling with Architect.
 - b. Request input from attendees in preparing agenda.
 2. Be prepared to discuss following items:
 - a. Requirements of Contract Documents.
 - b. Completed work necessary for installation of items or systems.
 - c. Conditions not in compliance with installation requirements.
 - d. Installation and inspection schedule.
 - e. Coordination between trades.
 - f. Space and access limitations.
 - g. Testing.
 3. Architect will prepare meeting minutes and distribute minutes to Owner and Contractor within three (3) working days.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 3200**CONSTRUCTION PROGRESS DOCUMENTATION****PART 1 - GENERAL****1.1 SUMMARY****A. Section Includes But is Not Limited To:**

1. Administrative and procedural requirements for documenting the progress of construction during performance of the Work.

1.2 SCHEDULING OF WORK**A. Bar Chart Schedule:**

1. Submit horizontal bar chart schedule before Preconstruction Conference. Provide separate time bar for each construction activity listed on Owner's payment request form. Within each time bar, show estimated completion percentage. Provide continuous vertical line to identify first working day of each week. Show each activity in chronological sequence. Show graphically sequences necessary for completion of related portions of The Work. As The Work progresses, place contrasting mark in each bar to indicate actual completion.
2. Provide copies of schedule for Architect and Owner and post copy in field office.
3. Revise schedule monthly. Send copy of revised schedule to Owner and Architect and post copy in field office.
4. Project Management Software Programs:
 - a. Any software project management program capable of Bar Chart Scheduling for projects of equal size and complexity is approved by Contractor and approved by Owner's Project Manager.

B. Daily Construction Reports:

1. Prepare daily reports of operations at Project including at least following information:
 - a. List of Subcontractors at site.
 - b. Approximate count of personnel at site by trade.
 - c. High and low temperatures, general weather conditions.
 - d. Major items of equipment on site.
 - e. Materials, equipment, or Owner-furnished items arriving at or leaving site.
 - f. Accidents and unusual events.
 - g. Site or structure damage by water, frost, wind, or other causes.
 - h. Meetings, conferences, and significant decisions.
 - i. Visitors to the job including meeting attendees.
 - j. Stoppages, delays, shortages, losses.
 - k. Any tests made and their result if known.
 - l. Meter readings and similar recordings.
 - m. Emergency procedures.
 - n. Orders and requests of governing authorities.
 - o. Modifications received, carried out.
 - p. Services connected, disconnected.
 - q. Equipment or system tests and start-ups.
 - r. Brief summary of work accomplished that day.
 - s. Signature of person preparing report.
2. Submit daily reports to Architect at least weekly.
3. Maintain copies of daily reports at field office.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 3300**SUBMITTAL PROCEDURES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Submittal Procedures.
- B. Related Requirements:
 - 1. Section 01 7800: 'Closeout Submittals' for administrative and procedural requirements for closeout submittals.

1.2 SUBMITTAL SCHEDULE

- A. Furnish submittal schedule within 20 days after receipt of Notice to Proceed, listing items specified to be furnished for review to Architect including product data, shop drawings, samples, and Informational submittals.
 - 1. Coordinate submittal schedule with Contractor's construction schedule.
 - 2. Enclose the following information for each item:
 - a. Scheduled date for first submittal.
 - b. Related Section number.
 - c. Submittal category.
 - d. Name of Subcontractor.
 - e. Description of part of the Work covered.
 - f. Scheduled date for resubmittal.
 - g. Scheduled date for Architect's final release or approval.
- B. Print and distribute copies to Architect and Owner and post copy in field office. When revisions are made, distribute to same parties and post in same location.
- C. Revise schedule monthly. Send copy of revised schedule to Owner and Architect and post copy in field office.

1.3 SUBMITTAL PROCEDURES

- A. Coordination:
 - 1. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently before performance of related construction activities to avoid delay.
 - a. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - b. Coordinate transmittal of different types of submittals required for related elements of The Work so processing will not be delayed by need to review submittals concurrently for coordination. Architect reserves right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
 - 2. Processing Time:
 - a. Allow sufficient review time so installation will not be delayed by time required to process submittals, including time for resubmittals.
 - 1) Allow 21 days for initial review. Allow additional time if processing must be delayed allowing coordination with subsequent submittals. Architect will promptly advise Contractor when submittal being processed must be delayed for coordination.

- 2) If an intermediate submittal is necessary, process same as initial submittal.
 - 3) Allow 10 days for reprocessing each submittal.
 - 4) No extension of Contract Time will be authorized because of failure to transmit submittals to Architect in sufficient time before work is to be performed to allow processing.
3. Identification:
- a. Place permanent label or title block on each submittal for identification. Include name of entity that prepared each submittal on label or title block.
 - 1) Provide space approximately 4 by 5 inches on label or beside title block on Shop Drawings to record Contractor's review and approval markings and action taken.
 - 2) Include following information on label for processing and recording action taken:
 - a) Project name.
 - b) Date.
 - c) Name and address of Architect.
 - d) Name and address of Contractor.
 - e) Name and address of Subcontractor.
 - f) Name and address of supplier.
 - g) Name of manufacturer.
 - h) Number and title of appropriate Specification Section.
 - i) Drawing number and detail references, as appropriate.
4. Transmittal:
- a. Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using transmittal letter. On transmittal, record relevant information and requests for data. Include Contractor's certification that information complies with Contract Document requirements, or, on form or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations.
 - b. Submittals received from sources other than Contractor or not marked with Contractor's approval will be returned without action.

1.4 ACTION SUBMITTALS

- A. Product Data:
1. Submit Product Data, as required by individual Sections of Specifications.
 2. Mark each copy of each set of submittals to show choices and options used on Project. Where printed Product Data includes information on products that are not required for Project, mark copies to indicate information relating to Project.
 3. Certify that proposed product complies with requirements of Contract Documents. List any deviations from those requirements on form or separate sheet.
 4. Submit five copies of each required submittal unless otherwise required. Architect will return three copies marked with action taken and with corrections or modifications required.
 5. Submit electronic files PDF: Architect will return a PDF copy marked with action taken and with corrections or modifications required.
- B. Shop Drawings:
1. Submit newly prepared graphic data to accurate scale. Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least **8-1/2 by 11 inches (215 by 280 mm)** but no larger than **36 by 48 inches (915 by 1 200 mm)**. Highlight, encircle, or otherwise show deviations from Contract Documents. Include following information as a minimum:
 - a. Dimensions.
 - b. Identification of products and materials included.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 2. Do not reproduce Contract Documents or copy standard information as basis of Shop Drawings. Standard printed information prepared without specific reference to Project is not acceptable as Shop Drawings.
 3. Review and designate (stamp) approval of shop drawings. Unless otherwise specified, submit to Architect six copies of shop drawings required by Contract Documents. Shop drawings not

required by Contract Documents, but requested by Contractor or supplied by Subcontractor, need not be submitted to Architect for review.

C. Samples:

1. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
 - a. Mount, display, or package Samples to ease review of qualities specified. Prepare Samples to match samples provided by Architect, if applicable. Include following:
 - 1) Generic description of Sample.
 - 2) Sample source.
 - 3) Product name or name of manufacturer.
 - 4) Compliance with recognized standards.
 - 5) Availability and delivery time.
2. Submit Samples for review of kind, color, pattern, and texture, for final check of these characteristics with other elements, and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
 - a. Where variations in color, pattern, texture or other characteristics are inherent in material or product represented, submit set of three samples minimum that show approximate limits of variations.
 - b. Refer to other specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
 - c. Refer to other Sections for Samples to be returned to Contractor for incorporation into The Work. Such Samples shall be undamaged at time of use. On transmittal, indicate special requests regarding disposition of Sample submittals.
3. Where Samples are for selection of color, pattern, texture, or similar characteristics from a range of standard choices, submit full set of choices for material or product. Preliminary submittals will be reviewed and returned with Architect's mark indicating selection and other action.
4. Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit three sets. One will be returned marked with action taken.
5. Samples, as accepted and returned by Architect, will be used for quality comparisons throughout course of construction.
 - a. Unless noncompliance with Contract Documents is observed, submittal may serve as final submittal.
 - b. Sample sets may be used to obtain final acceptance of construction associated with each set.

1.5 INFORMATIONAL SUBMITTALS

- A. Informational submittals are design data, test reports, certificates, manufacturer's instructions, manufacturer's field reports, and other documentary data affirming quality of products and installations. Submit five copies of each required submittal unless otherwise required. Architect will return three copies marked with action taken and with corrections or modifications required. [or] Submit electronic files: PDF. Architect will return a PDF copy marked with action taken and with corrections or modifications required.
1. Certificates: Describe certificates intended to document affirmations by Contractor or others that the work is in accordance with the Contract Documents, but do not repeat provisions of Parts 2 or 3.
 2. Delegated Design Submittals / Design Data: Describe submittals intended to demonstrate design work prepared by Contractor's licensed professionals.
 3. Test And Evaluation Reports: Describe submittal of test reports or evaluation service reports intended to document required tests.
 4. Manufacturer Instructions: Describe submittals intended to document manufacturer instructions.
 5. Source Quality Control Submittals: Describe submittal of source quality control documentation.
 6. Field Quality Control Submittals: Describe submittal of field quality control documentation.

7. Manufacturer Reports: Describe submittal of Manufacturer reports as documentation of manufacturer activities.
8. Special Procedure Submittals: Describe submittals intended to document special procedures. An example would be construction staging or phasing for remodeling an existing facility while keeping it in operation. While the Contractor would normally be responsible for managing this, submittal of his plan as documentation could be specified.
9. Qualification Statements: Describe submittals intended to document qualifications of entities employed by Contractor.

1.6 CLOSEOUT SUBMITTALS

- A. This title groups submittals that occur during project closeout. Coordinate with section 01 7800 Closeout Submittals.
 1. As Built Record Drawings as defined in the Agreement.
 2. Project Manual: Complete Project Manual including Addenda and Modifications as defined in General Conditions.
 3. Maintenance Contracts: Describe submittal of the maintenance contract specific to the Section.
 4. Operations & Maintenance Data: Describe submittal of operation and maintenance data necessary for products of the Section.
 5. Warranty Documentation: Describe submittal of final executed warranty document specific to the Section.
 6. Record Documentation: Describe submittal of record documentation specific to the Section.
 7. Software: Describe submittal system software and programming software specific to the Section.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. This title groups maintenance material required submittals specific to the Section. Items may be provided at completion of Work or submitted with section 01 7800 Closeout Submittals:
 1. Spare Parts: Describe spare parts necessary for Owner's use in facility operation and maintenance. 'Parts' are generally understood to be items such as filters, motor drive belts, lamps, and other similar manufactured items that require only simple replacement.
 2. Extra Stock Materials: Describe extra stock materials to be provided for Owner's use in facility operation and maintenance. Extra stock materials are generally understood to be items such as ceiling tiles, flooring, paint etc.
 3. Tools:
 - a. Describe tools to be provided for Owner's use in facility operation and maintenance. Tools are generally understood to be wrenches, gauges, circuit setters, etc, required for proper operation or maintenance of a system.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 4000**QUALITY REQUIREMENTS****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Related Requirements:
 - 1. Section 01 3100: 'Project Management and Coordination' for Pre-Installation Conferences for testing and inspection.
 - 2. Section 01 3200: 'Construction Progress Documentation' for developing a schedule of required tests and inspections.
 - 3. Section 01 3300: 'Submittal Procedures'.
 - 4. Section 01 4301: 'Quality Assurance – Qualifications' establishes minimum qualification levels required.
 - 5. Section 01 4523: 'Testing and Inspecting Services' for testing and inspection, and testing laboratory services for materials, products, and construction methods.
 - 6. Section 01 7300: 'Executions' for cutting and patching for repair and restoration of construction disturbed by testing and inspecting activities.
 - 7. Divisions 01 thru 49 establish responsibility for providing specific testing and inspections.

1.3 REFERENCES

- A. Definitions:
 - 1. Accreditation: Process in which certification of competency, authority, or credibility is presented. Verify that laboratories have an appropriate quality management system and can properly perform certain test methods (e.g., ANSI, ASTM, and ISO test methods) and calibration parameters according to their scopes of accreditation.
 - 2. Approved: To authorize, endorse, validate, confirm, or agree to.
 - 3. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with requirements indicated; and having complied with requirements of authorities having jurisdiction.
 - 4. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a construction operation, including installation, erection, application, and similar operations.
 - a. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of corresponding generic name.
 - 5. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish standard by which the Work will be judged.

6. Observation: Visual observation of building / site elements or structural system by registered design professional for general conformance to approved construction documents at significant construction stages and at completion. Observation does not include or waive responsibility for performing inspections or special inspections.
 7. Preconstruction Testing: Tests and inspections that are performed specifically for Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
 8. Product Testing: Tests and inspections that are performed by testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
 9. Service Provider: Agency or firm qualified to perform required tests and inspections.
 10. Source Quality Control Testing: Tests and inspections that are performed at source, i.e., plant, mill, factory, or shop.
 11. Testing Agency: Entity engaged to perform specific tests, inspections, or both.
 12. Testing Agency Laboratory: Agency or firm qualified to perform field and laboratory tests to determine characteristics and quality of materials and workmanship.
 13. Verification: Act of reviewing, inspecting, testing, etc. to establish and document that product, service, or system meets regulatory, standard, or specification requirements.
- B. Reference Standards:
1. International Code Council (IBC) (2015 or most recent edition adopted by AHJ):
 - a. IBC Chapter 17, 'Structural Tests and Special Inspections'.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Conflicting Requirements:
1. General:
 - a. If compliance with two or more standards is specified and standards establish different or conflicting requirements for minimum quantities or quality levels, comply with most stringent requirement.
 - b. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
 2. Minimum Quantity or Quality Levels:
 - a. Quantity or quality level shown or specified shall be minimum provided or performed.
 - b. Actual installation may comply exactly with minimum quantity or quality specified, or it may exceed minimum within reasonable limits.
 - c. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for context of requirements.
 - d. Refer uncertainties to Architect for decision before proceeding.
- B. Coordination:
1. Coordinate sequence of activities to accommodate required quality assurance and quality control services with minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
- C. Scheduling:
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.5 QUALITY ASSURANCE

- A. Testing and inspecting services are used to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
1. Specific quality assurance and quality control requirements for individual construction activities are specified in Sections that specify those activities and Section 01 4523. Requirements in those Sections may also cover production of standard products.

2. Specified tests, inspections, and related actions do not limit Contractor's other quality control procedures that facilitate compliance with Contract Document requirements.
 3. Requirements for Contractor to provide quality assurance and quality control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- B. Quality Assurance Services:
1. Activities, actions, and procedures performed before and during execution of the Work to verify compliance and guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
 2. Owner or Owner's designated representative(s) will perform quality assurance to verify compliance with Contract Documents.
- C. Activities performed by Owner's Quality Assurance Testing Agency include, but are not limited to following:
1. Individual Sections in Division 01 through Division 49:
 - a. Pre-Installation Conference agenda review items for:
 - 1) Schedule requirements.
 - 2) Testing and inspection requirements:
 - 3) Requirements and frequency of testing and inspections.
 - 4) Mock-up or sample requirements.
 - 5) Submittals requirements.
 - b. Quality Assurance personal qualifications.
 - 1) Qualification documentation including certificates if required.
 - c. Non-Conforming Work:
 - 1) Prepare non-compliance log to track non-compliant testing or inspections.
 2. Weekly Activities:
 - a. Summarize and track any non-compliance issues.
 - b. Provide summary report of previous week's performed Work.
 - c. Visit contractors periodically to find out if they have any concerns with Quality Assurance inspectors and check on any schedule changes.
 - d. Visit Owner's Representatives periodically to find out if they have any concerns with how project is progressing.
- D. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with following requirements, using materials indicated for completed Work:
1. Coordinate with individual section in Division 01 through Division 49 if there are any additional requirements or modification to these requirements:
 - a. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 - b. Notify Architect seven days in advance of dates and times when mockups will be constructed.
 - c. Demonstrate proposed range of aesthetic effects and workmanship.
 - d. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 - 1) Allow seven days for initial review and each re-review of each mockup.
 - e. Maintain mockups during construction in undisturbed condition as standard for judging completed Work.
 - 1) Demolish and remove mockups when directed, unless otherwise indicated.

1.6 QUALITY CONTROL

- A. Quality Control Services:
1. Quality Control will be sole responsibility of Contractor.
 - a. 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 performed by Contractor:
 - 1) They do not include inspections, tests or related actions performed by Architect, Owner, governing authorities or independent agencies hired by Owner or Architect.
 - 2) Quality assurance performed by Owner will be used to validate Quality Control performed by Contractor.

- b. Where services are indicated as Contractor's responsibility, engage a qualified Testing Agency to perform these quality control services.
 - 1) Contractor shall not employ same testing entity engaged by Owner, without Owner's written approval.

- B. Manufacturer's Field Services: Where indicated, engage 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'.

- C. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality control services, and provide reasonable auxiliary services as requested. Notify Testing Agency sufficiently in advance of operations to permit assignment of personnel. Provide 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 inspecting. Assist Testing 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 quality control by Testing Agency.
 - 7. Security and protection for samples and for testing and inspecting equipment at Project site.

- D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections:
 - 1. Civil And Structural Testing:
 - a. Civil and structural field tests, laboratory testing, and inspections are provided by Owner's independent Testing Agency as specified in Section 01 4523 'Testing And Inspection Services'. Quality Control is sole responsibility of Contractor:
 - 1) Owner's employment of an independent Testing Agency does not relieve Contractor of Contractor's obligation to perform testing and inspection as part of his Quality Control:
 - a) Testing and inspections, if performed by Contractor, will be responsibility of Contractor to be performed by an independent entity.
 - 2) Contractor bears full responsible for compliance with all contract requirements and quality control on project and will be responsible for quality of asphalt mixture and asphalt installation.
 - b. Weekly Activities:
 - 1) Ensure that non-compliance log is current.
 - 2) Provide summary reports of performed Work.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, 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. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
 - 2. Comply with Contract Document requirements for Section 01 7300 'Execution' for cutting and patching.

- B. Protect construction exposed by or for Quality Assurance and Quality Control activities.

- C. Repair and protection are Contractor's responsibility, regardless of assignment of responsibility for Quality Assurance and Quality Control Services.

END OF SECTION

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SECTION 01 4200**REFERENCES****PART 1 - GENERAL****1.1 SUMMARY****A. Section Includes But is Not Limited To:**

1. Reference standards, definitions, specification format, and industry standards.

1.2 REFERENCES**A. Definitions:**

1. **Approved:** The term "approved," when used to convey Architect's action on Contractor's submittals, applications, and requests, is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
2. **Directed:** The term "directed" is a command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," and "permitted" have the same meaning as "directed."
3. **Experienced:** The term "experienced," when used with an entity, means having successfully completed a minimum often previous projects similar in size and scope to this Project; being familiar with the special requirements indicated, and having complied with requirements of authority having jurisdiction.
4. **Furnish:** The term "furnish" means supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
5. **General:** Basic Contract definitions are included in the Conditions of the Contract.
6. **Indicated:** The term "indicated" refers to requirements expressed by graphic representations, or in written form on Drawings, in Specifications, and in other Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the user locate the reference.
7. **Install:** The term "install" describes operations at Project site including unloading, temporary storage, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
8. **Installer:** An "Installer" is the Contractor, or another entity engaged by the Contractor, as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
9. **Project Site:** The term "Project site" means the space available for performing construction activities. The extent of the Project site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.
10. **Provide:** The term "provide" means to furnish and install, complete and ready for the intended use.
11. **Regulations:** The term "regulations" includes 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.
12. **Submitted:** The terms "submitted," "reported," "satisfactory" and similar words and phrases means submitted to Architect, reported to Architect and similar phrases.
13. **Testing Agencies:** A "testing agency" is an independent entity engaged to perform specific inspections or tests, either at the Project site or elsewhere, or to report on and, if required, to interpret results of those inspections or tests.
14. **Trades:** Using terms such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

B. References Standards:

1. Specification Format: Specifications will follow MasterFormat™ 2004 for organizing numbers and titles. (The Construction Specifications Institute, Project Resource Manual/CSI Manual of Practice, 5th Edition. New York, McGraw-Hill, 2005).
 - a. Specification Identifications:
 - 1) The Specifications use section numbers and titles to help cross referencing in the Contract Documents.
 - 2) Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.
 - b. Specification Language:
 - 1) Specifications should be prepared, with concern and respect for their legal status. Specifications should be Clear, Concise, Correct and Complete.
 - 2) Streamlining: Streamlining is used to list products, materials, reference standards, and other itemized specifications. This technique places the subject first and provides keywords for quick reference
 - c. Sentence Structure:
 - 1) Specifications to be written in the “Imperative Mood”.
 - a) The verb that clearly defines the action becomes the first word in the sentence.
 - b) The imperative sentence is concise and readily understandable.
 - 2) Streamlining is used to list products, materials, reference standards, and other itemized specifications. This technique places the subject first and provides keywords for quick reference.
 - d. Abbreviated Language:
 - 1) Abbreviations should be used only on drawings and schedules where space is limited.
 - 2) Abbreviations with multiple meanings should be avoided, unless used in different disciplines where their meaning is clear from the context in which they are used.
 - 3) Abbreviations should be limited to five or fewer letters
 - a) The verb that clearly defines the action becomes the first word in the sentence.
 - e. Symbols:
 - 1) Caution should apply to symbols substituted for words or terms.
 - f. Numbers:
 - 1) The use of Arabic numerals rather than words for numbers is recommended.

C. Industry Standards:

1. Except where Contract Documents specify otherwise, construction industry standards will apply and are made a part of Contract Documents by reference.
2. Where compliance with two or more standards is specified and standards apparently establish different or conflicting requirements for minimum quantities or quality levels, refer to Architect for decision before proceeding. Quantity or quality level shown or specified will be minimum provided or performed. Actual installation may comply exactly with minimum quantity or quality specified, or it may exceed minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for context of requirements. Refer uncertainties to Architect for decision before proceeding.
3. Each entity engaged in construction on Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with Contract Documents. Where copies of standards are needed for performance of a required construction activity, Contractor will obtain copies directly from publication source.
4. Trade Association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations, as referenced in Contract Documents, are defined to mean association names. Names and addresses are subject to change and are believed to be, but are not assured to be, accurate and up to date as of date of Contract Documents.

AABC	Associated Air Balance Council	Washington	DC	(202) 737-0202	www.aabchq.com
AAMA	American Architectural Manufacturers Association	Schaumburg	IL	(847) 303-5664	www.aamanet.org
AASHTO	American Association of State Highway & Transportation Officials	Washington	DC	(202) 624-5800	www.aashto.org

AAMA	American Architectural Manufacturers Association	Schamamburg	IL	(847) 303-5774	www.aamanet.org
AASHTO	American association of State Highways and Transportation Officials	Washington	DC		www.transportation.org www.aashto.org
ACI	American Concrete Institute International	Farmington Hills	MI	(248) 848-3700	www.aci-int.org
AGA	American Gas Association	Washington	DC	(202) 824-7000	www.aga.org
AHRI	Air Conditioning Heating & Refrigeration Institute	Arlington	VA	(703) 524-8800	www.ari.org
AIA	American Institution of Architects	Washington	DC	(202) 626-7300	www.aia.org
AISC	American Institute of Steel Construction	Chicago	IL	(312) 670-2400	www.aisc.org
AISI	American Iron & Steel Institute	Washington	DC	(202) 452-7100	www.steel.org
AITC	American Institution of Timber Construction	Englewood	CO	(303) 792-9559	www.aitc-glulam.org
AMCA	Air Movement & Control Association International	Arlington Heights	IL	(847) 394-0150	www.amca.org
ANSI	American National Standards Institute	New York	NY	(212) 642-4900	www.ansi.org
APA	APA-Engineered Wood Association	Tacoma	WA	(253) 565-6600	www.apawood.org
API	American Petroleum Institute	Washington	DC	(202) 682-8000	www.api.org
AQMD	South Coast Air Quality Management District	Diamond Bar	CA	(909) 396-2000	www.aqmd.gov
ASHRAE	American Society of Heating, Refrigerating, & Air-Conditioning Engineers	Atlanta	GA	(404) 636-8400	www.ashrae.org
ASME	American Society of Mechanical Engineers International	New York	NY	(800) 843-2763	www.asme.org
ASTM	ASTM International	West Conshohocken	PA	(610) 832-9500	www.astm.org
AWI	Architectural Woodwork Institute	Potomac Falls	VA	(571) 323-3636	www.awinet.org
AWPA	American Wood Protection Association	Birmingham	AL	(205) 733-4077	www.awpa.com
AWS	American Welding Society	Miami	FL	(800) 443-9353	www.aws.org
AWWA	American Water Works Assoc	Denver	CO	(303) 794-7711	www.awwa.org
BHMA	Builders Hardware Manufacturers Association	New York	NY	(212) 297-2122	www.buildershardware.com
BIA	Brick Industry Association	Reston	VA	(703) 620-0010	www.bia.org
CFI	International Certified Floor-covering Installers, Inc.	Kansas City	MO	(816) 231-4646	www.cfi-installers.org
CRI	Carpet & Rug Institution	Dalton	GA	(706) 278-3176	www.carpet-rug.com
CRSI	Concrete Reinforcing Steel Institute	Schaumburg	IL	(847) 517-1200	www.crsi.org
CISPI	Cast Iron Soil Pipe Institute	Chattanooga	TN	(423) 892-0137	www.cispi.org
DHI	Door & Hardware Institute	Chantilly	VA	(703) 222-2010	www.dhi.org
DIPRA	Ductile Iron Pipe Research Association.	Birmingham	AL	(205) 402-8700	www.dipra.org
EIMA	EIFS Industry Members Association	Morrow	GA	(800) 294-3462	www.eima.com
FM	FM Global	Johnston	RI	(401) 275-3000	www.fmglobal.com

FSC	Forest Stewardship Council	Bonn, Germany		+49 (0) 228 367 66 0	www.fsc.org
GA	Gypsum Association	Hyattsville	MD	(301) 277-8686	www.gypsum.org
GS	Green Seal	Washington	DC	(202) 872-6400	www.greenseal.org
HPVA	Hardwood Plywood & Veneer Association	Reston	VA	(703) 435-2900	www.hpva.org
ICC	International Code Council	Washington	DC	(888) 422-7233	www.iccsafe.org
ICC-ES	ICC Evaluation Service	Whittier	CA	(562) 699-0543	www.icc-es.org
ICBO	International Conference of Building Officials				(See ICC)
ISO	International Organization for Standardization	Geneva, Switzerland			www.iso.org
ISSA	International Slurry Surfacing Association	Annapolis	MD	(410) 267-0023	www.slurry.org
KCMA	Kitchen Cabinet Manufacturers Association	Reston	VA	(703) 264-1690	www.kcma.org
LPI	Lightning Protection Institute	Maryville	MO	(800) 488-6864	www.lightning.org
MFMA	Maple Flooring Manufacturers' Association	Deerfield	IL	(888) 480-9138	www.maplefloor.org
MSS	Manufacturer's Standardization Society of The Valve and Fittings Industry	Vienna	VA	(703) 281-6613	www.mss-hq.com
NAAMM	National Association of Architectural Metal Manufacturers	Glen Ellyn	IL	(630) 942-6591	www.naamm.org
NEC	National Electric Code	(from NFPA).			
NEMA	National Electrical Manufacturer's Association	Rosslyn	VA	(703) 841-3200	www.nema.org
NFPA	National Fire Protection Association	Quincy	MA	(800) 344-3555	www.nfpa.org
NFRC	National Fenestration Rating Council	Greenbelt	MD	(301) 589-1776	www.nfrc.org
NSF	NSF International	Ann Arbor	MI	(734) 769-8010	www.nsf.org
PCA	Portland Cement Association	Skokie	IL	(847) 966-6200	www.cement.org
PCI	Precast / Prestressed Concrete Institute	Chicago	IL	(312) 786-0300	www.pci.org
PEI	Porcelain Enamel Institute	Norcross	GA	(770) 676-9366	www.porcelainenamel.com
RFCI	Resilient Floor Covering Institute	LaGrange	GA	(706) 882-3833	www.rfci.com
SCTE	Society of Cable Telecommunications Engineers	Exton	PA	(800) 542-5040	www.scte.org
SDI	Steel Deck Institute	Fox River Grove	IL	(847) 458-4647	www.sdi.org
SDI	Steel Door Institute	Westlake	OH	(440) 899-0010	www.steeldoor.org
SIGMA	Sealed Insulating Glass Manufacturer's Association	Chicago	IL	(312) 644-6610	www.arcata.com
SJI	Steel Joist Institute	Myrtle Beach	SC	(843) 293-1995	www.steeljoist.org
SMACNA	Sheet Metal & Air Conditioning Contractors National Association	Chantilly	VA	(703) 803-2980	www.smacna.org
SPIB	Southern Pine Inspection Bureau	Pensacola	FL	(850) 434-2611	www.spib.org
SSMA	Steel Stud Manufacturer's Association	Glen Ellyn	IL	(630) 942-6592	www.ssma.com
TCNA	Tile Council of North America	Anderson	SC	(864) 646-8453	www.tileusa.com
TPI	Truss Plate Institute	Alexandria	VA	(703) 683-1010	www.tpinst.org

TPI	Turfgrass Producers International (formally American Sod Producers Association)	East Dundee	IL	(847) 649-5555	www.turfgrassod.org
UL	Underwriters Laboratories	Camas	WA	(877) 854-3577	www.ul.com
WDMA	Window and Door Manufacturer's Association	Chicago	IL	(312) 321-6802	www.nwwda.org
WWPA	Western Wood Products Association	Portland	OR	(503) 224-3930	www.wwpa.org

D. Federal Government Agencies:

- Names and titles of federal government standard or specification producing agencies are often abbreviated. Following acronyms or abbreviations referenced in Contract Documents represent names of standard or specification producing agencies of federal government. Names and addresses are subject to change but are believed to be, but are not assured to be, accurate and up to date as of date of Contract Documents.

CS	Commercial Standard (U S Department of Commerce)	Washington	DC	(202) 512-0000	www.doc.gov
EPA	Environmental Protection Agency	Washington	DC	(202) 272-0167	www.epa.gov
FCC	Federal Communications Commission	Washington	DC	(888) 225-5322	www.fcc.gov
FS	Federal Specifications Unit (Available from GSA)	Washington	DC	(202) 619-8925	www.gsa.gov
MIL	Military Standardization Documents (U S Department of Defense)	Philadelphia	PA	(215) 697-2179	www.dod.gov
NIST	National Institute of Standards and Technology, technology Administration (US Department of Commerce)	Gaithersburg	MD	(301) 975-4500	www.ts.nist.gov
OSHA	Occupational Safety & Health Administration (U S Department of Labor)	Washington	DC	202) 219-8148	www.osha.gov
PS	Product Standard of NBS (U S Department of Commerce)	Washington	DC	(202) 512-1800	www.doc.gov

E. Governing Regulations / Authorities:

- Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.
- Obtain copies of regulations required to be retained at Project Site, available for reference by parties who have a reasonable need for such reference.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

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SECTION 01 4301**QUALITY ASSURANCE - QUALIFICATIONS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Related Documents:
 - 1. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.
- B. Related Requirements:
 - 1. Section 01 4000: 'Quality Requirements' includes administrative and procedural requirements for quality assurance and quality control.
 - 2. Section 01 4523: 'Testing and Inspecting Services' for testing and inspection, and testing laboratory services for materials, products, and construction methods.

1.2 REFERENCES

- A. Definitions:
 - 1. Accreditation: Process in which certification of competency, authority, or credibility is presented. Verify that laboratories have an appropriate quality management system and can properly perform certain test methods (e.g., ANSI, ASTM, and ISO test methods) and calibration parameters according to their scopes of accreditation.
 - 2. 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.
 - 3. Testing Agency: Entity engaged to perform specific tests, inspections, or both.
 - 4. Testing Agency Laboratory: Agency or firm qualified to perform field and laboratory tests to determine characteristics and quality of materials and workmanship.
- B. Reference Standards:
 - 1. ASTM International:
 - a. ASTM E329-18, 'Standard Specification for Agencies Engaged in Construction Inspection and/or Testing.'

1.3 QUALIFICATIONS

- A. Qualifications: Qualifications paragraphs in this Article establish minimum qualification levels required; individual Specification Sections specify additional requirements:
 - 1. Manufacturers / Distributors / Fabricator / Suppliers / Installers Qualifications: Firm experienced in producing products similar to those indicated for this Project and with record of successful in-service performance, as well as sufficient production capacity to produce required units.
 - a. Owner established Relationships:
 - 1) Where heading 'Category One, Two, or Three Approved' *Manufacturers / Suppliers / Distributors / Installers* is used to identify list Owner established Relationships, Owner has established relationships that extend beyond requirements of this Project.
 - 2) No other *Manufacturers / Suppliers / Distributors / Installers* will be acceptable.
 - 3) Follow specified procedures to preserve relationships between Owner and specified *Manufacturers / Suppliers / Distributors / Installers* and advantages that accrue to Owner from those relationships.
 - a) Asphalt Shingles, Section 07 3113: Category Three Approved, no other Manufacturer / Installers accepted.

- b. Approved:
 - 1) Where heading '*Approved Suppliers / Distributors / Installers / Applicators / Fabricators*' is used to identify list of specified suppliers / distributors / installers / applicators / fabricators, use only listed suppliers / installers / fabricators.
 - 2) No substitutions will be allowed.
 - 3) Following areas of the Work have restrictions on sub-bids by which may be accepted by Contractor:
 - a) Rough Carpentry, Sections 06 1100, 06 1636, 06 1712, 06 1733, and 06 1800: Alternate Supplier approved by Architect before bidding.
- c. Acceptable Suppliers / Installers:
 - 1) Where heading '*Acceptable Suppliers / Installers / Fabricators*' is used, qualifications as specified in Quality Assurance in Part 1 of individual sections will be used to determine requirements of those that will be acceptable to be used on Project. Lists for acceptable installers can include additional installers that may be approved before bidding or by addendum.
- 2. Factory-Authorized Service Representative Qualifications:
 - a. Authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- 3. Installer Qualifications:
 - a. Firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- 4. 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.
- 5. Manufacturer's Field Services Qualifications:
 - a. Experienced authorized representative of manufacturer to inspect field-assembled components and equipment installation, including service connections.
- 6. 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 kind indicated. Engineering services are defined as those performed for installations of system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.
- 7. Specialists:
 - a. Certain sections of Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations.
 - b. Specialists shall satisfy qualification requirements indicated and shall be engaged for activities indicated.
 - c. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- 8. Testing Agency Qualifications:
 - a. Independent Testing Agency with experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E329; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1) Testing Laboratory:
 - a) AASHTO Materials Reference Laboratory (AMRL) Accreditation Program.
 - b) Cement and Concrete Reference Laboratory (CCRL).
 - c) Nationally Recognized Testing Laboratory (NRTL): Nationally recognized testing laboratory according to 29 CFR 1910.7.
 - d) National Voluntary Laboratory (NVLAP): Testing Agency accredited according to National Institute of Standards and Technology (NIST) Technology Administration, U. S. Department of Commerce Accreditation Program.

END OF SECTION

SECTION 01 4523**TESTING AND INSPECTING SERVICES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section includes testing, inspections, special testing, special inspections, and testing laboratory services for materials, products, and construction methods as specified hereafter for the Work.
- B. Specified tests, inspections, and related actions do not limit Contractor's quality control procedures to fully comply with Contract Document requirements in all regards.
- C. Costs: Costs of initial services for testing and inspection personnel will be paid by Owner unless otherwise noted.
 - 1. If initial tests indicate non-compliance with contract document requirements, any subsequent testing will be performed by same personnel and paid for by Contractor.
- D. Related Requirements:
 - 1. Section 01 4000: 'Quality Requirements' includes administrative and procedural requirements for quality assurance and quality control.
 - 2. Section 01 4301: 'Quality Assurance – Qualifications' establishes minimum qualification levels required.
 - 3. Division 01 through Division 49 establish responsibility for providing specific testing and inspections and Field Tests and Inspections.

1.3 REFERENCES

- A. Association Publications:
 - 1. Council of American Structural Engineers. CASE Form 101: *Statement of Special Inspections*. Washington, DC: CASE, 2001. (c/o American Council of Engineering Companies, 1015 15th St., NW, Washington, DC 20005; 202-347-7474; www.acec.org).
 - 2. International Code Council (IBC):
 - a. IBC Chapter 17, 'Structural Tests and Special Inspections'.
- B. Definitions:
 - 1. Accreditation: Process in which **certification** of competency, authority, or credibility is presented. Verify that laboratories have an appropriate quality management system and can properly perform certain test methods (e.g., ANSI, ASTM, and ISO test methods) and calibration parameters according to their scopes of accreditation.
 - 2. Approved: To authorize, endorse, validate, confirm, or agree to.
 - 3. Field Quality Control: Testing, Inspections, Special Testing and Special Inspections to assure compliance to Contract Documents.
 - 4. Inspection/Special Inspection:
 - a. Inspection: Not required by code provisions but may be required by Contract Documents.
 - b. Special Inspection: Inspection required of materials, installation, fabrication, erection or placement of components and connections requiring special expertise to ensure compliance

- with approved construction documents and reference standards (required by code provisions and by Contract Documents).
- c. Special Inspection-Continuous: Full-time observation of the Work requiring inspection by approved inspector who is present in area where the Work is being performed.
 - d. Special Inspection-Periodic: Part-time or intermittent observation of the Work requiring inspection by approved inspector who is present in area where the Work has been or is being performed and at completion of the Work.
5. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation. They are not samples. Approved mockups establish standard by which the Work will be judged.
 6. Observation: Visual observation of building / site elements or structural system by registered design professional for general conformance to approved construction documents at significant construction stages and at completion. Observation does not include or waive responsibility for performing inspections or special inspections.
 7. Preconstruction Testing: Tests and inspections that are performed specifically for Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
 8. Quality Assurance: Testing, Inspections, Special Testing and Special Inspections provided for by Owner.
 9. Quality Control: Testing, Inspections, Special Testing and Special Inspections provided for by Contractor.
 10. Special Inspection: See Inspection.
 11. Special Inspector: Certified individual or firm that implements special inspection program for project.
 12. Special Test: See Test.
 13. Test/Special Test: Field or laboratory tests to determine characteristics and quality of building materials and workmanship:
 - a. Test: Not required by code provisions but may be required by Contract Documents.
 - b. Special Test: Required by code provisions and by Contract Documents.
 14. Testing Agency: Entity engaged to perform specific tests, inspections, or both.
 15. Testing Agency Laboratory: Agency or firm qualified to perform field and laboratory tests to determine characteristics and quality of materials and workmanship.
 16. Verification: Act of reviewing, inspecting, testing, etc. to establish and document that product, service, or system meets regulatory, standard, or specification requirements.
- C. Reference Standards:
1. ASTM International:
 - a. ASTM A898/A898M-17, 'Standard Specification for Straight Beam Ultrasonic Examination of Rolled Steel Structural Shapes'.
 - b. ASTM C42/C42M-18, 'Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete'.
 - c. ASTM C138/C138M-17a, 'Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete'.
 - d. ASTM C597-16, 'Standard Test Method for Pulse Velocity Through Concrete'.
 - e. ASTM C803/C803M-18, 'Standard Test Method for Penetration Resistance of Hardened Concrete'.
 - f. ASTM C805/C805M-13a, 'Standard Test Method for Rebound Number of Hardened Concrete'.
 - g. ASTM C1019-18, 'Standard Test Method for Sampling and Testing Grout'.
 - h. ASTM C1021-08(2014), 'Standard Practice for Laboratories Engaged in Testing of Building Sealants'.
 - i. ASTM C1077-17, 'Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation'.
 - j. ASTM C1093-15a, 'Standard Practice for Accreditation of Testing Agencies for Masonry'.
 - k. ASTM D3666-16, 'Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials'.

- l. ASTM D3740-12a, 'Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction'.
- m. ASTM E114-15, 'Standard Practice for Ultrasonic Pulse-Echo Straight-Beam Examination by the Contact Method'.
- n. ASTM E164-13, 'Standard Practice for Contact Ultrasonic Testing of Weldments'.
- o. ASTM E329-18: 'Standard Specification for Agencies Engaged in Construction Inspection and/or Testing'.
- p. ASTM E488-18, 'Standard Test Methods for Strength of Anchors in Concrete Elements'.
- q. ASTM E543-15, 'Standard Specification for Agencies Performing Nondestructive Testing'.
- r. ASTM E587-15, 'Standard Practice for Ultrasonic Angle-Beam Examination by the Contact Method'.
- s. ASTM E709-15, 'Standard Guide for Magnetic Particle Testing'.
- t. ASTM E1212-17, 'Standard Practice for Quality Management Systems for Nondestructive Testing Agencies'.
- u. ASTM F710-17, 'Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring'.
- v. ASTM F2170-18, 'Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes'.
- 2. Code of Federal Regulations:
 - a. 29 CFR 1910, Subpart A, Section 1910.7, 'Definition and Requirements for a Nationally Recognized Testing Laboratory'.
- 3. International Code Council Code (IBC) (2018 or most recent edition adopted by AHJ):
 - a. IBC Chapter 17, 'Special Inspections And Tests'.
 - 1) Section 1704, 'Special Inspections And Tests, Contractor Responsibility And Structural Observations'.
 - 2) Section 1705, 'Required Special Inspection And Tests'.
 - a) Section 1705.2, 'Steel Construction'.

1.4 SUBMITTALS

- A. Informational Submittals:
 - 1. General: Additional submittal requirements are specified in Individual Sections in Division 01 through Division 50.
 - 2. Certificates:
 - a. Testing Agency will submit certified written report of each inspection, test, or similar service.
 - 3. Tests and Evaluation Reports:
 - a. Testing Agency or Agencies will prepare logs, test reports, and certificates applicable to specific tests and inspections and deliver copies (or electronic record) distributed as follows:
 - 1) 1 copy to Owner's Representative.
 - 2) 1 copy to Architect.
 - 3) 1 copy to Consulting Engineers (Engineer of Record).
 - 4) 1 copy to General Contractor.
 - 5) 1 copy to Authorities Having Jurisdiction (if required).
 - b. Other tests, certificates, and similar documents will be obtained by Contractor and delivered to Owner's Representative and Architect in such time as not to delay progress of the Work or final payment therefore.
 - c. Submittal Format:
 - 1) Schedule of Tests and Inspections: Prepare in tabular form and include following:
 - a) Specification Section number and title.
 - b) Description of test and inspection.
 - c) Identification of applicable standards.
 - d) Identification of test and inspection methods.
 - e) Number of tests and inspections required.
 - f) Time schedule or time span for tests and inspections.
 - g) Entity responsible for performing tests and inspections.
 - h) Requirements for obtaining samples.
 - 2) Certified written reports of each inspection, test, or similar service will include, but not be limited:

- a) Date of issue.
 - b) Project title and number.
 - c) Name, address, and telephone number of Testing Agency.
 - d) Dates and locations of samples and tests or inspections.
 - e) Names of individuals making tests and inspections.
 - f) Description of the Work and test and inspection method.
 - g) Identification of product and Specification Section.
 - h) Complete test or inspection data.
 - i) Test and inspection results and an interpretation of test results.
 - j) Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - k) Comments or professional opinion on whether tested or inspected Work complies with Contract Document requirements.
 - l) Name and signature of laboratory inspector.
 - m) Recommendations on retesting and re-inspecting.
4. Source Quality Control Submittals:
- a. Testing Agency will submit following prior to commencing the Work:
 - 1) Qualifications of Testing Agency management and personnel designated to project.
 - 2) Testing Agency 'Written Practice for Quality Assurance'.
 - 3) Qualification records for Inspector and non-destructive testing technicians designated for project.
 - 4) Testing Agency non-destructive testing procedures, equipment calibration records, and personnel training records.
 - 5) Testing Agency Quality Control Plan for monitoring and control of testing operations.
 - 6) Welding Inspection Procedures (Structural Steel testing).
 - 7) Bolting Inspection Procedures (Structural Steel testing).
 - 8) Shear Connector Stud Inspection Procedures (Structural Steel testing).
 - 9) Seismic Connections Inspection Procedures (Structural Steel testing).

1.5 QUALITY ASSURANCE

- A. Owner or Owner's designated representative(s) will perform quality assurance. Owner's quality assurance procedures may include observations, inspections, testing, verification, monitoring and any other procedures deemed necessary by Owner to verify compliance with Contract Documents.
- B. Owner will employ independent Testing Agencies to perform certain specified testing, as Owner deems necessary.
- C. Certification:
 - 1. Product producers and associations, which have instituted approved systems of quality control and which have been approved by document approval agencies, are not required to have further testing.
 - 2. Concrete mixing plants, plants producing fabricated concrete and wood or plywood products certified by agency, lumber, plywood grade marked by approved associates, and materials or equipment bearing underwriters' laboratory labels require no further testing and inspection.
- D. Written Practice for Quality Assurance:
 - 1. Testing Agency will maintain written practice for selection and administration of inspection personnel, describing training, experience, and examination requirements for qualification and certification of inspection personnel.
 - 2. Written practice will describe testing agency procedures for determining acceptability of structure in accordance with applicable codes, standards, and specifications.
 - 3. Written practice will describe Testing Agency inspection procedures, including general inspection, material controls, visual welding inspection, and bolting inspection.

1.6 QUALITY CONTROL

- A. Quality Control will be sole responsibility of Contractor. Contractor will be responsible for testing and inspections, coordination, start-up, operational checkout, and commissioning of all items of the Work included in Project. All costs for these services will be included in Contractor's cost of the Work.
- B. Contractor will assign one (1) employee to be responsible for Quality Control. This individual may have other responsibilities and may be Contractor's Project superintendent or Contractor's Project Manager.
- C. Notify results of all Testing and Inspection performed by Contractor's independent Testing Agencies to Architect and Owner's Representative within twenty four (24) hours of test or inspection having been performed.
 - 1. Testing and Inspection Reports will be distributed as follows:
 - a. 1 copy to Owner's Representative.
 - b. 1 copy to Architect.
 - c. 1 copy to Consulting Engineer(s) (Engineer of Record).
 - d. 1 copy to Authorities Having Jurisdiction (if required).
- D. Contractor's Responsibility:
 - 1. Owner's employment of an independent Testing Agency does not relieve Contractor of Contractor's obligation to perform the Work in strict accordance with requirements of Contract Documents.
 - 2. Tests and inspections that are not explicitly assigned to Owner are responsibility of Contractor.
 - 3. Cooperate with Testing Agency(s) performing required inspections, tests, and similar services and provide reasonable auxiliary services as requested. Notify Testing Agency before operations to allow assignment of personnel. Auxiliary services required include but are not limited to:
 - a. Providing access to the Work and furnishing incidental labor, equipment, and facilities deemed necessary by Testing Agency to facilitate inspections and tests at no additional cost to Owner.
 - b. Taking adequate quantities of representative samples of materials that require testing or helping Testing Agency in taking samples.
 - c. Providing facilities for storage and curing of test samples, and delivery of samples to testing laboratories.
 - d. Providing Testing Agency with preliminary design mix proposed for use for materials mixes that require control by Testing Agency.
 - 4. Contractor will integrate Owner's independent Testing Agency services within Baseline Project Schedule and with other Project activities.
 - 5. For any requested inspection, Contractor will complete prior inspections to ensure that items are ready for inspection.
 - 6. All Work is subject to testing and inspection and verification of correct operation prior to 100% payment to Contractor of line item(s) pertaining to that aspect of the Work.
 - 7. For Mechanical Equipment, inspection and documented approval of individual equipment and/or system(s) must be accomplished prior to requesting Substantial Completion Inspection for any area affected by said equipment and/or system:
 - a. Contractor will perform thorough checkout of operations with manufacturer's representatives prior to requesting formal inspection by Owner.
 - b. Contractor must notify Owner's Representative, in advance, as to when manufacturer's representative is scheduled to arrive at Site.
 - 8. Comply:
 - a. Upon completion of Testing Agency's inspection, testing, sample-taking, and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes.
 - b. Comply with Contract Documents in making such repairs.
 - 9. Data: Furnish records, drawings, certificates, and similar data as may be required by testing and inspection personnel to assure compliance with Contract Documents.
 - 10. Defective Work (Non-Conforming Work): Non-conforming Work as covered in General Conditions applies, but is not limited to following requirements:

- a. Where results of inspections, tests, or similar services show that the Work does not comply with Contract Document requirements, correct deficiencies in the Work promptly to avoid Work delays.
 - b. Where testing personnel take cores or cut-outs to verify compliance, repair prior to acceptance.
 - c. Contractor responsible for any and all costs incurred resulting from inspection that was scheduled prematurely or retesting due to failed tests.
 - d. Remove and replace any Work found defective or not complying with contract document requirements at no additional cost to Owner.
 - e. Should test return unacceptable results, Contractor will bear all costs of retesting and re-inspection as well as cost of all material consumed by testing, and replacement of unsatisfactory material and/or workmanship.
11. Protection:
- a. Protect construction exposed by or for quality assurance and quality control service activities, and protect repaired construction.
12. Scheduling: Contractor is responsible for scheduling times for inspections, tests, taking samples, and similar activities:
- a. Schedule testing and inspections in advance so as not to delay the Work and to eliminate any need to uncover Work for testing or inspection.
 - b. Notify Testing Agency and Architect as noted in Sections in Division 01 through Division 50 prior to any time required for such services.
 - c. Incorporate adequate time for performance of all inspections and correction of noted deficiencies.
 - d. Schedule sequence of activities to accommodate required services with minimum of delay.
 - e. Schedule sequence of activities to avoid necessity of removing and replacing construction to accommodate testing and inspections
13. Test and Inspection Log:
- a. Provide system of tracking all field reports, describing items noted, and resolution of each item. Prepare record of tests and inspections. Include 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 inspector conducting test or inspection.
 - b. Maintain log at Project site:
 - 1) Post changes and modifications as they occur.
 - 2) Provide access to test and inspection log for Architect's reference during normal working hours.

1.7 TESTING AND INSPECTIONS - GENERAL

- A. Testing specifically identified to be conducted by Owner, will be performed by an independent entity and will be arranged and paid for by Owner.
- B. Individual Sections in Division 01 through Division 49 indicate if Owner will provide testing and inspection of the Work of that Section.
- C. Tests include but not limited to those described in detail in 'Field Quality Control' in Part 3 of Individual Sections in Divisions 01 through Division 49.
- D. Owner may engage additional consultants for testing, air balancing, commissioning, or other special services:
 1. Activities of any such Owner consultants are in addition to Contractor testing of materials or systems necessary to prove that performance is in compliance with Contract requirements.
 2. Contractor must cooperate with persons and firms engaged in these activities.
- E. Taking Specimens:
 1. Except as may be specifically otherwise approved by Architect, only testing laboratory shall secure, handle, transport, or store any samples and specimens for testing.

- F. Scheduling Testing Agency:
 - 1. Contractor will coordinate the Work and facilitate timeliness of such testing and inspecting services so as not to delay the Work.
 - 2. Contractor will notify Testing Agency and Architect to schedule tests and / or inspections.
- G. For 'building-wide' and/or life safety systems, such as emergency lighting, emergency power uninterruptible power supply systems, fire alarm, fire sprinkler systems, smoke evacuation systems, toxic gas monitoring, capturer exhaust systems, etc. formal start-up inspection will be completed prior to requesting Substantial Completion Inspection for any area of Project:
 - 1. Manufacturer's representatives and installing contractor will demonstrate both operation and compliance to Owner's agents and consultants. If coordinated and scheduled appropriately by Contractor, these equipment and/or systems inspections may also serve to provide required Owner training, if approved in advance by Owner.
 - 2. Contractor responsible for requesting that Architect arrange for inspection of materials, equipment, and work prior to assembly or enclosure that would make materials, equipment, or work inaccessible for inspection and at other times as may be required.

1.8 TESTING AGENCY SERVICES AND RESPONSIBILITIES

- A. Testing Agency, including independent testing laboratories, will be licensed and authorized to operate in jurisdiction in which Project is located.
 - 1. Approved Testing Agency Qualifications: Requirements of Section 01 4301 apply.
- B. Testing and Inspection Services:
 - 1. Testing Agency will not release, revoke, alter, or increase Contract Document requirements or approve or accept any portion of the Work.
 - 2. Testing Agency will not give direction or instruction to Contractor.
 - 3. Testing Agency will have full authority to see that the Work is performed in strict accordance with requirements of Contract Documents and directions of Owner's Representative and/or Architect.
 - 4. Testing Agency will not provide additional testing and inspection services beyond scope of Work without prior approval of Owner's Representative and / or Architect.
- C. Excavation Support and Protection:
 - 1. Anchor tie-back System:
 - a. Observe and record proof tests.
 - 2. Soil Nail Systems:
 - a. Observe and record proof tests.
 - b. Observe drilling for changes in soil type, hole diameter, length, and cleanliness.
 - c. Periodically observe placement of drainage materials, reinforcing, and shotcrete.
 - d. Review compressive strength test results of grout and shotcrete.
- D. Testing Agency Duties:
 - 1. Independent Testing Agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual specification Sections will cooperate with Architect and Contractor in performance of its duties and will provide qualified personnel to perform required inspections and tests.
 - 2. Testing Agency will test or obtain certificates of tests of materials and methods of construction, as described herein or elsewhere in technical specification.
 - 3. Testing Agency will provide management, personnel, equipment, and services necessary to perform testing functions as outlined in this section.
 - 4. Testing Agency must have experience and capability to conduct testing and inspecting indicated by ASTM standards and that specializes in types of tests and inspections to be performed.
 - 5. Testing Agency will comply with requirements of ASTM E329, ASTM E543, ASTM C1021, ASTM C1077, ASTM C1093, ASTM D3666, ASTM D3740, and other relevant ASTM standards.
 - 6. Testing Agency must calibrate all testing equipment at reasonable intervals (minimum yearly) with accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

7. Welding Procedure Review: Testing Agency will provide review and approval or rejection of all welding procedures to be used and will verify compliance with all reference standard requirements.

E. Testing and Inspection Reports:

1. Conduct and interpret tests and inspections and state in each report whether tested and inspected the Work complies with or deviates from requirements.
2. Laboratory Reports: Testing Agency will furnish reports of materials and construction as required, including:
 - a. Description of method of test.
 - b. Identification of sample and portion of the Work tested.
 - 1) Description of location in the Work of sample.
 - 2) Time and date when sample was obtained.
 - 3) Weather and climatic conditions at time when sample was obtained.
 - c. Evaluation of results of tests including recommendations for action.
3. Inspection Reports:
 - a. Testing Agency will furnish 'Inspection at Site' reports for each site visit documenting activities, observations, and inspections.
 - b. Include notation of weather and climatic conditions, time and date conditions and status of the Work, actions taken, and recommendations or evaluation of the Work.
4. Reporting Testing and Inspection (Conforming Work):
 - a. Submit testing and inspection reports as required within twenty four (24) hours of test or inspection having been performed.
5. Reporting Testing and Inspection Defective Work (Non-Conforming Work):
 - a. Testing Agency, upon determination of irregularities, deficiencies observed or test failure(s) observed in the Work during performance of its services of test or inspection having been performed, will:
 - 1) Verbally notify results to Architect, Contractor, and Owner's Representative within one hour of test or inspection having been performed (if Defective Work (Non-Conforming Work) is incorporated into project).
 - 2) Submit written inspection report and test results as required within twenty four (24) hours of test or inspection having been performed.
 - b. Prepare non-compliance log to track non-compliant testing or inspections.
6. Final Report:
 - a. Submit final report of tests and inspections at Substantial Completion, which identify unresolved deficiencies.

1.9 ARCHITECT'S RESPONSIBILITIES

A. Architect Duties:

1. Notify Owner's Representative before each test and/or inspection.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

A. Field Tests And Inspections:

1. Field Tests and Inspections requirements are described in 'Field Quality Control' of individual Sections in Division 01 through Division 49.

END OF SECTION

SECTION 01 5100**TEMPORARY UTILITIES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements for Temporary Utilities.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Where necessary, engage appropriate local utility companies to install temporary service or connect to existing service. Where utility company provides only part of service, provide remainder with matching, compatible materials and equipment. Comply with utility company's recommendations.
1. Comply with industry standards and applicable laws and regulations of authorities having jurisdiction.
 2. Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.
 3. Arrange with utility company and existing users for time when service can be interrupted, where necessary, to make connections for temporary services.
 4. Provide adequate capacity at each stage of construction. Before temporary utility availability, provide trucked-in services.
 5. Obtain construction easements necessary to bring temporary and/or permanent utilities to site.
 6. Use qualified personnel for installation and maintenance of temporary facilities. Locate temporary utilities where they will serve Project adequately and result in minimum interference with the Work of Owner or other Contractors on Project Site. Relocate and modify temporary utilities as required.
 7. Pay cost and use charges for temporary and permanent utilities until Substantial Completion has been granted by Owner.
- B. Prepare schedule indicating dates for implementation and termination of each temporary utility. At earliest feasible time, change over from use of temporary service to use of permanent service.
- C. Keep temporary utilities clean and neat in appearance. Operate in safe and efficient manner. Take necessary fire prevention measures. Do not overload utilities, or allow them to interfere with progress of The Work. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on Project site.
- D. Limit availability of temporary utilities to essential and intended uses to reduce waste and abuse.
- E. Maintain temporary utilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.
 2. Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- F. Remove each temporary utility and control when need has ended, or when replaced by permanent utility, but not later than Substantial Completion. Complete permanent construction that may have been delayed because of interference with temporary utility. Repair damaged work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that make up temporary utilities are property of Contractor.

2. By Substantial Completion, clean and renovate permanent utilities used during construction period, including but not limited to:
 - a. Replace air filters and clean inside of ductwork and housings.
 - b. Replace significantly worn parts and parts subjected to unusual operating conditions.
 - c. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

1.3 TEMPORARY ELECTRIC POWER

- A. Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period.

1.4 TEMPORARY FIRE PROTECTION

- A. Install and maintain temporary fire protection facilities of types needed to protect against predictable and controllable fire losses. At a minimum, provide and maintain in working order two Standard UL Labeled ABC all-purpose 10 lb fire extinguishers. Do not incorporate these extinguishers into final Project.
 1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
 2. Store combustible materials in containers in fire-safe locations.
 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes for fighting fires.
 4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.

1.5 HEATING, COOLING, AND VENTILATING:

- A. Install and operate temporary heating, cooling, and ventilating units including fuel, temporary piping, fittings, wiring, and connections necessary to provide environmental conditions specified for various portions of the Work. Coordinate ventilation requirements to produce ambient conditions required and reduce consumption of energy.
- B. Repair damage to building and contents caused by cold, heat, dampness, and/or heating, cooling, and ventilating equipment. Select equipment that will not have harmful effect on completed installations or on elements being installed.
- C. Maintain safe conditions for use of temporary heating, cooling, and ventilating systems including, but not limited to, following requirements:
 1. Operate equipment according to equipment manufacturer's instructions.
 2. Provide fresh air ventilation required by equipment manufacturer.
 3. Keep temperature of fuel containers stabilized.
 4. Secure fuel containers from overturning.
 5. Operate equipment away from combustible materials.
- D. Permanent mechanical system may be operated subject to following conditions:
 1. Do not operate system when work causing air-borne dust is occurring or when dust caused by such work is present without installation of temporary filtering system approved by Architect.
 2. Operate system at no cost to Owner, including cost of fuel.
 3. Assume all responsibility and risk for operation of system.
 4. Return permanent mechanical equipment to 'like-new' condition for Substantial Completion Inspection.

1.6 TEMPORARY LIGHTING

- A. Install and operate temporary lighting that will provide adequate illumination for construction operations and traffic conditions.

1.7 TEMPORARY TELEPHONES

- A. Provide temporary telephone service for all personnel engaged in construction activities, throughout construction period.
- B. Contractor will pay for Local calls. Party making call will pay for long-distance and toll calls.
- C. At each telephone, post list of important telephone numbers.

1.8 TEMPORARY WATER SERVICE

- A. Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use.

PART 2 - PRODUCTS Not Used**PART 3 - EXECUTION Not Used**

END OF SECTION

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SECTION 01 5200**CONSTRUCTION FACILITIES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements for Construction Facilities.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Prepare schedule indicating dates for implementation and termination of each temporary facility.
- B. Keep temporary facilities clean and neat in appearance. Operate in safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or allow them to interfere with progress of The Work. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on Project site.
- C. Maintain facilities in good operating condition until removal.
- D. Remove each temporary facility when need has ended, or when replaced by authorized use of permanent facility, or by Substantial Completion. Complete permanent construction that may have been delayed because of interference with temporary facility. Repair damaged work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that make up temporary facilities are property of Contractor.
 2. By Substantial Completion, clean and renovate permanent facilities used during construction period.

1.3 FIELD OFFICES

- A. Provide and maintain insulated, weather tight temporary office of sufficient size to accommodate Contractor's personnel at Project site and for use by Owner, Architect and Subcontractors.
1. Keep office clean and orderly.
 2. Heat and cool office as needed.
 3. Furnish office with locking door, light(s), table(s), bench(es), rack(s) for drawings, telephone, and FAX machine.
 4. Make office available for progress meetings.
 5. Provide an operable fire extinguisher in facility.
 6. Provide hardhats for Owner's Representatives for site visits.

1.4 SANITARY FACILITIES

- A. Provide temporary sanitary toilet. Service and maintain temporary toilet in a clean, sanitary condition.

PART 2 - PRODUCTS Not Used**PART 3 - EXECUTION Not Used**

END OF SECTION

SECTION 01 5400
CONSTRUCTION AIDS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Construction Aids.

1.2 SCAFFOLDING, PLATFORMS, STAIRS, ETC

- A. Furnish and maintain equipment such as temporary stairs, ladders, ramps, platforms, scaffolds, hoists, runways, derricks, chutes, and elevators as required for proper execution of The Work.
- B. Apparatus, equipment, and construction shall meet requirements of applicable laws and safety regulations.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

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SECTION 01 5600**TEMPORARY BARRIERS AND ENCLOSURES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements for Temporary Barriers and Enclosures.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Protection Of Existing Improvements: Protect streets, private roads, and sidewalks, including overhead protection where required. Repair damage to existing improvements caused by construction activities.
- B. Protection Of Adjacent Property: Provide necessary protection for adjacent property and lateral support thereof.
- C. Proprietary Camera Services: In its absolute discretion, and with or without notice to Contractor, Owner may provide from time to time, but is not obligated to provide, one or more cameras on or about Project site and/or signage or notices of the same:
1. If provided by Owner, such camera(s) and/or signage and notices are solely for Owner's benefit and convenience and shall not be for benefit of Contractor, Subcontractor(s) or for any third person.
 2. Owner shall have no liability, obligation, or responsibility to Contractor, Subcontractors, or any third person relative to such camera(s), signage, or notices, or absence of camera(s), signage, or notices, including without limitation, installation, maintenance, operation, repair, testing, functionality, capacity, recording, monitoring, posting, etc., of the same (hereafter 'Proprietary Camera Services').
 3. Contractor, with Owner's prior consent (which shall not be unreasonably withheld), may relocate such camera(s), signage, or notices as necessary to not unreasonably, materially and physically interfere with work at Project Site.
 4. Contractor's obligations under Contract Documents, including but not limited to, Contractor's obligation for security of Project Site, are not modified by Owner's opportunity to provide, actually providing, or not providing Proprietary Camera Services and/or signage or notices regarding the same.
 5. This Specification Section does not preclude Contractor from providing its own camera(s), signage, or notices pursuant to terms and conditions of this Agreement. Neither does this Section reduce, expand or modify any other right or obligation of Owner pursuant to terms of this Agreement.

1.3 TEMPORARY BARRICADES

- A. Comply with standards and code requirements in erecting barricades, warning signs, and lights.
- B. Take necessary precautions to protect persons, including members of the public, from injury or harm.

1.4 TEMPORARY FENCING

- A. Before construction begins, install 6 foot high enclosure fence with lockable entrance gates. Locate where shown on Drawings. If not shown on Drawings, enclose entire site or portion sufficient to accommodate construction operations.

1.5 TEMPORARY SECURITY BARRIERS

- A. Install temporary enclosures of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and other violations of security.
- B. Secure materials and equipment stored on site.
- C. Secure building at the end of each work day.
- D. Maintain exterior building security until Substantial Completion.

1.6 TEMPORARY TREE AND PLANT PROTECTION

- A. Protection:
 - 1. Before commencing site work, build and maintain protective fencing around existing trees and vegetation as shown on the drawings.
 - 2. Individual trees will have protective fencing built beyond drip line.
 - 3. Build protective fencing around groups of trees and other vegetation as indicated on Drawings.
 - 4. Keep areas within protective fencing undisturbed and do not use for any purpose.
- B. Maintenance:
 - 1. Maintain existing tree, shrubs, and vegetation as indicated in Contract Documents:
 - a. Remove and replace vegetation that dies or is damaged beyond repair due to construction activities.
 - b. Damage to any tree, shrub, or vegetation that has been indicated to remain and be protected, will have a cost associated with it. This includes branches, trunk and root systems:
 - 1) Trees: \$1,000.00.
 - 2) Shrubs: \$ 100.00.
 - 3) Vegetation: \$ 50.00.
- C. Pruning:
 - 1. Provide a qualified Tree Service Firm if pruning is required:
 - a. Coordinate with authorities having jurisdiction.
 - b. Coordinate with Owner and Architect on site before pruning is to begin.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 5800

PROJECT IDENTIFICATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Project Identification.

1.2 TEMPORARY PROJECT SIGNAGE

- A. Contractor may, at its option, erect a temporary project identification sign.
 - 1. Sign may be free-standing or attached to temporary field office or storage shed.
 - 2. No other signs or advertisements are allowed on building site.
- B. Contractor will erect a temporary project identification sign.
 - 1. Sign may be free-standing or attached to temporary field office or storage shed. No other signs or advertisements are allowed on building site.
 - 2. Owner reserves right to remove and/or take possession of any project identification sign.
- C. Provide a temporary project Identification sign:
 - 1. Sign may be free-standing or attached to temporary field office or storage shed.
 - 2. No other signs or advertisements are allowed on building site.
 - 3. Sign will be no larger than **4 feet by 8 feet (1 200 mm by 2 450 mm)** and include following information:
 - a. Project Name as shown in Contract Documents.
 - b. Contractor's name.
 - c. Architectural firm name.
 - 4. Owner reserves the right to remove and/or take possession of any project identification sign.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

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SECTION 01 6100**COMMON PRODUCT REQUIREMENTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements for Common Product Requirements.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Provide products that comply with Contract Documents, that are undamaged, and, unless otherwise indicated, new and unused at time of installation. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for complete installation and for intended use and effect.
- B. Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on surfaces of products that will be exposed to view in occupied spaces or on building exterior.
1. Locate required product labels and stamps on concealed surface or, where required for observation after installation, on accessible surface that is not conspicuous.
 2. Provide permanent nameplates on items of service-connected or power-operated equipment. Locate on easily accessible surface that is inconspicuous in occupied spaces. Nameplate will contain following information and other essential operating data:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.
- C. Where specifications describe a product or assembly by specifying exact characteristics required, with or without use of brand or trade name, provide product or assembly that provides specified characteristics and otherwise complies with Contract requirements.
- D. Where Specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by manufacturer for application described. General overall performance of product is implied where product is specified for specific application. Manufacturer's recommendations may be contained in published product literature, or by manufacturer's certification of performance.
- E. Where specifications only require compliance with an imposed code, standard, or regulation, select product that complies with standards, codes or regulations specified.
- F. Where Specifications require matching an established Sample, Architect's decision will be final on whether proposed product matches satisfactorily. Where no product available within specified category matches satisfactorily nor complies with other specified requirements, refer to Architect.
- G. Where specified product requirements include phrase *' . . . as selected from manufacturer's standard colors, patterns, textures . . . '* or similar phrase, select product and manufacturer that comply with other specified requirements. Architect will select color, pattern, and texture from product line selected.
- H. Refer to individual Specification Sections and Allowance provisions in Division 01 for allowances that control product selection, and for procedures required for processing such selections.

- I. Remove and replace products and materials not specified in Contract Documents but installed in the Work with specified products and materials at no additional cost to Owner and for no increase in Contract time.
- J. Informational Submittals:
 1. Sustainable Design Submittals:
 - a. Submit five copies of each required submittal unless otherwise required. Architect will return three copies marked with action taken and with corrections or modifications required.
 - b. Submit electronic files: PDF. Architect will return a PDF copy marked with action taken and with corrections or modifications required.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 6200**PRODUCT OPTIONS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements for Product Options.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Product Selection:
1. When option of selecting between two or more products is given, product selected will be compatible with products previously selected, even if previously selected products were also options.
 - a. Regional materials.
- B. Non-Conforming Work:
1. Non-conforming work as covered in Article 12.3 of General Conditions applies, but is not limited, to use of non-specified products or manufacturers.
- C. Product selection is governed by Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include:
1. Substitutions And Equal Products:
 - a. Generally speaking, substitutions for specified products and systems, as defined in the Uniform Commercial Code, are not acceptable. However, equal products may be approved upon compliance with Contract Document requirements.
 - b. Approved Products / Manufacturers / Suppliers / Distributors / Fabricators / Installers:
 - 1) Category One:
 - a) Owner has established 'Relationships' that extend beyond requirements of this Project. No substitutions or equal products will be allowed on this Project.
 - b) Specification Sections specify Owner Furnished and Owner Installed Manufacturers or Products.
 - c) Follow specified procedures to preserve relationships between Owner and specified manufacturers / suppliers and advantages that accrue to Owner from those relationships.
 - 2) Category Two:
 - a) Owner has established 'Relationships' that contain provisions extending beyond requirements of this Project. No substitutions or equal products will be allowed on this Project.
 - b) Specification Sections specify Owner Furnished and Contractor Installed Manufacturers, Suppliers, Distributors or Products.
 - c) Follow specified procedures to preserve relationships between Owner and specified manufacturers / suppliers and advantages that accrue to Owner from those relationships.
 - 3) Category Three:
 - a) Owner has established 'Relationships' that contain provisions extending beyond requirements of this Project. Use these products to preserve advantages that accrue to Owner from those programs. No substitutions or equal products will be allowed on this Project.
 - b) Specification Sections specify Contractor Furnished and Contractor Installed Manufacturers, Suppliers, Distributors, Fabricators or Products.
 - 4) Category Four:

- a) Provide only specified products available from manufacturers listed. No substitutions, private-labeled, or equal products, or mixing of manufacturers' products is allowed on this Project.
- b) In Sections where lists recapitulating Manufacturers previously mentioned in Section are included under heading '*Manufacturers*' or '*Approved Manufacturers*', this is intended as a convenience to Contractor as a listing of contact information only. It is not intended that all manufacturers in list may provide products where specific products and manufacturers are listed elsewhere in Section.
- c. Acceptable Products / Manufacturers / Suppliers / Installers:
 - 1) Type One: Use specified products / manufacturers unless approval to use other products / manufacturers has been obtained from Architect by Addendum.
 - 2) Type Two: Use specified products / manufacturers unless approval to use other products and manufacturers has been obtained from Architect in writing before installing or applying unlisted or private-labeled products.
 - 3) Use 'Equal Product Approval Request Form' to request approval of equal products, manufacturers, or suppliers before bidding or before installation, as noted in individual Sections.
- d. Quality / Performance Standard Products / Manufacturers:
 - 1) Class One: Use specified product / manufacturer or equal product from specified manufacturers only.
 - 2) Class Two: Use specified product / manufacturer or equal product from any manufacturer.
 - 3) Products / manufacturers used shall conform to Contract Document requirements.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 6600**PRODUCT DELIVERY, STORAGE, AND HANDLING REQUIREMENTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Product Delivery, Storage, and Handling Requirements.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Deliver, store, and handle products according to manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.

1.3 DELIVERY AND ACCEPTANCE REQUIREMENTS

- A. Schedule delivery to reduce long-term storage at site and to prevent overcrowding of construction spaces.
- B. 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.
- C. Deliver products to site in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
- D. Inspect products upon delivery to ensure compliance with Contract Documents, and to ensure that products are undamaged and properly protected.

1.4 STORAGE AND HANDLING REQUIREMENTS

- A. Store products at site in manner that will simplify inspection and measurement of quantity or counting of units.
- B. Store heavy materials away from Project structure so supporting construction will not be endangered.
- C. Store products subject to damage by elements above ground, under cover in weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS Not Used**PART 3 - EXECUTION Not Used****END OF SECTION**

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SECTION 01 7300**EXECUTION****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for governing Execution of the Work.

1.2 COMMON INSTALLATION PROVISIONS

- A. Manufacturer's Instructions: Comply with Manufacturer's installation instructions and recommendations to extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents. Notify Architect of conflicts between Manufacturer's installation instructions and Contract Document requirements.
- B. Provide attachment and connection devices and methods necessary for securing Work. Secure work true to line and level. Anchor each product securely in place, accurately located, and aligned with other Work. Allow for expansion and building movement.
- C. Visual Effects: Provide uniform joint widths in exposed work. Arrange joints in exposed work to obtain best visual effect. Refer questionable choices to Architect for final decision.
- D. Install each component during weather conditions and Project status that will ensure best possible results. Isolate each part of completed construction from incompatible material as necessary to prevent deterioration.
- E. Coordinate temporary enclosures with required inspections and tests, to reduce necessity of uncovering completed construction for that purpose.
- F. Mounting Heights: Where mounting heights are not shown, install individual components at standard mounting heights recognized within the industry or local codes for that application. Refer questionable mounting height decisions to Architect for final decision.

PART 2 - PRODUCTS Not Used**PART 3 - EXECUTION Not Used****END OF SECTION**

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SECTION 01 7400**CLEANING AND WASTE MANAGEMENT****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Administrative and procedural requirements for Cleaning and Waste Management as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 01 1200: Coordination of responsibilities for waste management.
 - 2. Section 01 6400: Waste removal of Owner furnished products.
 - 3. In addition to standards described in this section, comply with all requirements for cleaning-up as described in various other Sections of these Specifications.

1.2 REFERENCES

- A. Definitions:
 - 1. Asphalt Pavement, Brick, and Concrete (ABC) Rubble: Rubble that contains only weathered (cured) asphalt pavement, clay bricks and attached mortar normally used in construction, or concrete that may contain rebar. The rubble shall not be mixed with, or contaminated by, another waster or debris.
 - 2. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
 - 3. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
 - 4. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
 - 5. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
 - 6. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
 - 7. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

PART 2 - PRODUCTS: Not Used**PART 3 - EXECUTION****3.1 PROGRESS CLEANING**

- A. Comply with regulations of authorities having jurisdiction and safety standards for cleaning.
- B. Keep premises broom clean during progress of the Work.
- C. Keep site and adjoining streets reasonably clean. If necessary, sprinkle rubbish and debris with water to suppress dust.
- D. During handling and installation, protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from soiling, damage, or deterioration until Substantial Completion.

- E. Clean and maintain completed construction as frequently as necessary throughout construction period. Adjust and lubricate operable components to ensure ability to operate without damaging effects.
- F. Supervise construction activities to ensure that no part of construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.
- G. Before and during application of painting materials, clear area where such work is in progress of debris, rubbish, and building materials that may cause dust. Sweep floors and vacuum as required and take all possible steps to keep area dust free.
- H. Clean exposed surfaces and protect as necessary to avoid damage and deterioration.
- I. Place extra materials of value remaining after completion of associated work have become Owner's property as directed by Owner or Architect.
- J. Construction Waste Management And Disposal:
 - 1. Remove waste materials and rubbish caused by employees, Subcontractors, and contractors under separate contract with Owner and dispose of legally. Remove unsuitable or damaged materials and debris from building and from property.
 - a. Provide adequate waste receptacles and dispose of materials when full.
 - b. Properly store volatile waste and remove daily.
 - c. Do not deposit waste into storm drains, sanitary sewers, streams, or waterways. Do not discharge volatile, harmful, or dangerous materials into drainage systems.
 - 2. Do not burn waste materials or build fires on site. Do not bury debris or excess materials on Owner's property.

3.2 FINAL CLEANING

- A. Immediately before Substantial Completion, thoroughly clean building and area where The Work was performed. Remove all rubbish from under and about building, landscaped areas and parking lot and leave building and Project Site ready for occupancy by Owner.
- B. Comply with individual manufacturer's cleaning instructions.
- C. Clean each surface or unit to condition expected in normal, commercial building cleaning and maintenance program, including but not limited to:
 - 1. Interior Cleaning:
 - a. Clean inside glazing, exercising care not to scratch glass.
 - b. Remove marks, stains, fingerprints and dirt.
 - c. Clean and polish woodwork and finish hardware.
 - d. Remove labels that are not permanent labels.
 - e. Clean plumbing fixtures and tile work. Remove spots, soil or paint.
 - f. Clean surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean light fixtures and lamps.
 - g. Clean other fixtures and equipment and remove stains, paint, dirt, and dust.
 - h. Remove temporary floor protection and clean floors.
 - 2. Exterior Cleaning:
 - a. Clean outside glazing, exercising care not to scratch glass.
 - b. Remove marks, stains, and dirt from exterior surfaces.
 - c. Clean and polish finish hardware.
 - d. Remove temporary protection systems.
 - e. Clean dirt, mud, and other foreign material from paving, sidewalks, and gutters.
 - f. Clean drop inlets, through-curb drains, and other drainage structures.
 - g. Remove trash, debris, and foreign material from landscaped areas.

END OF SECTION

SECTION 01 7700**CLOSEOUT PROCEDURES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Closeout Procedures.

1.2 GENERAL

- A. Closeout process consists of three specific project closeout inspections. Contractor shall plan sufficient time in construction schedule to allow for required inspections before expiration of Contract Time.
- B. Contractor shall conduct his own inspections of The Work and shall not request closeout inspections until The Work of the contract is reasonably complete and correction of obvious defects or omissions are complete or imminent.
- C. Date of Substantial Completion shall not occur until completion of construction work, unless agreed to by Architect and included on Certificate of Substantial Completion.

1.3 PRELIMINARY CLOSEOUT REVIEW

- A. When Architect, Owner and Contractor agree that project is ready for closeout, Pre-Substantial Inspection shall be scheduled. Preparation of floor substrate to receive carpeting and any work which could conceivably damage or stain carpet must be completed, as carpet installation will be scheduled immediately following this inspection.
- B. Prior to this inspection, completed test and evaluation reports for HVAC system and font, where one occurs, are to be provided to Project Manager, Architect, and applicable consultants.
- C. Architect and his appropriate consultants, together with Contractor and mechanical, plumbing, fire protection, and electrical sub-contractors shall conduct a space by space and exterior inspection to review materials and workmanship and to demonstrate that systems and equipment are operational.
 - 1. Punch list of items requiring completion and correction will be created.
 - 2. Time frame for completion of punch list items will be established, and date for Substantial Completion Inspection shall be set.

1.4 SUBSTANTIAL COMPLETION INSPECTION

- A. When Architect, Owner and Contractor agree that project is ready for Substantial Completion, an inspection is held. Punch list created at Pre-Substantial Inspection is to be substantially complete.
- B. Prior to this inspection, Contractor shall discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups and similar elements.
- C. Architect, Owner and Contractor review completion of punch list items. When Owner and Architect confirm that Contractor has achieved Substantial Completion of The Work, Owner, Architect and Contractor will execute Certificate of Substantial Completion that contains:
 - 1. Date of Substantial Completion.
 - 2. Punch List Work not yet completed, including seasonal and long lead items.

3. Amount to be withheld for completion of Punch List Work.
 4. Time period for completion of Punch List Work.
 5. Amount of liquidated damages set forth in Supplementary Conditions to be assessed if Contractor fails to complete Punch List Work within time set forth in Certificate.
- D. Contractor shall present Closeout Submittals to Architect and place tools, spare parts, extra stock, and similar items required by Contract Documents in locations as directed by Facilities Manager.

1.5 FINAL ACCEPTANCE MEETING

- A. When punch list items except for any seasonal items or long lead items which will not prohibit occupancy are completed, Final Acceptance Meeting is held.
- B. Owner, Architect and Contractor execute Owner's Project Closeout - Final Acceptance form, and verify:
1. All seasonal and long lead items not prohibiting occupancy, if any, are identified, with committed to completion date and amount to be withheld until completion.
 2. Owner's maintenance personnel have been instructed on all system operation and maintenance as required by the Contract Documents.
 3. Final cleaning requirements have been completed.
- C. If applicable, once any seasonal and long lead items are completed, Closeout Inspection is held where Owner and Architect verify that The Work has been satisfactorily completed, and Owner, Architect and Contractor execute Closeout portion of the Project Closeout - Final Acceptance form.
- D. When Owner and Architect confirm that The Work is satisfactorily completed, Architect will authorize final payment.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 7800**CLOSEOUT SUBMITTALS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Closeout Submittals.
- B. Related Requirements:
 - 1. Section 01 3300: 'Submittal Procedures' for administrative and procedural requirements for submittal procedures.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Project Record Documents:
 - 1. Do not use record documents for construction purposes:
 - a. Protect from deterioration and loss in secure, fire-resistive location.
 - b. Provide access to record documents for Architect's reference during normal working hours.
 - 2. Maintain clean, undamaged set of Drawings:
 - a. Mark set to show actual installation where installation varies from the Work as originally shown.
 - b. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
 - c. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
 - d. Mark new information that is important to Owner, but was not shown on Drawings.
 - e. Note related Change Order numbers where applicable.
- B. As Built Record Drawings:
 - 1. As required in agreement with the Owner:
 - a. Architect will provide two full-size sets of prints of the As Built Record Drawings to the Facilities Management Office, printed from the updated AutoCAD drawing files or updated Revit model files, as specified by Owner, that have been modified to show actual dimensions and location of equipment, material, utility lines, and other work as actually constructed, based upon information provided by Contractor. Architect will submit updated As Built Record Drawings in PDF (ISO32000 format) to Owner.
 - b. Architect will submit following:
 - 1) Updated AutoCAD as built record drawing files with associated plot style tables or Revit as built record model files, as specified by Owner.
 - 2) Revit Model O&M lifecycle requirements to be tracked by Facility Manager.

1.3 CLOSEOUT SUBMITTALS

- A. Operations And Maintenance Manual:
 - 1. General:
 - a. Include closeout submittal documentation as required by Contract Documentation.
 - b. Include workmanship bonds, final certifications, equipment check-out sheets, and similar documents.
 - c. Releases enabling Owner unrestricted use of The Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

- d. Include Project photographs, damage or settlement survey, and similar record information required by Contract Documents.
- e. Submittal Format:
 - 1) Digital copies unless otherwise noted, required for each individual specification section that include 'Closeout Submittals'.
 - 2) Include only closeout submittals as defined in individual specification section as required in Contract Documents.
- 2. Project Manual:
 - a. Copy of complete Project Manual including Addenda, Modifications as defined in General Conditions, and other interpretations issued during construction:
 - 1) Mark these documents to show variations in actual Work performed in comparison with text of specifications and Modifications.
 - 2) Show substitutions, selection of options, and similar information, particularly on elements that are concealed or cannot otherwise be readily discerned later by direct observation.
- 3. Maintenance Contracts:
 - a. Digital format only.
- 4. Operations and Maintenance Data:
 - a. Digital format only:
 - 1) Cleaning instructions.
 - 2) Maintenance instructions.
 - 3) Operations instructions.
 - 4) Equipment list.
 - 5) Parts list.
- 5. Warranty Documentation:
 - a. Digital format of final, executed warranties.
- 6. Record Documentation:
 - a. Digital format only.
 - 1) Certifications.
 - 2) Color and pattern selections.
 - 3) Design Data.
 - 4) Geotechnical Evaluation Reports (soils reports).
 - 5) Manufacture Reports.
 - 6) Manufacturer's literature or cut sheets.
 - 7) Shop Drawings.
 - 8) Source Quality Control.
 - 9) Special Procedures.
 - 10) Testing and Inspection Agency Reports.
 - 11) Testing and Inspection Reports.
- 7. Software:
 - a. Audio and Video System software, programming and set-files.
- 8. Irrigation Plan.
 - a. Laminated and un-laminated reduced sized hard copies.
- 9. Landscape Management Plan (LMP):
 - a. Irrigation Section:
 - 1) Submittal Format: Digital format and hard copy of each.
 - 2) Documentation required by sections under 32 8000 Heading: 'Irrigation'.
 - b. Landscaping Section:
 - 1) Submittal Format: Digital format and hard copy of each.
 - 2) Documentation required by sections under 32 9000 Heading: 'Planting'.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Submit item(s) required by Section 01 3300 'Submittal Procedures' and as defined in individual specification section if required in Contract Documents. Items may be provided at completion of Work or with Closeout Submittals.

1.5 WARRANTIES

- A. When written guarantees beyond one (1) year after substantial completion are required by Contract Documents, secure such guarantees and warranties properly addressed and signed in favor of Owner. Include these documents in Operations & Maintenance Manual(s) specified above.
- B. Delivery of guarantees and warranties will not relieve Contractor from obligations assumed under other provisions of Contract Documents.

PART 2 - PRODUCTS Not Used**PART 3 - EXECUTION Not Used****END OF SECTION**

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DIVISION 02: EXISTING CONDITIONS

02 4000 DEMOLITION AND STRUCTURE MOVING

02 4119 SELECTIVE STRUCTURE DEMOLITION

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SECTION 02 4119**SELECTIVE STRUCTURE DEMOLITION****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Demolition and removal of selected portions of building or structure.
 - 2. Salvage of existing items to be reused or recycled.

1.2 REFERENCES

- A. Reference Standards:
 - 1. National Fire Protection Association / American National Standards Institute:
 - a. NFPA 241, 'Standard for Safeguarding Construction, Alteration, and Demolition Operations', 2013 Edition.
 - 2. American Society of Safety Engineers:
 - a. ASSE A10.6-2006, 'Safety Requirements for Demolition Operations'.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Storage or sale of removed items or materials will not be permitted on-site.
- B. Pre-Installation Conference:
 - 1. Before beginning Selective Demolition work, in addition to requirements of Section 01 3100, meet on site to confirm work to be demolished, items to be salvaged or reused, and coordination with Owner.
- C. Scheduling:
 - 1. Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, on Schedule specified in Section 01 3200.

1.4 SUBMITTALS

- A. Informational Submittals:
 - 1. Special Procedure Submittals:
 - a. Inventory:
 - 1) After selective demolition is complete, submit list of items that have been removed and salvaged.

1.5 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
 - 1. Comply with governing EPA notification regulations before beginning selective demolition.
 - 2. Comply with hauling and disposal regulations of authorities having jurisdiction.
 - 3. Standards: Comply with ANSI A10.6 and NFPA 241.

1.6 FIELD CONDITIONS

- A. Existing Conditions:
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

PART 2 - PRODUCTS: Not Used

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification Of Conditions:
 - 1. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
 - a. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- B. Evaluation And Assessment:
 - 1. Hazardous Materials:
 - a. It is not expected that hazardous materials will be encountered in the Work. Identified hazardous materials will be removed by Owner before start of the Work.
 - b. If materials suspected of containing hazardous materials are encountered, do not disturb and immediately notify Architect.
 - 2. Inventory and record condition of items to be removed and reinstalled and items to be removed and salvaged.
 - 3. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure nature and extent of conflict. Promptly submit written report to Architect.
 - 4. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
 - 5. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 PREPARATION

- A. Temporary Facilities:
 - 1. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 2. Maintain fire-protection facilities in service during selective demolition operations.
- B. Temporary Shoring:
 - 1. 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.
 - 2. Strengthen or add new supports when required during progress of selective demolition.
- C. Utility Services:
 - 1. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
 - 2. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - a. Arrange to shut off indicated utilities with utility companies.

- b. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

3.3 SELECTIVE DEMOLITION

A. General:

1. Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
2. Demolish and remove existing construction only to extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - a. 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, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - b. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - c. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
 - d. Maintain adequate ventilation when using cutting torches.
 - e. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 - f. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 - g. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - h. Dispose of demolished items and materials promptly.

B. Selective Demolition Procedures For Specific Materials:

1. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.
2. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
3. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

C. Removed and Salvaged Items:

1. Relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.
 - a. Clean salvaged items as directed by Owner.
 - b. Pack or crate items after cleaning. Identify contents of containers.
 - c. Store items in a secure area until delivery to Owner.
 - d. Transport items to Owner's storage area designated by Owner.
 - e. Protect items from damage during transport and storage.

D. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
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.

- E. Existing Items to Remain:
 - 1. Protect construction indicated to remain against damage and soiling during selective demolition.
 - 2. 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.

3.4 CLEANING

- A. General:
 - 1. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations.
 - 2. Return adjacent areas to condition existing before selective demolition operations began.
- B. Waste Management:
 - 1. Disposal of Demolished Materials:
 - a. Remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill. Do not burn demolished materials.
 - 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.

END OF SECTION

DIVISION 05: METALS

05 0500 COMMON WORK RESULTS OF METALS

05 0503 SHOP-APPLIED METAL COATINGS
05 0523 METAL FASTENINGS

END OF TABLE OF CONTENTS

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SECTION 05 0503**SHOP-APPLIED METAL COATINGS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Quality of factory or shop-applied priming applied to steel supplied to Project without finish coat.
 - 2. Quality of and procedures for field touch-up and repair of factory-applied priming and galvanizing.
 - 3. Quality of and procedures for shop-applied finish applied to steel supplied to Project for Steeple Base Support as described in contract documents.
- B. Related Requirements:
 - 1. Section 05 4010: 'Cold-Formed Load-Bearing Metal Framing' for repair to galvanized coatings.
 - 2. Sections under 09 9000 heading: Finish painting.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International:
 - a. ASTM A780/A780M-09(2015), 'Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings'.
 - b. ASTM B695-04(2016), 'Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel'.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Conference:
 - 1. Participate in pre-installation conference.
 - 2. In addition to requirements of Section 01 3100, review following:
 - a. Meet with Architect before commencing repair of galvanized surfaces to establish extent of repairs required and, if applicable, choice of methods to be used.

1.4 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data:
 - a. Product data and samples, if requested by Architect.

PART 2 - PRODUCTS**2.1 FINISHES**

- A. Factory And Shop-Applied Primer:
 - 1. Compatible with and of equal or better quality than finish paint system to be applied by Sections under 09 9000 heading.
 - 2. Primer on unexposed, unfinished surfaces may be fabricator's standard shop coat.
- B. Repairs To Primed Surface:

- C. Unless otherwise specified, use primer which matches characteristics of original primer and is compatible with and of equal or better quality than finish paint system to be applied by Sections under 09 9000 heading.
- D. Material For Repairs Of Galvanized Surfaces:
1. Non-Structural, Non-Load-Bearing Items Not Exposed To Weather:
 - a. Zinc-Rich Paints:
 - 1) Zinc-Dust Content: Dried film shall contain 94 percent minimum of zinc-dust by weight.
 - 2) Type One Acceptable Manufacturers:
 - a) Galvax by Alvin Products Inc, Everett, MA www.alvinproducts.com.
 - b) ZRC Galvilite by ZRC Worldwide, Marshfield, MA www.zrcworldwide.com.
 - c) Equal as approved by Architect before bidding. See Section 01 6200.
 2. Structural, Load-Bearing Items And Items Exposed To Weather:
 - a. Zinc-Based Solders, Powder, Or Rod:
 - 1) Zinc-Cadmium solder with liquidus temperature range from 518 to 527 deg F (270 to 275 deg C), or
 - 2) Zinc-Tin-Lead alloy with liquidus temperature range from 446 to 500 deg F (230 to 260 deg C).
 - b. Sprayed Zinc: Wire, ribbon, or powdered zinc suitable for process.
- E. Steeple Base Support:
1. Finish:
 - a. Corlar 2.1-ST satin high solids epoxy mastic by Dupont Industrial Coatings.
 - 1) Thickness: Apply 10 mils thick.
 - b. Type One Acceptable Manufacturers:
 - 1) Dupont Industrial Coatings, Wilmington, DE www.dupont.com.
 - 2) Equal as approved by Architect before bidding. See Section 01 6200.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Preparation:
1. General:
 - a. Clean, grind, or otherwise prepare welds in steel that is to be coated within limits acceptable to welder responsible for structural integrity.
 - b. Surfaces to be coated shall be clean, dry and free of oil, grease, and corrosion products.
 2. Preparation Of Primed, Ungalvanized Surfaces:
 - a. Clean welds and grind serious abrasions.
 3. Preparation Of Galvanized Surfaces:
 - a. Follow requirements of ASTM A780/A780M and following:
 - b. For Repair Using Zinc-Rich Paints:
 - 1) Blast clean surfaces to near-white metal, in accordance with SSPC-SP10 (1 to 2 mil anchor pattern), as minimum.
 - 2) Where circumstances do not allow blast cleaning, power disk sand to bright metal finish.
 - 3) Extend surface preparation into undamaged galvanized area.
 - 4) Remove flux residue and weld spatter from welded areas.
 - c. For Repair Using Zinc-Based Alloys:
 - 1) Clean surface to be reconditioned using wire brush, light grinding action, or mild blasting.
 - 2) Extend surface preparation into surrounding, undamaged galvanized areas.
 - 3) Remove flux residue and weld spatter from welded areas.
 - 4) Preheat cleaned area to at least 600 deg F (316 deg C).
 - a) Do not overheat surface beyond 750 deg F (400 deg C) or allow surrounding galvanized coatings to be burned.
 - b) Wire brush surface during preheating.

- d. For Repair Using Sprayed Zinc (Metallizing):
 - 1) Blast clean surfaces to near-white metal, in accordance with SSPC-SP5 as minimum.
 - 2) Extend surface preparation into undamaged galvanized area.
 - 3) Remove flux residue and weld spatter from welded areas.

3.2 REPAIR / RESTORATION

- A. Repairs To Primed, Ungalvanized Surfaces:
 1. Thoroughly clean metal and give one (1) prime coat of specified material, well-worked into metal joints and open spaces. Match existing primed finish as required.
 - a. Do not apply primer at temperatures below 45 deg F (7 deg C).
 - b. Protect un-primed machine-finished surfaces against corrosion by priming.
- B. Repairs To Galvanized Surfaces:
 1. Non-Structural, Non-Load-Bearing Items Not Exposed To Weather:
 - a. Repair Using Zinc-Rich Paints: Spray- or brush-apply zinc-rich paint to prepared area. Apply paint in single application employing multiple spray passes to achieve dry film thickness of 2 mils.
 2. Structural, Load-Bearing Items And Items Exposed To Weather:
 - a. Repair Using Zinc-Based Alloys:
 - 1) Rub cleaned, pre-heated areas with repair stick to deposit evenly distributed layer of zinc alloy. If powdered zinc alloys are used, sprinkle powder on surface and spread out with spatula or similar tool.
 - 2) Remove flux residue by rinsing with water or wiping with damp cloth.
 - b. Repair Using Sprayed Zinc (Metallizing): Apply 2 mil minimum coating by means of metal-spraying pistols fed with either zinc wire or zinc powder in accordance with requirements of ASTM B695, Type I.
 3. All Items:
 - a. Apply repair materials immediately after surface preparation is complete.
 - b. Take thickness measurements, with either magnetic or electromagnetic gauge, to ensure applied coating is as specified or agreed to.

3.3 FIELD QUALITY CONTROL

- A. Non-Conforming Work:
 1. Steeple Base:
 - a. Touch-up damaged coatings.
- B. Steeple Base:
 1. Protect finished coatings until completion of project.

END OF SECTION

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SECTION 05 0523**METAL FASTENING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Quality of structural metal-to-metal, wood-to-metal, and wood-to-wood bolts used on Project.
- B. Related Requirements:
 - 1. Furnishing and installing of structural bolts specified under Section concerned.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International:
 - a. ASTM A36/A36M-14, 'Standard Specification for Carbon Structural Steel'.
 - b. ASTM A307-14, 'Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength'.

PART 2 - RODUCTS**2.1 MANUFACTURED UNITS**

- A. Materials:
 - 1. Bolts And Threaded Fasteners:
 - a. Anchor Rods For Steeple Base Connections: Conform to requirements of ASTM A36/A36M.
 - b. Bolts: Conform to requirements of ASTM A307, Grade A.

PART 3 - NOT USE**END OF SECTION**

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DIVISION 06: WOOD, PLASTICS, AND COMPOSITES

06 0500 COMMON WORK RESULTS OF WOOD, PLASTICS, AND COMPOSITES

06 0573 PRESERVATIVE WOOD TREATMENT

06 1000 ROUGH CARPENTRY

06 1011 WOOD FASTENINGS

06 1100 WOOD FRAMING

06 1636 WOOD PANEL PRODUCT SHEATHING

06 1712 STRUCTURAL COMPOSITE LUMBER: SCL

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SECTION 06 0573**PRESERVATIVE WOOD TREATMENT****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Quality of wood preservative treatment where specified.
- B. Related Requirements:
 - 1. Section 06 1100:
 - a. Characteristics of wood to be pressure-treated.
 - b. Furnishing and installing of pressure-treated wood.

1.2 REFERENCES

- A. Definitions:
 - 1. Preservative-Treated Wood: Wood exposed to high levels of moisture or heat susceptible to decay by fungus and other organisms, and to insect attack. The damage caused by decay or insects can jeopardize the performance of the wood members so as to reduce the performance below that required. Preservative treatment requires pressure-treatment process to achieve depth of penetration of preservative into wood to verify that the wood will be resistant to decay and insects over time.
 - 2. Treated Wood: Wood impregnated under pressure with compounds that reduce its susceptibility to flame spread or to deterioration caused by fungi, insects, or marine bores.
- B. Reference Standards:
 - 1. American Wood Protection Association:
 - a. AWPA P5-10. 'Standard For Waterborne Preservatives'.
 - b. AWPA P22-10. 'Standard For Ammoniacal Copper Zinc Arsenate (ACZA)'.
 - c. AWPA P51-10, 'Standard for Zinc Borate (ZB)'.
 - d. AWPA T1-12, 'Use Category System: Processing and Treatment Standard For Treated Wood'.
 - e. AWPA U1-12, 'Use Category System: User Specification For Treated Wood'.
 - 2. International Building Code (IBC) (2018 or most recent edition adopted by AHJ):
 - a. Chapter 23, 'Wood':
 - 1) Section 2300, 'Minimum Standards and Quality':
 - a) 2303.1, 'General':
 - (1) 2303.1.8, 'Preservative-Treated Wood'.
 - 2) Section 2400, 'General Construction Requirements':
 - a) 2304.11, 'Protection Against Decay and Termites':
 - (1) 2311.2, 'Wood Used Above Ground'.
 - (2) 2311.4, 'Wood In Contact With The Ground'.

1.3 SUBMITTALS

- A. Informational Submittals:
 - 1. Certificate: Certificate of pressure treatment showing compliance with specification requirements and including information required under IBC Section 2303.1.8.1, 'Identification'.

PART 2 - PRODUCTS**2.1 SYSTEMS****A. Manufacturers:**

1. Type One Acceptable Manufacturers:
 - a. Arch Wood Protection Inc, Atlanta, GA www.wolmanizedwood.com.
 - b. Hoover Treated Wood Products, Thomson, GA www.frtw.com.
 - c. Osmose Inc, Griffin, GA www.osmose.com.
 - d. U S Borax Inc, Valencia, CA www.borax.com/wood.
 - e. Viance LLC, Charlotte, NC www.treatedwood.com.
 - f. Equal as approved by Architect before bidding. See Section 01 6200.

B. Performance:

1. Framing lumber grade and species shall be as specified in Section 06 1100 for particular use.
2. Interior Wood In Contact With Concrete or Masonry:
 - a. Preservatives:
 - 1) Disodium octoborate tetrahydrate (DOT / SBX) meeting requirements of AWPA U1 and with retention of **0.25 lbs per cu ft (4 kg per cu meter)**.
 - 2) Zinc borate meeting requirements of AWPA U1 and with retention of **0.17 lbs per cu ft (2.7 kg per cu meter)**.
 - 3) CCA-C (47.5 percent chromium trioxide, 18.5 percent copper oxide and 34 percent arsenic pentoxide) by Koppers Performance Chemicals, Griffin, Georgia, <http://www.koppersperformancechemicals.com/> (0.25 lb/cu ft minimum retention).
 - 4) DURA-GUARD by Hoover Treated Wood Products, Thomson, GA www.frtw.com (.40 lb/cu ft minimum retention).
 - b. Lumber: Treat in accordance with AWPA U1.
3. Exterior Wood Continuously Exposed To Weather:
 - a. Preservatives: Waterborne preservatives meeting requirements of AWPA U1 with retention levels as required by AWPA U1 for specific application.
 - b. Lumber: Treat in accordance with AWPA U1.

PART 3 - EXECUTION: Not Used**END OF SECTION**

SECTION 06 1011**WOOD FASTENINGS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Quality of wood fastening methods and materials used for Rough Carpentry unless specified otherwise.
- B. Related Requirements:
 - 1. Section 05 0523: 'Metal Fastenings' for Quality of bolts used for Rough Carpentry.
 - 2. Furnishing and installing of other fasteners are specified in individual Sections where installed.

1.2 REFERENCES

- A. Reference Standards;
 - 1. ASTM International:
 - a. ASTM A153/A153M-16a, 'Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware'.
 - b. ASTM D3498-18, 'Standard Specification for Adhesives for Field-Gluing Plywood to Lumber Framing for Floor Systems'.
 - c. ASTM F1667-18a, 'Standard Specification for Driven Fasteners: Nails, Spikes, and Staples'.

1.3 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data:
 - a. Manufacturer's literature on framing anchors and powder actuated fasteners.
 - 2. Shop Drawings:
 - a. Submit diameter and lengths of fasteners proposed for use on Project. If length or diameter of proposed fasteners differ from specified fasteners, also include technical and engineering data for proposed fasteners including, but not limited to:
 - 1) Adjusted fastener spacing where using proposed fasteners and,
 - 2) Adjusted number of fasteners necessary to provide connection capacity equivalent to specified fasteners.
 - b. Submit on powder-actuated fasteners other than those specified in Contract Documents showing design criteria equivalents at each application.
 - c. Show type, quantity, and installation location of framing anchors. Where necessary, reference Drawing details, etc, for installation locations.

PART 2 - PRODUCTS**2.1 MANUFACTURED UNITS**

- A. Description:
 - 1. Nail Terminology:
 - a. When following nail terms are used in relation to this Project, following lengths and diameters will be understood. Refer to nails of other dimensions by actual length and diameter, not by one of listed terms:

Nail Term	Length	Diameter	Length	Diameter
8d Box	2-1/2 inches	0.113 inch	63.5 mm	2.827 mm
8d Common	2-1/2 inches	0.131 inch	63.5 mm	3.389 mm
10d Box	3 inches	0.128 inch	76.2 mm	3.251 mm
10d Common	3 inches	0.148 inch	76.2 mm	3.759 mm
16d Box	3-1/2 inches	0.135 inch	88.9 mm	3.411 mm
16d Sinker	3-1/4 inches	0.148 inch	82.6 mm	3.759 mm
16d Common	3-1/2 inches	0.162 inch	88.9 mm	4.115 mm

B. Materials:

1. Wood fastener list:
 - a. Provide VMR Suppliers with wood fastener list.
2. Fasteners:
 - a. General:
 - 1) Fasteners for preservative treated and fire-retardant-treated wood shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicon bronzed, or copper. Coating weights for zinc-coated fasteners shall be in accordance with ASTM A153/A153M.
 - b. Nails:
 - 1) Meet requirements of ASTM F1667.
 - 2) Unless noted otherwise, nails listed on Drawings or in Specifications shall be common nail diameter, except 16d nails, which shall be box diameter.
 - c. Wood Screws:
 - 1) SDS Screws:
 - a) Category Four Approved Products. See Section 01 6200 for definitions of categories.
 - (1) SDS Screws by Simpson Strong Tie Co, Dublin, CA www.strongtie.com.
 - 2) All Other: Standard type and make for job requirements.
 - d. Powder-Actuated Fasteners:
 - 1) Type One Quality Standard: Hilti X-DNI 62P8.
 - 2) Manufacturers:
 - a) Hilti, Tulsa, OK www.us.hilti.com.
 - b) Redhead Division of ITW, Wood Dale, IL www.itw-redhead.com and Markham, ON www.itwconstruction.ca.
 - c) Equals as approved by Architect through shop drawing submittal before installation. See Section 01 6200.
 3. Adhesives:
 - a. Construction Mastics:
 - 1) Meet requirements of 'APA-The Engineered Wood Association' Specification AFG-01 or ASTM D3498.
 - 2) Use phenol-resorcinol type for use on pressure treated wood products.
 4. Framing Anchors:
 - a. Framing anchors and associated fasteners in contact with preservative hot dipped zinc-coated galvanized steel or stainless steel. Do not use stainless steel items with galvanized items.
 - b. Type Two Acceptable Products:
 - 1) KC Metals Inc, San Jose, CA www.kcmetals.com.
 - 2) Simpson Strong Tie Co, Dublin, CA www.strongtie.com.
 - 3) United Steel Products Co Inc (USP), Montgomery, MN www.uspconnectors.com.
 - 4) Equals as approved by Architect through shop drawing submittal before installation. See Section 01 6200.

PART 3 - EXECUTION

3.1 ERECTION

- A. Secure one Manufacturer approved fastener in each hole of framing anchor that bears on framing member unless approved otherwise in writing by Architect.

- B. Provide washers with bolt heads and with nuts bearing on wood.

END OF SECTION

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SECTION 06 1100**WOOD FRAMING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install wood framing and blocking as described in Contract Documents.
- B. Products Installed But Not Furnished Under This Section:
 - 1. Glue-laminated structural units.
 - 2. Miscellaneous structural steel elements.
 - 3. Roof related blocking, wood nailers, and curbs.
 - 4. Structural composite lumber.
 - 5. Wood 'I' joists.
 - 6. Wood panel product sheathing.
- C. Related Requirements:
 - 1. Section 05 1223: 'Structural Steel For Buildings' for furnishing of miscellaneous structural steel.
 - 2. Section 06 0573: 'Preservative Wood Treatment' for quality of preservative wood treatment.
 - 3. Section 06 1636: 'Wood Panel Product Sheathing' for:
 - a. Pre-installation conference held jointly with Section 06 1100.
 - 4. Section 06 1712: 'Structural Composite Lumber - SCL'.
 - 5. Section 06 1733: 'Wood I Joists'.
 - 6. Section 06 1800: 'Glued-Laminated Construction'.
 - 7. Sections under 06 4000 Heading: 'Architectural Woodwork' for wall blocking requirements.
 - 8. Sections in Division 07: Roofing membranes for related blocking, wood nailers, and curbs.
 - 9. Section 08 4113: 'Aluminum-Framed Entrances And Storefronts':
 - a. Pre-installation conference held jointly with Section 06 1100.

1.2 REFERENCES

- A. Association Publications:
 - 1. American Lumber Standard Committee (ALSC) (Maintains NIST standard):
 - a. Voluntary Product Standard:
 - 1) PS 20-15, 'American Softwood Lumber Standard'.
 - 2. National Institute of Standards and Technology (NIST), U. S. Department of Commerce:
 - a. Voluntary Product Standard DOC PS 20-15, 'American Softwood Lumber Standard'.
- B. Reference Standards:

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Conference:
 - 1. Participate in MANDATORY pre-installation conference held jointly with Section 06 1636.
 - a. Schedule pre-installation conference immediately before beginning framing work.
 - b. In addition to agenda items specified in Section 01 3100, review following:
 - 1) Equipment and gypsum board blocking in wood framed walls.
 - 2) Operable partition headers.
 - 3) Rough opening.
 - 4) Shear walls and struts.
 - 5) Nails and nailing requirements.

- 6) Truss installation.
- 7) Connections.
- 2. Participate in pre-installation conference held jointly with Section 08 4113.
 - a. Schedule pre-installation conference for one (1) week before scheduled installation of storefront system.
 - b. In addition to agenda items specified in Section 01 3100, review following:
 - 1) Rough opening requirements.

1.4 SUBMITTALS

- A. Informational Submittals:
 - 1. Test And Evaluation Reports:
 - a. Technical and engineering data on nails to be set by nailing guns for Architect's approval of types proposed to be used as equivalents to specified hand set nails and adjusted number and spacing of pneumatically-driven nails to provide equivalent connection capacity.
 - 2. Qualification Statements:
 - a. Alternate Supplier(s):
 - 1) Provide name and contact information.
 - 2) Provide Qualification documentation as requested.

1.5 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Suppliers:
 - a. Licensed by American or Canadian Institute of Timber Construction, or American Wood Systems.
 - b. Category Three Approved Suppliers Approved Supplier(s):
 - 1) Approval subject to agreement process approval.
 - c. Alternate Supplier(s):
 - 1) Fabricator Firm specializing in performing work of this section:
 - a) Firm experience in supplying products indicated for this Project.
 - b) Financial stability.
 - c) Sufficient production capacity to produce required units.
 - d) Comply with specifications and Contract Documents.
 - e) Agree to complete reporting documents, including: Agree to provide total costs to the Church including breakdown costs of millwork.
 - 2) Submit documentation to Architect or Owner.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
 - 1. Protect lumber and sheathing and keep under cover in transit and at job site.
 - 2. Do not deliver material unduly long before it is required.
- B. Storage And Handling Requirements:
 - 1. Store lumber and sheathing on level racks and keep free of ground to avoid warping.
 - 2. Stack to insure proper ventilation and drainage.

PART 2 - PRODUCTS

2.1 SUPPLIERS

- A. Suppliers:

1. Category Three Approved Suppliers. See Section 01 6200 for definitions of Categories and Section 01 4301 for Qualification Requirements:
 - a. BMC, West Jordan, UT. www.BuildWithBMC.com. Contact Par Palmer:
 - 1) Office: (801) 224-0541.
 - 2) Mobile: (801) 376-9853.
 - 3) E-Mail: Par.Palmer@BuildWithBMC.com or www.BuildWithBMC.com.
 - b. J. M. Thomas Forest Products, Ogden, UT. www.thomasforest.com. Contact Tom Karren:
 - 1) Office: (800) 962-8780.
 - 2) FAX: 801-782-9652.
 - 3) E-Mail: tom@thomasforest.com.
 - c. Shelter Products, Inc., Portland, OR www.shelter-products.com. Contact Mike Running:
 - 1) Office: (800) 662-3612.
 - 2) Cell: NA.
 - 3) FAX: (503) 238-2663.
 - 4) E-Mail: mrunning@shelter-products.com.

2.2 MATERIALS

- A. Wood Framing List:
 1. Provide Category Three Approved Suppliers with wood framing list.
- B. Dimension Lumber:
 1. Design Criteria:
 - a. Meet requirements of PS 20 and National Grading Rules for softwood dimension lumber.
 - b. Bear grade stamp of WWPA, SPIB, or other association recognized by American Lumber Standards Committee identifying species of lumber by grade mark or by Certificate of Inspection.
 - c. Lumber **2 inches (50 mm)** or less in nominal thickness shall not exceed 19 percent in moisture content at time of fabrication and installation and be stamped 'S-DRY', 'K-D', or 'MC15'.
 - d. Preservative Treated Plates / Sills:
 - 1) **2x4 (38 mm by 64 mm)**: Standard and better Douglas Fir, Southern Pine, or HemFir, or StrandGuard by iLevel by Weyerhaeuser Boise, ID www.ilevel.com. (LSL 1.3 E)
 - 2) **2x6 (38 mm by 140 mm)** And Wider: No. 2 or or MSR 1650f - 1.5e Douglas Fir, Southern Pine, HemFir, or StrandGuard by iLevel by Weyerhaeuser, Boise, ID www.ilevel.com. (LSL 1.3 E).
- C. Posts, Beams, And Timbers **5 Inches by 5 Inches (125 mm by 125 mm)** And Larger:
 1. Design Criteria:
 - a. No. 1 or better Douglas Fir or Southern Pine.
- D. Lumber Ledgers:
 1. Design Criteria:
 - a. No. 2 Douglas Fir-Larch, or Southern Pine.
- E. See Contract Drawings for additional requirements.

2.3 ACCESSORIES

- A. Accordion Folding Partition Headers:
 1. See specification requirements of Section 06 1636 and as shown on Contract Drawings.
- B. Blocking:
 1. Sound lumber without splits, warps, wane, loose knots, or knots larger than **1/2 inch (13 mm)**.
- C. Furring Strips:

1. Utility or better.

D. Sill Sealer:

1. Closed-cell polyethylene foam, **1/4 inch (6 mm)** thick by width of plate.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:

1. Use preservative treated wood for wood members in contact with concrete or masonry, including wall, sill, and ledger plates, door and window subframes and bucks, etc.

B. Interface With Other Work:

1. Coordinate with other Sections for location of blocking required for installation of equipment and building specialties. Do not allow installation of gypsum board until required blocking is in place.
2. Where manufactured items are to be installed in framing, provide rough openings of dimensions within tolerances required by manufacturers of such items. Confirm dimensions where not shown on Contract Drawings.

C. Tolerances:

1. Walls:

- a. **1/4 inch (6 mm)** in **20 feet (6 meters)**, non-cumulative in length of wall.
- b. **1/8 inch (3 mm)** in **10 feet (3 meters)** with **1/4 inch (6 mm)** maximum in height of wall.
- c. Distances between parallel walls shall be **1/4 inch (6 mm)** maximum along length and height of wall.

D. Floors:

1. Place with crown side up.
2. Provide accurately fitted header and trimmer joists of same size as regular joists around floor openings, unless detailed otherwise, and support by steel joist hangers.
3. Double joists under partitions that parallel run of joists.

E. Walls:

1. Openings: Single, bearing stud supporting header and one adjacent (king) stud continuous between top and bottom plates, unless shown otherwise.
2. Corners And Partition Intersections: Triple studs.
3. Top Plates In Bearing Partitions: Doubled or tripled and lapped. Stagger joints at least **48 inches (1 200 mm)**.
4. Stud Walls To Masonry. Use one of the following methods:
 - a. Connect with **1/2 inch (13 mm)** machine bolts **6 inches (150 mm)** from top, **6 inches (150 mm)** from bottom, and **48 inches (1 200 mm)** maximum on center. Use three bolts minimum in height of **6 foot (1 800 mm)** or higher wall.
 - b. Secure wood to masonry using continuous **1/4 inch (6 mm)** minimum bead of construction adhesive and powder actuated fasteners installed at **32 inches (800 mm)** on center minimum.
5. Firestops:
 - a. Horizontal or vertical concealed spaces in walls, light coves, soffits, drop ceilings, and other features over **10 feet (3 000 mm)** in length or height, and at stairs, ceiling levels, floor levels, and other junctures of horizontal to vertical concealed spaces.
 - b. Within concealed spaces of exterior wall finishes and exterior architectural elements, such as trims, cornices or projections, at maximum intervals of **20 feet (6 000 mm)**, length or height.
6. Sill Plates:
 - a. Shear Walls And Bearing Walls:

- 1) Provide specified anchor **12 inches (300 mm)** maximum and **4 inches (100 mm)** minimum from each end of each plate.
- 2) Shear Walls: Fasten with anchor bolts embedded in concrete or with screw anchors.
- 3) Bearing Walls: Fasten with anchor bolts embedded in concrete, or with screw anchors or expansion bolts in drilled holes.
- b. Non-Structural Walls: Fasten with powder actuated fasteners.
- c. In addition to requirements of paragraphs 'a' and 'b' above, set sill plates of interior walls measuring less than **36 inches (900 mm)** in length in solid bed of specified construction adhesive, except where sill sealer is used.
- d. Install specified seal sealer under sill plates of exterior walls of main building and of acoustically insulated interior walls.
- e. Masonry Wall Plates:
 - 1) Anchor 2x6 and 2x8 wall plates to top of block walls with **5/8 inch (16 mm)** diameter anchor bolts at **32 inches (800 mm)** on center unless noted otherwise.
 - 2) Set plates on masonry bearing walls true and level to provide full bearing. Use mortar as specified in Division 04 for leveling if leveling is required.
- 7. Posts And Columns:
 - a. Unless shown otherwise, nail members of multiple member columns together with 16d at **6 inches (150 mm)** on center from each side.
- 8. Beams And Girders:
 - a. Built-Up Members:
 - 1) Stagger individual members of multiple span beams and girders so, over any one support, no more than half the members will have a joint. In all cases, however, joints shall occur over supports.
 - 2) Unless shown otherwise on Drawings, nail two-ply built-up members with 10d nails **12 inches (300 mm)** on center top and bottom, staggered on opposite sides. Nail three-ply built-up members with 16d nails at **12 inches (300 mm)** on center, top and bottom, staggered, on opposite sides. Set with crown edge up with full bearing at ends and intermediate supports.
 - b. Pre-Fabricated Members:
 - 1) Solid glu-lam, LVL, LSL, or PSL members may be used in place of built-up **2x (38 mm)** framing members. Size shall be same as built-up member.
 - 2) Solid LVL or PSL members may be used in place of built-up LVL members. Size shall be same as sum of built-up members.
 - c. Wood shims are not acceptable under ends.
 - d. Do not notch framing members unless specifically shown in Drawing detail.
- 9. Nailing:
 - a. Stud to plate (coordinate with Contract Drawings):

2 by 4 inch nominal	38 by 89 mm	End nail, two 16d OR toe nail, four 8d
2 by 6 inch nominal	38 by 140 mm	End nail, three 16d OR toe nail, four 8d
2 by 8 inch nominal	38 by 184 mm	End nail, four 16d OR toe nail, six 8d
2 by 10 inch nominal	38 by 235 mm	End nail, five 16d OR toe nail, six 8d
1-3/4 by 5-1/2 inch LVL	44 by 140 mm LVL	End nail, three 16d OR toe nail, four 8d
1-3/4 by 7-1/4 inch LVL	44 by 184 mm LVL	End nail, four 16d OR toe nail, six 8d
1-3/4 by 9-1/4 inch LVL	44 by 235 mm LVL	End nail, five 16d OR toe nail, six 8d
1-3/4 by 11-1/4 inch LVL	44 by 286 mm LVL	End nail, six 16d OR toe nail eight 8d

- b. Top plates: Spiked together, 16d, **16 inches (400 mm)** on center.
 - c. Top plates: Laps, lap members **48 inches (1200 mm)** minimum and nail with 16d nails **4 inches (100 mm)** on center
 - d. Top plates: Intersections, three 16d.
 - e. Backing And Blocking: Three 8d, each end.
 - f. Corner studs and angles: 16d, **16 inches (400 mm)** on center.
- F. Roof And Ceiling Framing:
- 1. Place with crown side up at **16 inches (400 mm)** on center unless noted otherwise.
 - 2. Install structural blocking and bridging as necessary and as described in Contract Documents.

3. Special Requirements:
 - a. Roof And Ceiling Joists: Lap joists **4 inches (100 mm)** minimum and secure with code approved framing anchors.
 - b. Roof Rafters And Outlookers:
 - 1) Cut level at wall plate and provide at least **2-1/2 inches (64 mm)** bearing where applicable. Spike securely to plate with three 10d nails.
 - 2) Attach to trusses or other end supports with framing anchors described in Contract Documents.
 - 3) Provide for bracing at bearing partitions.
 4. Installation of Wood Trusses:
 - a. Handle, erect, and brace wood trusses in accordance with TPI / WTCA Booklet BCSI.
 - b. Do not install damaged or broken wood trusses. Replace wood trusses that are broken, damaged, or have had members cut out during course of construction.
 - c. Do not set trusses until masonry bearing walls and masonry shear walls are complete.
 - d. Provide construction bracing for trusses in accordance with TPI DSB-89.
 - e. Provide continuous 2x4 horizontal web bracing as shown on truss shop drawings.
 - 1) Secure bracing to each truss with two 10d or 16d nails.
 - 2) Lap splice bracing by placing bracing members side by side on common web member. Butt splices are not acceptable.
 - f. Unless directed or shown otherwise, provide diagonal 2x4 bracing between trusses at each line of horizontal web bracing.
 - 1) This diagonal bracing shall be continuous and extend from junction of web and top chord of one truss to junction of web and bottom chord of different truss.
 - 2) Install bracing at approximately 45 degree angle. Bracing will extend over three trusses minimum or more as determined by height of trusses and 45 degree installation angle.
 - 3) Install brace on side of web opposite horizontal web bracing and nail to each web with two 10d or 16d nails.
 - 4) Install one brace every **20 feet (6.1 m)** as measured from top of brace to top of next brace.
 5. Installation of Glue-Laminated Structural Units:
 - a. Install work in accordance with Fabricators instructions and Glue-Lam Erection Safety Practices.
 - b. Adequately support and brace work until tied into building structure to insure against collapse due to wind or other forces.
 - c. Maintain protection of beams until roofing has been installed.
 6. Installation of Structural Composite Lumber:
 - a. Install temporary horizontal and cross bracing to hold members plumb and in safe condition until permanent bracing is installed.
 - b. Install permanent bracing and related components before application of loads to members.
 7. Installation of wood Web Joists:
 - a. Handle, erect, and brace sheathing wood web joists in accordance with Manufacturer's instructions.
 - b. Do not install damaged or broken wood web joists.
 - c. Install temporary horizontal and cross bracing to hold members plumb and in safe condition until permanent bracing is installed.
 - d. Cut holes through webs at locations or of sizes shown on Drawings and as recommended by Manufacturer.
 8. Secure headers and header backing to structure as described in Contract Documents.
- G. Accessory / Equipment Mounting And Gypsum Board Back Blocking (nailers) for Wood Framing):
1. Furnish and install blocking in wood framing required for hardware, specialties, equipment, accessories, and mechanical and electrical items, etc.
 2. Furnish and install back blocking in wood framing required for joints in gypsum wallboard.
 - a. Install back blocking between I-joist framing members with equivalent of Simpson Z2 clips attached with four 10d x **1-1/2 inches (38 mm)** nails at each end, two into 'I' joist and two into blocking.
 - b. Attach back blocking at trusses, stick framing, or walls with two 10d nails in each end of each piece of blocking.

- H. Accessory / Equipment Mounting And Standing & Running Trim Blocking (nailers) for Metal Framing:
 - 1. Furnish and install blocking in wood framing required for hardware, specialties, equipment, accessories, and mechanical and electrical items, etc.
 - 2. Attach blocking not installed with clips with two fasteners in each end of each piece of blocking.

- I. Furring Strips:
 - 1. On Wood or Steel: Nail or screw as required to secure firmly.
 - a. Ceiling:
 - 1) Attach furring strips to the underside of structural elements with #8 wood screws, of length to penetrate wood framing **1 inch (25 mm)** minimum.
 - 2. On Concrete or Masonry:
 - a. Back up furring strips on exterior walls or walls in contact with earth with **15 lb (6.8 kg)** felt strip.
 - b. Nail at **12 inches (300 mm)** on center maximum.

END OF SECTION

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SECTION 06 1636**WOOD PANEL PRODUCT SHEATHING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install wood panel product sheathing required for walls, roofs, and floors as described in Contract Documents.

1.2 REFERENCES

- A. Association Publications:
 - 1. National Institute of Standards and Technology (NIST), U. S. Department of Commerce:
 - a. Voluntary Product Standard DOC PS 1-09. 'Structural Plywood'.
 - b. Voluntary Product Standard DOC PS 2-04. 'Performance Standard for Wood-Based Structural-Use Panels'.
 - 2. The Engineered Wood Association (APA), Tacoma, WA www.apawood.org.
 - a. Performance Rated Panels, 'Product Guide' (for products bearing the APA trademark) December 2011.
 - b. Voluntary Product Standard:
 - 1) PS 1-09. 'Structural Plywood'.
 - 2) PS 2-04. 'Performance Standard for Wood-Based Structural-Use Panels'.
 - c. PRP-108 'Performance Standards and Policies for Structural-Use Panels'.
 - 3. TECO, Cottage Grove, WI www.tecotested.com.
 - a. TECO PRP-133: ('Fire Rated Assemblies – OSB substitution for plywood in UL fire-rated assemblies that specify plywood).

- B. Reference Standards:

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Conference:
 - 1. Participate in pre-installation conference as specified in Section 06 1100.

1.4 SUBMITTALS

- A. Informational Submittals:
 - 1. Qualification Statements:
 - a. Alternate Supplier(s):
 - 1) Provide name and contact information.
 - 2) Provide Qualification documentation as requested.
- B. Closeout Submittals:
 - 1. Include following in Operations And Maintenance Manual specified in Section 01 7800:
 - a. Record Documentation:
 - 1) Testing and Inspection Reports:
 - a) Testing Agency Inspection Reports of sheathing.

1.5 QUALITY ASSURANCE

- A. Qualifications:
1. Suppliers:
 - a. Licensed by American or Canadian Institute of Timber Construction, or American Wood Systems.
 - b. Category Three Approved Supplier(s):
 - 1) Approval subject to agreement process approval.
 - c. Alternate Supplier(s):
 - 1) Fabricator Firm specializing in performing work of this section:
 - a) Firm experience in supplying products indicated for this Project.
 - b) Financial stability.
 - c) Sufficient production capacity to produce required units.
 - d) Comply with specifications and Contract Documents.
 - e) Agree to complete reporting documents, including: Agree to provide total costs to the Church including breakdown costs of millwork.
 - 2) Submit documentation to Architect or Owner.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
1. Do not deliver material unduly long before it is required.
 2. Protect sheathing and keep under cover in transit and at job site.
- B. Storage And Handling Requirements:
1. Store sheathing on level racks and keep free of ground.
 2. Stack to insure proper ventilation and drainage.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Suppliers:
1. Category Three Approved Suppliers. See Section 01 6200 for definitions of Categories and Section 01 4301 for Qualification Requirements:
 - a. BMC, West Jordan, UT. www.BuildWithBMC.com. Contact Par Palmer:
 - 1) Office: (801) 224-0541.
 - 2) Mobile: (801) 376-9853.
 - 3) E-Mail: Par.Palmer@BuildWithBMC.com or www.BuildWithBMC.com.
 - b. J. M. Thomas Forest Products, Ogden, UT. www.thomasforest.com. Contact Tom Karren:
 - 1) Office: (800) 962-8780.
 - 2) FAX: 801-782-9652.
 - 3) E-Mail: tom@thomasforest.com.
 - c. Shelter Products, Inc., Portland, OR www.shelter-products.com. Contact Mike Running:
 - 1) Office: (800) 662-3612.
 - 2) Cell: NA.
 - 3) FAX: (503) 238-2663.
 - 4) E-Mail: mrunning@shelter-products.com.

2.2 MATERIALS

- A. Performance:
1. Design Criteria:
 - a. Meet requirements of PS 1, PS 2, or PRP-133 (TECO). Except where plywood is specifically indicated on Contract Drawings, oriented strand board (OSB) is acceptable.

- B. Sheathing:
 - 1. Wood framing list:
 - a. Provide Category Three Approved Suppliers with wood framing list.
 - 2. Sheathing:
 - a. Sheathing shall bear grade stamp from American Plywood Association (APA) or equal grading organization.
 - b. Sheathing shall not exceed 18 percent moisture content when fabricated or more than 19 percent when installed in Project.
 - c. Sheathing used for same purpose shall be of same thickness. In all cases, thickness specified is minimum required regardless of span rating.
 - d. Minimum span ratings for given thicknesses shall be as follows:

Thickness	Span Rating
3/8 inch	24 / 0
7/16 inch nominal	24 / 16
15/32 inch actual	32 / 16
1/2 inch nominal	32 / 16
19/32 inch actual	40 / 20
5/8 inch nominal	40 / 20
23/32 inch actual	48 / 24
3/4 inch nominal	48 / 24

2.3 ACCESSORIES

- A. Nails:
 - 1. As indicated on Contract Drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General:
 - 1. Top of nail heads shall be flush with sheathing surface.
 - 2. Use of edge clips to provide spacing between sheathing panels is acceptable.
- B. Wall Sheathing:
 - 1. Spacing:
 - a. Provide 1/8 inch (3 mm) space between sheets at end and edge joints.
 - 2. Edge Bearing And Blocking:
 - a. Panel edges shall bear on framing members and butt along their center lines.
 - b. Back block panel edges, which do not bear on framing members, with 2 inch nominal (45 mm) framing.
 - 3. Nail Spacing:
 - a. As indicated on Contract Drawings.
 - b. Place nails not less than 3/8 inch (9.5 mm) in from edge.
 - 4. Thickness:
 - a. As indicated on Contract Drawings.
 - 5. Do not install any piece of wall sheathing with shortest dimension of less than 12 inches (300 mm).
- C. Roof Sheathing:
 - 1. Placing:
 - a. Lay face grain at right angles to supports. Provide blocking for support if framing turns at roof overhang.
 - b. Provide 1/8 inch (3 mm) space between sheets at end and side joints.

- c. Stagger panel end joints.
- d. Sheathing shall be continuous of two spans minimum.
- 2. Edge Bearing and Blocking:
 - a. As indicated on Contract Drawings.
- 3. Nail Spacing:
 - a. As indicated on Contract Drawings.
 - b. Place nails at least **3/8 inch (9.5 mm)** in from edge.
- 4. Thickness:
 - a. As indicated on Contract Drawings.
- 5. Do not install any piece of roof sheathing with shortest dimension of less than **24 inches (600 mm)** unless support is provided under all edges.

3.2 FIELD QUALITY CONTROL

- A. Field Inspections:
 - 1. Sheathing:
 - a. General:
 - 1) Owner is responsible for Quality Assurance. Quality assurance performed by Owner will be used to validate Quality Control performed by Contractor.
 - 2) Quality Control is sole responsibility of Contractor as specified in Section 01 4523 'Testing And Inspection Services'.
 - b. For walls and roof areas where nail spacing is **4 inches (100 mm)** and less on center, Inspector shall verify wood panel sheathing, grade, thickness and nominal size of framing members, adjoining panel edges, nail size and spacing, bolting and other fastening of other components.

3.3 PROTECTION

- A. Protect roof sheathing from moisture until roofing is installed.

END OF SECTION

SECTION 06 1712**STRUCTURAL COMPOSITE LUMBER: SCL****PART 1 - GENERAL****1.1 SUMMARY**

- A. Products Furnished But Not Installed Under This Section:
 - 1. Laminated Veneer Lumber (LVL).
 - 2. Parallel Strand Lumber (PSL).
 - 3. Laminated Strand Lumber (LSL).
- B. Related Requirements:
 - 1. Section 06 1100: 'Wood Framing' for installation, securing, bracing, etc.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International:
 - a. ASTM D2559-12a(2018), 'Standard Specification for Adhesives for Structural Laminated Wood Products for Use Under Exterior Exposure Conditions'.
 - b. ASTM D5456-18, 'Standard Specification for Evaluation of Structural Composite Lumber Products'.

1.3 SUBMITTALS

- A. Informational Submittals:
 - 1. Certificates: Provide certification confirming that material structural design properties and design stresses have met or exceed requirements shown on Drawings.
 - 2. Test And Evaluation Reports: Copies of ICC or CCMC reports showing approval materials.
 - 3. Qualification Statements:
 - a. Alternate Supplier(s):
 - 1) Provide name and contact information.
 - 2) Provide Qualification documentation as requested.

1.4 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Suppliers:
 - a. Category Three Approved Supplier(s):
 - 1) Approval subject to agreement process approval.
 - b. Alternate Supplier(s):
 - 1) Fabricator Firm specializing in performing work of this section.
 - 2) Provide documentation of the following:
 - a) Firm experience in supplying products indicated for this Project.
 - b) Financial stability.
 - c) Sufficient production capacity to produce required units.
 - d) Comply with specifications and Contract Documents.
 - e) Agree to complete reporting documents, including: Agree to provide total costs to the Church including breakdown costs of millwork.
 - 3) Submit documentation to Architect or Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Storage And Handling Requirements:
1. Store members on job site in accordance with Manufacturer's instructions.
 2. Keep dry and provide supports to keep members off floor or ground.
 3. Split plastic wrappers of members stored encased in plastic on bottom side to allow for air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Suppliers:
1. Category Three Approved Suppliers. See Section 01 6200 for definitions of Categories and Section 01 4301 for Qualification Requirements:
 - a. BMC, West Jordan, UT. www.BuildWithBMC.com. Contact Par Palmer:
 - 1) Office: (801) 224-0541.
 - 2) Mobile: (801) 376-9853.
 - 3) E-Mail: Par.Palmer@BuildWithBMC.com or www.BuildWithBMC.com.
 - b. J. M. Thomas Forest Products, Ogden, UT. www.thomasforest.com. Contact Tom Karren:
 - 1) Office: (800) 962-8780.
 - 2) FAX: 801-782-9652.
 - 3) E-Mail: tom@thomasforest.com.
 - c. Shelter Products, Inc., Portland, OR www.shelter-products.com. Contact Mike Running:
 - 1) Office: (800) 662-3612.
 - 2) Cell: NA.
 - 3) FAX: (503) 238-2663.
 - 4) E-Mail: mrunning@shelter-products.com.
- B. Acceptable Manufacturers:
1. Boise Cascade Corp, Boise, ID www.bc.com.
 2. Georgia-Pacific Corp, Atlanta, GA www.gp.com.
 3. Jager Industries Inc, Calgary, AB www.jagerbuildingsystems.com.
 4. Louisiana Pacific Corp, Portland, OR www.lpcorp.com.
 5. Roseburg Forest Products, Roseburg, OR www.roseburg.com.
 6. Trus Joist Corp, Div Weyerhaeuser, Boise, ID www.tjm.com or Surrey, BC (604) 588-7878.
 7. Web Joist, Chehalis, WA www.webjoist.com.
 8. Weyerhaeuser, Engineered Lumber Products, Boise, ID www.woodbywy.com.
 9. Equal as approved by Architect before bidding. See Section 01 6200.
- C. Design Criteria:
1. Materials shall be tested and evaluated in accordance with ASTM D5456.
 2. Materials shall have current ICC-ES Evaluation Report, report approved by International Codes Council, or report issued by Architect approved model code evaluation service and shall comply with requirements of report.
- D. Materials:
1. Wood framing list:
 - a. Provide Category Three Approved Suppliers with wood framing list.
 2. Members:
 - a. Identify materials by stamp or stamps indicating manufacturer's name, product trade name, grade, species (if applicable), evaluation report number, plant number, and name or logo of independent inspection agency.
 3. Adhesive: Meet requirements of ASTM D2559.

- E. Fabrication: Materials shall be manufactured in a plant evaluated for fabrication by governing code evaluation service and under supervision of third party inspection agency listed by governing code evaluation service.

PART 3 - EXECUTION: Not Used

END OF SECTION

DIVISION 07: THERMAL AND MOISTURE PROTECTION

07 3000 STEEP SLOPE ROOFING

07 3113 ASPHALT SHINGLES

07 6000 FLASHING AND SHEET METAL

07 6210 GALVANIZED STEEL FLASHING AND TRIM
07 6310 STEEP SLOPE ROOF FLASHING: Asphalt Shingles
07 6312 PERFORATED METAL SOFFIT
07 6322 STEEL FASCIA

07 9000 JOINT PROTECTION

07 9213 ELASTOMERIC JOINT SEALANTS

END OF TABLE OF CONTENTS

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SECTION 07 3113**ASPHALT SHINGLES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install Asphalt Shingle Roofing System as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 06 2001: 'Common Finish Carpentry Requirements' for installation of wood nailers, curbs and blocking for Steeple if required.
- C. Products Installed But Not Furnished Under This Section:
 - 1. Miscellaneous flashing and sheet metal:
 - a. Drip metal.
 - b. Valley flashing.
 - c. Wall flashings.
 - 2. Pipe and flue roof jacks.
 - 3. Ridge vent.
- D. Related Requirements:
 - 1. Section 07 6310: 'Steep Slope Roof Flashing: Asphalt Tile' for furnishing of roof flashing, pipe jacks, drip edge and miscellaneous flashing and sheet metal.
 - 2. Section 07 7226: 'Ridge Vent.

1.2 REFERENCES

- A. Definitions:
 - 1. Flame Spread Classification: Categories as per ASTM E84/UL 723 or CAN/ULC-S102:
 - a. Class A: Highest fire-resistance rating for roofing as per ASTM E108. Indicated roofing is able to withstand severe exposure to fire exposure to fire originating from sources outside building.
 - b. Class B: Fire-resistance rating indicating roofing materials are able to withstand moderate exposure to fire originating from sources outside of building.
 - c. Class C: Fire-resistance rating indicating roofing materials are able to withstand light exposure to fire originating from sources outside of building.
 - 2. Wind Uplift: Wind-induced forces on roof system or components in roof system. Wind uplift generally includes negative pressure component caused by wind being deflected around and across surfaces of building and positive pressure component from air flow beneath roof deck.
- B. Reference Standards:
 - 1. ASTM International:
 - a. ASTM D226-09/D226M-17, 'Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing'.
 - b. ASTM D1970/D1970M-18, 'Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection'.
 - c. ASTM D3018/D3018M-11(2017), 'Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules'.
 - d. ASTM D3019/D3019M-17, 'Standard, 'Standard Specification for Lap Cement Used with Asphalt Roll Roofing, Non-Fibered, Asbestos-Fibered, and Non-Asbestos-Fibered'.
 - e. ASTM D3161/D3161M-16a, 'Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method)'.

- f. ASTM D3462/D3462M-16, 'Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules'.
- g. ASTM D4869/D4869M-16a, 'Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing'.
- h. ASTM D7158/D7158M-17, 'Standard Test Method for Wind Resistance of Asphalt Shingles (Uplift Force/Uplift Resistance Method)'.
- i. ASTM E84-18b, 'Standard Test Method for Surface Burning Characteristics of Building Materials'.
- j. ASTM E108-17, 'Standard Test Methods for Fire Tests of Roof Coverings'.
- k. ASTM F1667-18, 'Standard Specification for Driven Fasteners: Nails, Spikes, and Staples'.
2. International Building Code (IBC) (2018 Edition or latest edition adopted by AHJ):
 - a. Chapter 15, 'Roof Assemblies And Rooftop Structures'.
3. National Fire Protection Association:
 - a. NFPA 101: 'Life Safety Code' (2015 Edition).
4. Underwriters Laboratories (UL):
 - a. UL 580: 'Tests for Uplift Resistance of Roof Assemblies' (5th Edition).
 - b. UL 723, 'Tests for Safety Test for Surface Burning Characteristics of Building Materials' (11th Edition).
 - c. UL 790, 'Standard Test Methods for Fire Tests of Roof Coverings' (8th Edition).
 - d. UL 2218, 'Standard for Impact Resistance of Prepared Roof Covering Materials' (2nd Edition).

1.3 ADMINISTRATIVE REQUIREMENTS

A. Pre-Installation Conference:

1. Participate in MANDATORY pre-installation conference:
 - a. Roofing Installer's Foreman and those responsible for installation of roofing to be in attendance. Include Shingle Manufacturer's Representative if available.
2. Schedule pre-installation conference at project site after completion of the installation of roof sheathing but before installation of any roofing system component.
3. In addition to agenda items specified in Section 01 3100, review following:
 - a. Review if Project is in high wind area.
 - b. Review if Project could have ice dam problems.
 - c. Review if Project could have fungus-algae resistance problems.
 - d. Review Shingle Manufacturer's ventilation requirements.
 - e. Review Shingle Manufacturer's Ambient Conditions requirements.
 - f. Review existing roof conditions including moisture on deck, protruding deck fasteners, specified gaps between sheathing, and other items affecting issuance of roofing warranty.
 - g. Review proper valley, flashing, penetrations, secondary underlayment, sealants, and nailing requirements.
 - h. Review racking installation method is not permitted.
 - i. Review steeple base secondary underlayment installation under Steeple.
 - j. Review Cleaning and Disposal requirements.
 - k. Review Special Procedure Submittal for Warranty Information to be given to Manufacturer before Manufacture will issue Roof Warranty by Installer.
 - l. Review safety issues.

B. Sequencing:

1. Sequence of Roofing Materials (see valley flashing detail in Contract Drawings):
 - a. Apply continuous **12 inches (300 mm)** wide strip at edge of eaves and rakes of secondary underlayment.
 - b. Metal drip edge.
 - c. Secondary underlayment.
 - d. Apply three (3) continuous **36 inch (900 mm)** wide sheets of secondary underlayment in valley.
 - e. Install one (1) continuous **36 inch (300 mm)** wide strip of primary underlayment atop secondary underlayment and centered over valley.
 - f. Install formed valley metal over strip of primary underlayment.

- g. Apply **12 inches (300 mm)** wide strips of secondary underlayment lapping nailed edge of formed valley metal **3 inches (75 mm)**.
 - h. Primary underlayment.
 - i. Asphalt shingles.
 - j. Counter flashings over step flashing.
2. Coordinate sequencing of products furnished in Section 07 7226: 'Ridge Vents'.

1.4 SUBMITTALS

A. Action Submittals:

- 1. Product Data:
 - a. Color and style selection.
- 2. Samples:
 - a. Full size shingle.

B. Informational Submittals:

- 1. Certificates:
 - a. Installers:
 - 1) Provide current Certification for completion of certified training from Shingle Manufacturer.
 - 2) Installer's signed certificate stating roofing system complies with Contract Documents performance requirements and work only performed by trained and authorized personnel in those procedures.
- 2. Tests And Evaluation Reports:
- 3. Reports:
 - a. Manufacturer's test reports.
 - b. Wind speed coverage for warranted wind speed.
 - c. High wind reports and approvals if required by AHJ.
- 4. Manufacturers' Instructions:
 - a. Shingle Manufacturer's installation instructions and details for installation of secondary underlayment at penetrations, dormers, eaves, rakes, etc, to fit environmental conditions at Project.
- 5. Special Procedure Submittals:
 - a. Contact Owner's Representative (FM Group or Project Manager) for following information:
 - 1) Installer to include following mandatory information to be added to 'Roofing Manufacturer System Warranty' submitted with Closing Documents.
 - a) Name of Owner (name of FM Group) _____
 - b) Mailing Address (FM office address) _____
 - c) Building Property ID (unique 7 digit identifier) _____
 - d) Project site address: _____
 - e) Roof Completion Date _____
 - f) Any addition data required from Manufacturer.
 - 2) Installer to include following mandatory information to be added to 'Roof Installer Workmanship Warranty' submitted with Closing Documents:
 - a) Name of Owner (name of FM Group) _____
 - b) Mailing Address (FM office address) _____
 - c) Building Property ID (unique 7 digit identifier) _____
 - d) Project site address: _____
 - e) Roof Completion Date _____
 - f) Any addition data required from Manufacturer.
- 6. Qualification Statement:
 - a. Installer:
 - 1) Asphalt Shingles:
 - a) Provide Qualification documentation.

C. Closeout Submittals:

- 1. Include following in Operations And Maintenance Manual specified in Section 01 7800:
 - a. Warranty Documentation:
 - 1) Asphalt Shingles:

- a) Final, executed copy of 'Roofing Manufacturer System Warranty' including wind speed coverage and required Owner mandatory information.
- b) Final, executed copy of 'Roof Installer Workmanship Warranty' including required Owner mandatory information.
- 2) Verify mandatory information as specified in Special Procedure Submittal has been included in Final Warranty.
- b. Record Documentation:
 - 1) Manufacturers Documentation:
 - a) Manufacturer's literature.
 - b) Color selections.
 - c) Test and evaluation reports.
 - 2) Roofing Inspection Documentation:
 - a) Include copy of roof inspection report.
 - 3) Certificate: Installer statement of compliance for performance requirements.
 - 4) Certificate: Installer completion of certified training.
 - 5) Test And Evaluation Report: UL fire-resistance rating test report.
 - 6) Test And Evaluation Report: NFPA 101 Class A approval.
 - 7) Test And Evaluation Report: Wind resistance requirements required.
- D. Maintenance Material Submittals:
 - 1. Extra Stock Materials:
 - a. Provide one (1) square minimum of bundled shingles.

1.5 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
 - 1. Building Codes:
 - a. Meet requirements for NFPA 101 Class A roof assembly.
 - b. Roof system will meet requirements of all federal, state, and local codes having jurisdiction.
 - 2. Fall Protection: Meet requirement of fall protection as required by federal, state, and local codes having jurisdiction.
 - 3. Fire Characteristics:
 - a. Provide shingles and related roofing materials with fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency:
 - 1) Exterior Fire-Test Exposure: Class A; UL 790, CAN/ULC-S102, or ASTM E108, for application and roof slopes indicated.
 - a) Materials shall be identified with appropriate markings of applicable testing agency.
 - 4. Wind Resistance:
 - a. Meet ASTM D3161/D3161M for wind resistance.
 - 1) Installation shall comply with IBC Table 1507.2.7, 'Attachment'.
 - 5. Wind Speed:
 - a. As required to meet local codes having jurisdiction.
 - 6. Wind Uplift Resistance:
 - a. Meet UL 580 wind uplift of roof assemblies.
 - b. Meet UL 1897 uplift test for roof covering systems.
 - c. Meet ASTM D7158/D7158M for wind resistance for uplift force/uplift resistance.
- B. Qualifications:
 - 1. Manufacturer:
 - a. Asphalt Shingles:
 - 1) Asphalt shingles are required to be produced under quality control program administered by inspection agency currently accredited by ICBO ES or recognized by National Evaluation Service, Inc. Quality control manual developed in consultation with approved agency, and complying with ICBO ES Acceptance Criteria for Quality Control Manuals (AC10), must be submitted.
 - b. Underlayment:

- 1) Underlayment is required to be manufactured under approved quality control program with inspections by inspection agency accredited by International Accreditation Service (IAS) or otherwise acceptable to ICC-ES.
- 2) Quality documentation complying with ICC-ES Acceptance Criteria for Quality Documentation (AC10) shall be submitted for roof underlayment.
2. Roof Installer Foreman Qualifications:
 - a. Requirements of Section 01 4301 applies but not limited to the following:
 - 1) Provide documentation if requested by Architect.
 - a) Approved and authorized by Roofing Manufacturer to install Manufacturer's product and eligible to receive Manufacturer's warranty before bid.
 - b) Completed Shingle Manufacturer's certified trained.
 - c) Have thorough knowledge of installing asphalt shingle roofing and have minimum of five (5) years roofing experience.
 - d) Current license for the city, county, and state where project is located and license for specific type of roofing work to be performed.
 - e) Roofing Installer's foreman shall be skilled in his trade and qualified to lay out and supervise the Work.
 - f) Flashing installation shall be performed by personnel trained and authorized by Roofing Manufacturer.
3. Roof Installer:
 - a. Provide 'Roof Installer Workmanship Warranty' as specified in Warranty in Part 1 of this specification.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
 1. Make no deliveries to job site until installation is about to commence, or until approved storage area is provided.
 2. Deliver products job site in Manufacturer's original unopened containers or wrappings with labels intact and legible bearing all seals and approvals.
 3. Deliver materials in sufficient quantities to allow continuity of work.
 4. Remove any material not approved from job site.
- B. Storage And Handling Requirements:
 1. Storage Requirements:
 - a. Follow Manufacturer's instructions and precautions for storage and protection of materials.
 - b. Protect roof materials from physical damage, moisture, soiling, and other sources in a clean, dry, protected location.
 - c. Stacking:
 - 1) Shingles: Bundles should be stacked flat.
 - 2) Underlayment:
 - a) Do not double-stack pallets.
 - b) Stack rolls upright until installation.
 - d. Temperature:
 - 1) Shingles:
 - a) Store in covered ventilated area at maximum temperature of 110 deg F (43 deg C).
 - b) Use extra care in handling shingles when temperature is below 40 deg F (4.4 deg C).
 - 2) Underlayment: Store in area with temperature between 40 deg F and 100 deg F (4.4 deg C and 38 deg C).
 - e. Unacceptable Material:
 - 1) Remove from job site materials that are determined to be damaged by Architect or by Roofing Manufacturer and replace at no additional cost to Owner.
 2. Handling Requirements:
 - a. Handle rolled goods to prevent damage to edge or ends.
 3. Roof Top Loading:
 - a. Lay shingle bundles flat.
 - b. Do not bend over ridge.

1.7 FIELD CONDITIONS

- A. Ambient Conditions:
 - 1. General:
 - a. Proceed with installation only when existing and forecasted weather conditions permit roofing to be performed according to manufacturer's written instructions and warranty requirements.
 - 2. Shingles:
 - a. Do not install shingles at lower temperatures than allowed by Shingle Manufacturer for application.
 - 3. Underlayment:
 - a. Install self-adhering sheet underlayment within range of ambient and substrate temperatures recommended by manufacturer.

1.8 WARRANTY

- A. Special Warranty:
 - 1. Shingle Manufacturer's special forty (40) year minimum labor and material warranty written for The Church of Jesus Christ of Latter-day Saints program, including but not limited to:
 - a. CertainTeed:
 - 1) First ten (10) years minimum of warranty will provide for full replacement cost, including tear-off and disposal, for any failure, including material defects and workmanship. Remaining thirty (30) years of warranty will provide for pro-rated replacement cost.
 - b. GAF:
 - 1) First ten (10) years minimum of warranty will provide for full replacement cost, including tear-off and disposal, for any failure, including material defects and workmanship. Remaining thirty (30) years of warranty will provide for pro-rated replacement cost.
 - c. Malarkey (Alaska or Canada projects only):
 - 1) First ten (10) years minimum of warranty will provide for full replacement cost, including tear-off and disposal, for any failure, including material defects and workmanship. Remaining thirty (30) years of warranty will provide for pro-rated replacement cost.
 - d. Owens Corning:
 - 1) First ten (10) years minimum of warranty will provide for full replacement cost, including tear-off and disposal, for any failure, including material defects and workmanship. Remaining thirty (30) years of warranty will provide for pro-rated replacement cost.
 - 2. Standard Wind Areas:
 - a. Roofing system will resist blow-offs in winds up to **110 mph (177 kph)** for ten (10) years when installed as specified below.
 - b. Meet requirements of ASTM D3161/D3161M UL Class D.
 - 3. Roof Installer Workmanship Warranty:
 - a. Provide ten (10) year workmanship warranty on roofing system and related components, including flashings, and responsible for all repairs to roofing system and related components due to roof installer's own negligence or faulty workmanship:
 - 1) In the event that, during ten (10) year period following installation, Roof Installer defaults or fails to fulfill its obligation in relation to workmanship warranty as specified in Manufacturer's Agreement, Manufacturer will assume that obligation for remainder of ten (10) year period following original installation and Owner shall have no obligation to make or pay for repairs to or materials for roofing system that are necessary due to Roof Installer's negligence or faulty installation during that period.

PART 2 - PRODUCTS

2.1 SYSTEM

- A. Manufacturers:

1. Manufacturer Contact List:
 - a. CertainTeed Roofing Products, Valley Forge, PA www.certainteed.com.
 - 1) Contact Information: Wendy Fox, (800) 404-9880 wfox@dataworksintl.com.
 - b. GAF Materials Corp., Wayne, NJ www.gaf.com.
 - 1) Contact Information: John Arellano (office) (210) 896-1041 (fax) (210) 259-8050.
 - c. Malarkey Roofing Products, Portland OR:
 - 1) Contact Information: Joe Russo (425) 418-3456 Joe.Malarkey@outlook.com.
 - d. Owens Corning, Toledo, OH www.owenscorning.com.
 - 1) Duration Premium shingles are available in all areas of the USA and Canada including all Duration Premium colors under Church contract. Request shingles through local distribution. Any distribution questions, contact Area Sales Manager.
 - 2) For all other questions, Contact: Sam Baroudi (419) 248-7754 sam.baroudi@owenscorning.com. or Robert Hill (801) 553-2417 Robert.Hill@owenscorning.com.

B. Components:

1. Shingles And Underlayment:
 - a. Fiberglass mat shingles meeting or exceeding requirements of:
 - 1) UL Class A Fire Resistance.
 - 2) ASTM D3018/D3018M, Type I (self sealing).
 - 3) Standard Wind Areas: ASTM D3161/D3161M UL Class D.
 - 4) ASTM E108 Class A.
 - 5) CSA A123.1/A123.5 (Canada).
 - 6) ASTM D3462/D3462M where required by local codes.
 - 7) Secondary Underlayment: Meet requirements of ASTM D1970/D1970M and UL 790 Class A Fire Resistance.
 - 8) Primary (Synthetic) Underlayment: Meet requirements of ASTM D226/D226M and ASTM D4869/D4869M (physical properties only) or ASTM D1970/D1970M and ASTM E108 Class A Fire..
 - 9) Color as selected by Architect from Shingle Manufacturer's full color line.
 - b. Category Three Approved Manufactures and Products. See Section 01 6200 for definitions of Categories:
 - 1) CertainTeed:
 - a) Shingles:
 - (1) Standard Wind: Hatteras / Landmark Premium.
 - (2) Hip And Ridge Shingles: Shadow Ridge or Laminate Accessory for shingle used.
 - b) Primary Underlayment Under Shingles:
 - (1) Synthetic Underlayment: Diamond Deck.
 - c) Secondary Underlayment Under Shingles:
 - (1) WinterGuard Granular.
or
 - (2) WinterGuard Sand.
or
 - (3) WinterGuard High Tack/High Temperature.
 - d) Secondary Underlayment Under Shingles over Unheated Buildings:
 - (1) Not required over unheated buildings such as Storage Shed and Stake Pavilions.
 - 2) GAF:
 - a) Shingles:
 - (1) Standard Wind: Timberline Ultra HD.
 - (2) Hip And Ridge Shingles: TimberTex or Ridglass.
 - b) Primary Underlayment Under Shingles:
 - (1) Synthetic Underlayment: Tiger Paw.
 - c) Secondary Underlayment Under Shingles:
 - (1) Weatherwatch.
or
 - (2) StormGuard.
 - d) Secondary Underlayment Under Shingles over Unheated Buildings:

- (1) Not required over unheated buildings such as Storage Shed and Stake Pavilions.
- 3) Malarkey (Alaska or Canada projects):
 - a) Shingles:
 - (1) Standard Wind: Polymer Modified SBS Legacy.
 - (4) Hip And Ridge Shingles: Modified SBS Hip and Ridge Strips #225 10 inches (254 mm) or #227 12 inches (305 mm).
 - b) Primary Underlayment Under Shingles:
 - (1) Synthetic Underlayment: Secure Start #1030.
 - (2) Polymer Modified SBS Underlayment: Right Start UDL.
 - c) Secondary Underlayment Under Shingles:
 - (1) Arctic Seal Self-Adhering underlayment #401.
 - d) Secondary Underlayment Under Shingles over Unheated Buildings:
 - (1) Not required over unheated buildings such as Storage Shed and Stake Pavilions.
- 4) Owens Corning:
 - a) Note:
 - (1) Duration Premium shingles are available in all areas of the USA and Canada including all Duration Premium colors under Church contract. Request shingles through local distribution.
 - (2) Any questions, contact Manufactures Area Sales Manager.
 - b) Shingles:
 - (1) Standard Wind: Duration Premium shingles.
 - (2) Hip And Ridge Shingles: DecoRidge Hip & Ridge.
 - c) Primary Underlayment Under Shingles:
 - (1) Synthetic Underlayment: Deck Defense High Performance Roof Underlayment.
 - d) Secondary Underlayment Under Shingles:
 - (1) Weatherlock G Granulated Self-Sealing Ice & Water Barrier.
or
 - (2) Weatherlock Specialty Tile & Metal for High Temperature.
or
 - (3) Weatherlock Cold Climate for cold weather adhesion and flexibility.
 - e) Secondary Underlayment Under Shingles over Unheated Buildings:
 - (1) Not required over unheated buildings such as Storage Shed and Stake Pavilions.

2.2 ACCESSORIES

A. Elastomeric Roofing Sealant:

- 1. Design Criteria:
 - a. Meet requirements of ASTM D3019/D3019M.
 - b. Non-asphalt roofing cement (not permitted).
 - c. Elastomeric.
 - d. Cold temperature pliability.
 - e. Compatible with roof penetration boots.
- 2. Category Four Products And Manufacturers. See Section 01 6200 for definitions of Categories:
 - a. Flintbond SBS Modified Bitumen Caulk by CertainTeed.

B. Fasteners:

- 1. Primary Underlayment:
 - a. Corrosion resistant roofing nails with one inch (25 mm) diameter head and 3/4 inch (19 mm) long shank minimum.
 - 1) If shingles applied as underlayment is laid, use metal or plastic head Simplex roofing nails.
 - 2) If shingles not applied as underlayment is laid, use plastic head only.
 - b. Staples not permitted.
- 2. Shingles:
 - a. Design Criteria:

- 1) Meet following requirements for nails:
 - a) Comply with ASTM F1667, Type I, Style 20-Roofing Nails.
 - b) Eleven gauge galvanized steel or equivalent corrosion-resistant roofing nail.
 - c) Nail head sizes: **3/8 inch (9.5 mm)** nominal diameter.
 - d) Sufficient length to penetrate through roof sheathing **1/4 inch (6 mm)** or **3/4 inch (19 mm)** minimum into solid wood decking.
 - e) Hot-dipped galvanized or electroplated fasteners comply with requirements of ASTM A153, Class D.
 - f) Stainless-steel fasteners meet requirements of Type 304 (UNS S30400) or Type 316 (UNS S31600).
- b. General:
 - 1) Hot-dipped galvanized, electroplated non-corrosive gun-driver nails, or stainless-steel fasteners may be used.
 - 2) Fasteners within **15 miles (24.1 km)** of coastal areas (oceanside) applications must use hot-dipped galvanized or stainless steel.
 - 3) All exposed fasteners (including ridge shingles) must use hot-dipped galvanized or stainless steel.
 - 4) Staples not permitted:
 - a) Architect/Roof Consultant may approve in writing, staple gun that installs exposed fasteners with staples.
3. Design Criteria:
 - a. Anchor to meet requirements for strength and permanent deformation at working load and working load with applied safety factor. No fracture of detachment is allowed at ultimate load of **1,100 pounds (499 kg)**.
 - b. Adapts to any roof pitch.
4. Components:
 - a. Roof Plate and Fascia Mount.
 - 1) Dimensions: **22 inches (559 mm) x 13-1/2 inches (343 mm)**.
 - 2) Weight Capacity: **375 lbs (170 kg)**.
 - 3) Accessory Weight: **13 lb (5.9 kg)**.
 - b. Thirteen (13) strong-drive timber screws.
 - c. One (1) Eternabond double stick putty tape.
5. Category Four Approved Products. See Section 01 6200 for definitions of Categories:
 - a. LedgeLock Mounting Bracket Model 57566 by Little Giant Ladder Systems, Springville, UT www.littlegiantladders.com.
 - 1) To order, call (888) 320-2488.

PART 3 - EXECUTION

3.1 INSTALLERS

- A. Category Three Approved Manufacture's Roofing Installers: See Section 01 4301.
 1. Utah Area:
 - a. Approved Installers:
 - 1) CertainTeed:
 - 2) CertainTeed:
 - a) AMCO American Roofing Co., Salt Lake City, UT – Contact: Keith J Yorgason (801) 269-1276.
 - b) Far West Roofing, Bluffdale, UT – Contact Douglas Cooper (801) 253-7799.
 - c) Heritage Roofing, Bluffdale, UT – Contact: James Smith (801) 576-8447.
 - d) Mountain Peak Builders, Inc., Logan, UT – Contact: Zane Rust (435) 787-4174.
 - e) North Face Roofing, Inc., Park City, UT – Craig Peters (801) 455-8492.
 - f) Perkes Roofing, Ogden, UT – Contact: Mark Perkes (801) 731-6918.
 - g) Redd Roofing Co., Ogden, UT – Lance Redd (801) 621-1363.
 - h) VIP Roofing, Centerville, UT – Contact: Max Ker (801) 631-6182.
 - 3) GAF:
 - a) American Roofing Co. (AMCO), Salt Lake City, UT – Contact: Keith Yorgason (801) 269-1276.

- b) Aspen Roofing, Salt Lake City, UT – Contact: Jon Brady (801) 483-1660.
- c) Capital Roofing Service, Inc., Sandy, UT – Contact: Paul Hitzman (801) 562-5568.
- d) Fortress Roofing, Murray, UT – Contact: Adam Cordon (801) 509-8625.
- 4) Owens-Corning:
 - a) American Roofing Co. (AMCO), Salt Lake City, UT – Contact: Keith J Yorgason (801) 269-1276.

3.2 EXAMINATION

A. Verification Of Conditions:

1. Examine deck to determine if it is satisfactory for installation of roofing system. Conditions include, but are not limited to, moisture on deck, protruding deck fasteners, specified gaps between sheathing, and other items affecting issuance of roofing warranty.
 - a. Report unsatisfactory conditions in writing to Architect.
 - b. Commencement of Work by installer is considered acceptance of substrate.
2. Verify existing soffit and ridge vents meet ventilation code requirements.
 - a. Report inadequate ventilation conditions with recommendations in writing to Architect.

3.3 PREPARATION

A. Protection Of In-Place Conditions:

1. Install only as much roofing as can be made weathertight each day, including flashing and detail work.

B. Surface Preparation:

1. Clean roof deck:
 - a. Remove dirt, protruding nails, shingle nails, and debris, before installation of underlayment.
2. Roof deck must be dry to help prevent buckling of deck, which can result in deck movement and damage to primary underlayment.
3. Following Manufacturer's recommendations for placing materials on roof.
 - a. Prevent material from sliding off roof.

3.4 INSTALLATION

A. General:

1. Schedule and execute work without exposing interior building areas to effects of inclement weather. Protect existing building and its contents against all risks.

B. Sequence of Roofing Materials as shown and noted on Contract Drawings:

1. 12 inch strip Secondary Underlayment at Eave.
2. Metal Drip Edge.
3. General Secondary Underlayment.
4. Valley Secondary Underlayment (8' - 6" (2.62 m) wide strip of Secondary Underlayment (3 strips) in Valleys applied over sheathing).
5. Valley Secondary Underlayment (36 inch (915 mm) wide Primary Underlayment under Valley Metal).
6. Valley Metal (24 inch (610 mm) wide valley metal 10 ft (3.05 m) lengths).
7. 12 inch strip of Secondary Underlayment over nailed edges (of Valley Metal).
8. General Primary Underlayment.
9. Asphalt Shingles, Step Flashings.
10. Counter Flashing.

C. Underlayment:

1. General:
 - a. Temporary Roof:
 - 1) Do not use permanent underlayment installation as temporary roof.

- 2) If temporary roof is used, remove completely before installation of permanent underlayment.
 - b. Follow Shingle Manufacturer's recommendations for installation of primary and secondary underlayment, particularly at eaves, rakes, and penetrations, unless specified installation procedures and Contract Drawing details are more stringent.
 - c. Avoid scuffing underlayment that can compromise surface and cause leaking. If scuffing occurs, following Manufacturer's recommendation for repair.
 - d. Staples are not permitted.
 - e. Weather conditions:
 - 1) Do not leave underlayment exposed to weather more than thirty (30) days after beginning of underlayment installation even if Manufacture allows longer period of time.
 - 2) If underlayment is exposed for more than thirty (30) days after beginning of underlayment installation, treat as temporary roof under first paragraph above.
 - 3) If moisture is deposited on exposed underlayment, obtain written approval from Shingle Manufacturer's Representative before installing shingles.
 - f. Install valley secondary underlayment, valley primary underlayment, and valley metal after installation of general secondary underlayment, but before installation of general primary underlayment.
2. Primary Underlayment:
 - a. Apply **48 inch (1 200 mm)** wide courses over complete deck, including areas covered with secondary underlayment unless specified otherwise.
 - 1) Overlap underlayment before fastening.
 - 2) Maintain end laps of **6 inch (150 mm)** and side laps of **3 inch (76 mm)**.
 - 3) Stop primary underlayment between **3 and 6 inches (75 and 150 mm)** of inside edge of strip of secondary underlayment installed over edge of formed valley metal.
 - b. Nailing Synthetic Underlayment:
 - 1) Use low-profile plastic or steel cap corrosion resistant nails with **1 inch (25 mm)** diameter heads to fasten underlayment in place. (Fastening underlayment without caps is not permitted).
 - 2) Nails must be driven properly. Improperly driven fasteners such as over-driving, under-driving and nails driven at an angle are not permitted.
 - 3) Fasteners should be long enough to penetrate at least **3/4 inch (19 mm)** into roof sheathing. Fasteners must be lie flush to roof deck at 90 degree angle to roof deck and tight with underlayment.
 - 4) Do not nail through metal flashing, except drip edge, when installing primary underlayment.
 - 5) Follow Shingle Manufacturer's installation instructions for following:
 - a) Securing underlayment to roof deck adjusting for roof slope nailing requirements.
 - b) Side lap, end lap, and overlapping nailing requirements.
 - c) Rake and eave nailing requirements.
 - d) High wind condition nailing requirements.
 - e) Sealants recommendations.
 3. Secondary Underlayment:
 - a. Under Shingles:
 - 1) Lap end joints **6 inches (150 mm)** and side joints **3 inch (76 mm)** minimum.
 - 2) Apply continuous **12 inches (300 mm)** wide strip at edge of eaves and rakes before installing drip edge.
 - 3) Apply two (2) **36 inch (900 mm)** wide courses along eaves and rakes as described in Contract Documents with first course overlapping drip edge and **12 inches (300 mm)** wide previously applied strip.
 - b. Steeple Base:
 - 1) Secondary Underlayment installed as shown on Contract Drawings under Steeple.
 4. Valley Underlayment:
 - a. Apply three (3) continuous **36 inch (900 mm)** wide sheets of secondary underlayment in valley lapped to provide **102 inch (2 590 mm)** wide covered area centered over valley.
 - b. Apply one (1) continuous **36 inch (300 mm)** wide strip of primary underlayment atop secondary underlayment and centered over valley.
 - c. Install formed valley metal over strip of primary underlayment.
 - 1) Nail top of each section and lap **8 inches (200 mm)** in direction of flow.
 - 2) Seal laps with continuous bead of elastomeric roofing sealant.

- 3) Secure edges of valley metal with fasteners spaced at **12 inches (300 mm)** maximum on center and approximately **1/2 inch (13 mm)** in from edge of metal.
 - d. Install **12 inches (300 mm)** wide strips of secondary underlayment lapping nailed edge of formed valley metal **3 inches (75 mm)**.
- D. Shingles:
1. Before installing shingles, inspect underlayment and metal installation with Architect and Owner. Correct improperly installed and damaged material before beginning shingle installation.
 2. Racking installation method is not permitted by Owner and will be considered non-conforming work.
 3. Starter shingles:
 - a. Manufacturer's starter shingles are required for Shingle Warranty.
 - b. Install shingles at eave and rakes in accordance with Shingle Manufacturer's instructions.
 - c. Cut shingles in accordance with Shingle Manufacturer's instructions, or use approved starter course.
 - d. Nail to eave granule side up in continuous mastic bed with cut edge down-slope and edge overhanging eave **3/8 inch (9 mm)** so sealing tabs are at edge of eave.
 - e. Install shingles with maximum exposure recommended by Shingle Manufacturer.
 - f. Lay first course directly over starter strip with ends flush with starter strip at eaves and so joints in starter strip are offset **4 inches (100 mm)** minimum from joints in first course.
 4. Lay shingles so end joints are offset in accordance with Shingle Manufacturer's installation procedures.
 5. Insure alignment by snapping chalk line at least each fifth course to control horizontal and vertical alignment.
 6. Run courses true to line with end joints properly placed. Leave shingles flat without wave and properly placed.
 7. Hip and ridge shingles:
 - a. Manufacturer's hip and ridge shingles are required for Shingle Warranty.
 - b. Install specified hip and ridge shingles in accordance with Shingle Manufacturer's instructions.
 - c. Run ridge shingles as directed by Architect.
 8. Nailing:
 - a. General:
 - 1) Six (6) Nail Pattern as recommended by Shingle Manufacturer for Shingle Warranty in each shingle.
 - 2) Place in relation to top edge of shingle as required by Shingle Manufacturer.
 - 3) Place nails **one inch (25 mm)** from each end of shingle and remainder evenly spaced between.
 - 4) Should any nail fail to penetrate sheathing by **1/4 inch (6 mm)** minimum, drive additional nail nearby.
 - b. Nailing guns:
 - 1) Nails must be driven properly. Improperly driven fasteners such as over-driving, under-driving and nails driven at an angle are not permitted.
 - 2) Adjust nail gun pressure for nailing flush and tight to deck without cutting shingle surface.
 - 3) Drive nails perpendicular to shingle surface so nail head is flat against shingle.
 - 4) Should any nail fail to penetrate sheathing by **1/4 inch (6 mm)** minimum, drive additional nail nearby.
 9. Hand-Sealing:
 - a. If ambient temperature or exposure to sun will not be sufficient to secure adhesive strip to under-lying shingle within one week, hand seal shingles with elastomeric roofing sealant.
 10. Over valley metal:
 - a. Do not drive nails through valley metal.
 - b. Run chalk line so valley metal will be exposed **6 inches (150 mm)** wide at top and diverge **3/32 inch (one mm)** per **ft (300 mm)** down to eaves.
 - c. Neatly trim shingles to this line.
 - d. Seal trimmed shingle edges to valley metal with continuous bead of elastomeric roofing sealant applied within **one inch (25 mm)** of shingle edge.
 11. Vent pipe sleeve flange:
 - a. Vent pipe sleeve flange as specified in Section 07 6310.

- b. Fit shingles under lower edge and over sides and upper edge.
 - c. Set vent pipe flange in elastomeric roofing sealant.
 - d. Embed shingles in elastomeric roofing sealant where they overlap flange.
 - e. Apply bead of elastomeric roofing sealant at junction of vent pipe and vent flashing.
12. Furnished and installed in Section 07 7226 'Ridge Vents'.

3.5 FIELD QUALITY CONTROL

A. Non-Conforming Work:

1. Correct any work found defective or not complying with Contract Document requirements at no additional cost to the Owner.
2. Raking installation method is not permitted by Owner and will be considered to be not complying with Contract Document requirements and must be corrected at no additional cost to Owner.

3.6 CLEANING

A. General:

1. All tools and unused materials must be collected at end of each workday and stored properly off finished roof surface and protected from exposure to elements.
2. Leave metals clean and free of defects, stains, and damaged finish.
 - a. Replace fascia metal that is scratched through finish to base metal.
3. Properly clean finished roof surface after completion.
4. Verify drains and gutters are not clogged.
5. Clean shingles and building of soiling caused by this installation.
6. Clean and restore all damaged surfaces to their original condition.

B. Waste Management:

1. Disposal:
 - a. All work areas are to be kept clean, clear and free of debris always.
 - b. Do not allow trash, waste, or debris to collect on roof. These items shall be removed from roof daily.
 - c. Remove debris resulting from work of this Section from roof and site. Dispose of or recycle all trash and excess material in manner conforming to current EPA regulations and local laws.

3.7 PROTECTION

- #### A. Do not permit traffic over finished roof surface.

END OF SECTION

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SECTION 07 6210**GALVANIZED STEEL FLASHING AND TRIM****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install miscellaneous flashing, counterflashing, and hold-down clips as described in Contract Documents and not specified to be of other material.
- B. Products Furnished But Not Installed Under This Section:
 - 1. Gravel stops, copings, scuppers, and miscellaneous sheet metal specialties not specified to be of other materials.
- C. Related Requirements:
 - 1. Sections under 07 3000 heading: 'Steep Slope Roofing' for installation of gravel stops, copings, scuppers, and miscellaneous roofing related flashing.
 - 2. Section 07 9213: 'Elastomeric Joint Sealant'.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International:
 - a. ASTM A653/A653M-18, 'Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process'.
 - b. ASTM A792/A792M-10(2015), 'Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process'.
 - 2. Federal Specifications:
 - a. TT-S-00230C(2) Sealing Compound, Elastomeric Type, Single Component, (For Caulking, Sealing, and Glazing in Buildings and Other Structures).

PART 2 - PRODUCTS**2.1 SYSTEM**

- A. Manufacturers:
 - 1. Type Two Acceptable Manufacturers Of Metal:
 - a. CMG – Coated Metals Group, Denver, CO www.cmgmetals.com.
 - b. Drexel Metals, LLC, Ivyland, PA www.drexmet.com.
 - c. Fabral, Lancaster, PA www.fabral.com.
 - d. Firestone Metal Products, Anoka, MN www.unaclad.com.
 - e. MBCI, Houston, TX www.mbc.com.
 - f. Metal Sales Manufacturing Corp, Sellersburg, IN www.mtlsales.com.
 - g. O'Neal Flat Rolled Metals (member of O'Neal Industries), Brighton, CO www.ofrmetals.com.
 - h. Petersen Aluminum Corp, Elk Grove, IL www.pac-clad.com.
 - i. Ryerson, Chicago, IL www.ryerson.com.
 - j. Equal as approved by Architect before installation. See Section 01 6200.
- B. Materials:

1. Sheet Metal:
 - a. Galvanized iron or steel meeting requirements of ASTM A653/A653M, G 90 or Galvalume steel meeting requirements of ASTM A792/A792M AZ50, 50 ksi.
 - 1) 22 ga (0.792 mm) for hold-down clips.
 - 2) 24 ga (0.635 mm) for all other.
- C. Fabrication:
 1. Form accurately to details.
 2. Profiles, bends, and intersections shall be even and true to line.
 3. Fold exposed edges 1/2 inch (12.7 mm) to provide stiffness.
- D. Finish:
 1. Exposed to view:
 - a. Provide face coating of polyvinylidene Fluoride (PVF₂) Resin-base finish (Kynar 500 or Hylar 5000) containing seventy (70) percent minimum PVF₂ in resin portion of formula. Thermo-cured two coat system consisting of corrosion inhibiting epoxy primer and top coat factory applied over properly pre-treated metal.
 - b. Reverse side coating shall be thermo-cured system consisting of corrosion inhibiting epoxy primer applied over properly pre-treated metal.
 2. Color as selected by Architect from Manufacturer's standard colors.

2.2 ACCESSORIES

- A. Sealants: Rubber base type conforming to Fed Spec TT-S-00230C.
- B. Fasteners:
 1. Of strength and type consistent with function.
 2. Nails: Hot-dipped galvanized.
 3. Screws, Bolts, And Accessory Fasteners: Galvanized or other acceptable corrosion resistant treatment.
- C. Roof Diverter:
 1. Roof Diverter (Kickout Diverter) required when vertical wall extends beyond lower roof.
 - a. 24 ga (0.635 mm) galvanized iron or steel meeting requirements for sheet metal specified in materials above.
 - b. Size: 6 inch (150 mm) x 6 inch (150 mm) by 12 inches (300 mm) length.
- D. Step Flashing:
 1. Step flashing required for steep slope for roof to wall flashing.
 - a. 24 ga (0.635 mm) galvanized iron or steel meeting requirements for sheet metal specified in materials above.
 - b. Size: 5 inch (125 mm) x 5 inch (125 mm) by 8 inch (200 mm) or 12 inches (300 mm) length.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install with small, watertight seams.
- B. Slope to provide positive drainage.
- C. Provide sufficient hold down clips to insure true alignment and security against wind.
- D. Provide 4 inch (100 mm) minimum overlap.
- E. Allow sufficient tolerance for expansion and contraction.

- F. Insulate work to prevent electrolytic action.
- G. Roof Diverter (Kickout Diverter):
 1. Extend roof diverter **1 inch (25 mm)** minimum beyond face edge of lower roof.
 2. Extend underlayment vertically up wall behind flashing.
 3. Solder all joints.
 4. Apply sealant.

3.2 CLEANING

- A. Leave metals clean and free of defects, stains, and damaged finish.

END OF SECTION

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SECTION 07 6310**STEEP SLOPE ROOF FLASHING: Asphalt Shingles****PART 1 - GENERAL****1.1 SUMMARY**

- A. Products Furnished But Not Installed Under This Section:
 - 1. Roof flashing including:
 - a. Formed Valley Metal.
 - b. Pipe flashing for vent piping and flues.
 - c. Roof jacks.
 - d. Saddles and curb flashings.
 - e. Miscellaneous flashing.
- B. Related Requirements:
 - 1. Section 07 3113: 'Asphalt Shingles' for installation.
 - 2. Section 07 9213: 'Elastomeric Joint Sealants' for quality of sealants.

1.2 REFERENCES

- A. Definitions:
 - 1. Base Flashing: That portion of flashing attached to or resting on roof deck to direct flow of water onto the roof covering.
 - 2. Cap Flashing: Material used to cover top edge of base flashings or other flashings to prevent water seepage behind base flashing. Cap flashing overlaps base flashing.
 - 3. Collar: Pre-formed flange placed over vent pipe to seal roof around vent pipe opening. Also called vent sleeve.
 - 4. Drip Edge: Non-corrosive, non-staining material used along eaves and rakes to allow water runoff to drip clear of underlying building.
 - 5. Flange: Metal pan extending up and down roof slope around flashing pieces. Usually at plumbing vents.
 - 6. Flashing: Components used to prevent seepage of water into a building around any intersection or projection in a roof such as vent pipes, adjoining walls, and valleys.
 - 7. Metal Flashing: Roof components made from sheet metal that are used to terminate roofing membrane or other material alongside roof perimeters as well as at roof penetrations.
 - 8. Penetration: Any object that pierces surface of roof.
 - 9. Pipe Boot: Prefabricated flashing piece used to flash around circular pipe penetrations. Also known as a Roof Jack.
 - 10. Roof Jack: Term used to describe a Pipe Boot or Flashing Collar.
 - 11. Valley: Internal angle formed by intersection of two sloping roof planes to provide water runoff.
 - 12. Vent: Any outlet for air that protrudes through roof deck such as pipe or stack. Any device installed on roof, gable or soffit for purpose of ventilating underside of roof deck.
 - 13. Vent Sleeve: See collar.
- B. Reference Standards:
 - 1. ASTM International:
 - a. ASTM A653/A653M-18, 'Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process'.
 - b. ASTM A792/A792M-10(2015), 'Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process'.
 - 2. ASTM International: (specifically referenced for pipe flashing only):
 - a. ASTM B117-18, 'Standard Practice for Operating Salt Spray (Fog) Apparatus'.

- b. ASTM E283-04(2012), 'Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen'.
- c. ASTM E330/E330M-14, 'Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference'.
- d. ASTM E331-00(2016), 'Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference'.
- e. ASTM E2140-01(2017), 'Standard Practice for Water Penetration of Metal Roof Panel Systems by Static Water Pressure Head'.

1.3 SUBMITTALS

- A. Informational Submittals:
 - 1. Tests And Evaluation Reports:
 - a. Manufacturer's test reports:

1.4 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
 - 1. Pipe Flashing:

1.5 WARRANTY

- A. Pipe Flashing:
 - 1. Manufacturer's warranty against defects in materials and workmanship when correctly installed in appropriate application for life of original roofing material from installation or replacement or fifty (50) years whichever is greater.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Manufacturers:
 - 1. Type Two Acceptable Manufacturers:
 - a. Aztec Washer Co., Poway, CA www.aztecwasher.com.
 - b. CMG – Coated Metals Group, Denver, CO www.cmgmetals.com.
 - c. Drexel Metals, LLC, Ivyland, PA www.drexmet.com.
 - d. Fabral, Lancaster, PA www.fabral.com.
 - e. Firestone Metal Products, Anoka, MN www.unaclad.com.
 - f. MBCI, Houston, TX www.mbc.com.
 - g. Metal Sales Manufacturing Corp, Sellersburg, IN www.mtlsales.com.
 - h. O'Neal Flat Rolled Metals (member of O'Neal Industries), Brighton, CO www.ofrmetals.com.
 - i. Petersen Aluminum Corp, Elk Grove, IL www.pac-clad.com.
 - j. Ryerson, Chicago, IL www.ryerson.com.
 - k. Equal as approved by Architect before installation. See Section 01 6200.
- B. Formed Valley Metal And Drip Edge:
 - 1. Metal:
 - a. Steel: Minimum 24 ga (0.635 mm), hot-dipped galvanized to meet requirements of ASTM A653/A653M, 1.25 oz/sq ft. or galvalume meeting requirements of ASTM A792/A792M AZ50, 50 ksi.
- C. Fabrication:

1. Valley-ribbed flashing:
 - a. Form accurately to details. Provide formed valley metal in **10 foot (3 meter)** lengths with **one inch (25 mm)** 'V' crimp and break in center to match roof slopes.
 2. Profiles, bends, and intersections shall be even and true to line.
- D. Finishes:
1. Face coating polyvinylidene Fluoride (PVF₂) Resin-base finish (Kynar 500 or Hylar 5000) for coil coating components containing seventy (70) percent minimum PVF₂ in resin portion of formula. Thermo-cured two coat system consisting of corrosion inhibiting epoxy primer and top coat factory applied over properly pre-treated metal.
 2. Reverse side coating of steel flashings to be thermo-cured system consisting of corrosion inhibiting epoxy primer applied over properly pre-treated metal.
 3. Color as selected by Architect from Manufacturer's standard colors.

2.2 ACCESSORIES

- A. Pipe Flashing For Plumbing Vent Lines metal flues, and HVAC Air Piping:
1. Description:
 - a. Ultra-pure high consistency molded one hundred (100) percent silicone rubber pipe boot that prevents cracking and splitting for life of roof.
 2. Design Criteria:
 - a. Meet following Tests:
 - 1) ASTM B117 (Salt Spray Test).
 - 2) ASTM E283 (Air Leakage).
 - 3) ASTM E 330 (Uniform Structural Load).
 - 4) ASTM E331 (Water Penetration).
 - 5) ASTM E2140 (Water).
 - b. Material warranty of product for life of roof.
 3. **24 ga (0.635 mm)** coated galvanized steel plate.
 4. Minimum **4 inch (100 mm)** flashing on each side, **6 inch (150 mm)** flashing at top, **3 inch (76 mm)** flashing at bottom with nailing slots.
 5. UV stable solid molded PVC compression collar.
 6. Use Ultimate Pipe Flashing for PVC, ABS and IP.
 7. Use Ultimate Pipe Flashing and Easy Sleeve for Copper, Cast Iron, or irregular and damaged pipes:
 - a. Black PVC with integral cap.
 8. Sizes: **1-1/4 inch (32 mm)**, **1-1/2 inch (38 mm)**, **2 inch (50 mm)**, **3 inch (76 mm)**, and **4 inch (100 mm)**.
 9. Slope: Flat to 18/12 pitch.
 10. Flashing Finish: Face coating polyvinylidene Fluoride (PVF₂) Resin-base finish (Kynar 500) for coil coating components containing seventy (70) percent minimum PVF₂ in resin portion of formula. Thermo-cured two coat system consisting of corrosion inhibiting epoxy primer and top coat factory applied over properly pre-treated metal.
 11. Color: Brown (no other color available).
 12. Category Four Approved System Manufacturers. See Section 01 6200 for definitions of Categories:
 - a. Ultimate Pipe Flashing by Lifetime Tool & Building Products LLC, Winchester, VA www.lifetimetool.com (877) 904-1002.
 - b. Ultimate Pipe Flashing and Easy Sleeve by Lifetime Tool & Building Products LLC, Winchester, VA www.lifetimetool.com (877) 904-1002.
- B. Roof Jacks For Metal Flues: Factory-made galvanized steel.
1. Type One Acceptable Products:
 - a. Aztec RF101BP.
 - b. Equal as approved by Architect before bidding. See Section 01 6200.

PART 3 - EXECUTION**3.1 INSTALLATION**

- A. Interface With Other Work:
 - 1. Coordinate with pipe installers for proper size of roof jacks and pipe flashing.

- B. Pipe Flashing:
 - 1. Follow Manufacturer's installation instructions.

END OF SECTION

SECTION 07 9213**ELASTOMERIC JOINT SEALANTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install sealants not specified to be furnished and installed under other Sections.
 - 2. Quality of sealants to be used on Project not specified elsewhere, including submittal, material, and installation requirements.
- B. Related Requirements:
 - 1. Removing existing sealants specified in Sections where work required.
 - 2. Furnishing and installing of sealants is specified in Sections specifying work to receive new sealants.

1.2 REFERENCES

- A. Definitions:
 - 1. Sealant Types and Classifications:
 - a. ASTM Specifications:
 - 1) Type:
 - a) Type S: Single-component sealant.
 - b) Type M: Multi-component sealant.
 - 2) Grade:
 - a) Grade P: Pourable or self-leveling sealant used for horizontal traffic joints.
 - b) Grade NS: Non-sag or gunnable sealant used for vertical and non-traffic joints.
 - 3) Classes: Represent movement capability in percent of joint width.
 - a) Class 100/50: Sealant that, when tested for adhesion or cohesion under cyclic movement shall withstand of at least 100 percent increase and decrease of at least 50 percent of joint width as measured at time of application.
 - b) Class 50: Sealant that, when tested for adhesion or cohesion under cyclic movement shall withstand increase and decrease of at least 50 percent of joint width as measured at time of application.
 - c) Class 25: Sealant that, when tested for adhesion or cohesion under cyclic movement shall withstand increase and decrease of at least 25 percent of joint width as measured at time of application.
 - d) Class 12: Sealant that, when tested for adhesion and cohesion under cyclic movement shall withstand increase and decrease of at least 12 percent of joint width as measured at time of application.
 - 4) Use:
 - a) T (Traffic): Sealant designed for use in joints in pedestrian and vehicular traffic areas such as walkways, plazas, decks and parking garages.
 - b) NT (Non-Traffic): Sealant designed for use in joints in non-traffic areas.
 - c) I (Immersion): Sealant that meets bond requirements when tested by immersion (Immersion rated sealant applications require primer).
 - d) M (Mortar): Sealant that meets bond requirements when tested on mortar specimens.
 - e) G (Glass): Sealant that meets bond requirements when tested on glass specimens.
 - f) A (Aluminum): Sealant that meets bond requirements when tested on aluminum specimens.
 - g) O (Other): Sealant that meets bond requirements when tested on substrates other than standard substrates, being glass, aluminum, mortar.

2. Silicone: Any member of family of polymeric products whose molecular backbone is made up of alternating silicon and oxygen atoms and which has pendant hydrocarbon groups attached to silicon atoms. Used primarily as a sealant. Offers excellent resistance to water and large variations in temperature (minus 100 deg F to + 600 deg F) (minus 73.3 deg C to + 316 deg C).

B. Reference Standards:

1. ASTM International:
 - a. ASTM C920-14a, 'Standard Specification for Elastomeric Joint Sealants'.
 - b. ASTM C1193-16, 'Standard Guide for Use of Joint Sealants'.
 - c. ASTM C1330-18, 'Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants'.
 - d. ASTM C1481-12(2017) 'Standard Guide for Use of Joint Sealants with Exterior Insulation & Finish Systems (EIFS)'.
 - e. ASTM D5893/D5893M-16, 'Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements'.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Scheduling:

1. Schedule work so waterproofing, water repellents and preservative finishes are installed after sealants, unless sealant manufacturer approves otherwise in writing.
2. Ensure sealants are cured before covering with other materials.

1.4 SUBMITTALS

A. Action Submittals:

1. Product Data:
 - a. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
 - b. Manufacturer's literature for each Product.
 - c. Schedule showing joints requiring sealants. Show also backing and primer to be used.

B. Informational Submittals:

1. Certificates:
 - a. Manufacturer's Certificate:
 - 1) Certify products are suitable for intended use and products meet or exceed specified requirements.
 - 2) Certificate from Manufacturer indicating date of manufacture.
2. Manufacturers' Instructions:
 - a. Manufacturer's installation recommendations for each Product.
 - b. Manufacturer's installation for completing sealant intersections when different materials are joined.
 - c. Manufacturer's installation for removing existing sealants and preparing joints for new sealant.

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten (10) years documented experience.
2. Applicator Qualifications:
 - a. Company specializing in performing work of this section.
 - b. Provide if requested, reference of projects with minimum three (3) years documented experience, minimum three (3) successfully completed projects of similar scope and complexity, and approved by manufacturer.

- c. Designate one (1) individual as project foreman who shall be on site at all times during installation.
- B. Preconstruction Testing:
1. Pre-construction testing is not required when sealant manufacturer can furnish data acceptable to Architect based on previous testing for materials matching those of the Work.
- C. Mockups:
1. Provide mockups including sealant and joint accessories to illustrate installation quality and color if requested by Architect or Project Manager.
 - a. Incorporate accepted mockup as part of Work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Acceptance Requirements:
1. Deliver and keep in original containers until ready for use.
 2. Inspect for damage or deteriorated materials.
- B. Storage and Handling Requirements:
1. Handle, store, and apply materials in compliance with applicable regulations and material safety data sheets (MSDS).
 2. Handle to prevent inclusion of foreign matter, damage by water, or breakage.
 3. Store in a cool dry location, but never under 40 deg F (4 deg C) or subjected to sustained temperatures exceeding 90 deg F (32 deg C) or as per Manufacturer's written recommendations.
 4. Do not use sealants that have exceeded shelf life of product.

1.7 FIELD CONDITIONS

- A. Ambient Conditions:
1. Do not install sealant during inclement weather or when such conditions are expected. Allow wet surfaces to dry.
 2. Follow Manufacturer's temperature recommendations for installing sealants.

1.8 WARRANTY

- A. Manufacturer Warranty:
1. Signed warranties against adhesive and cohesive failure of sealant and against infiltration of water and air through sealed joint for period of three (3) years from date of Substantial Completion.
 - a. Manufacturer's standard warranty covering sealant materials.
 - b. Applicator's standard warranty covering workmanship.

PART 2 - PRODUCTS

2.1 SYSTEMS

- A. Manufacturers:
1. Manufacturer Contact List:
 - a. Dow Corning Corp., Midland, MI www.dowcorning.com.
 - b. Franklin International, Inc. Columbus, OH www.titebond.com.
 - c. GE Sealants & Adhesives (see Momentive Performance Materials Inc.).
 - d. Laticrete International Inc., Bethany, CT www.laticrete.com.
 - e. Momentive Performance Materials Inc. (formally GE Sealants & Adhesives), Huntersville, NC www.ge.com/silicones.

- f. Sherwin-Williams, Cleveland, OH www.sherwin-williams.com.
 - g. Sika Corporation, Lyndhurst, NJ www.sikaconstruction.com or Sika Canada Inc, Pointe Claire, QC www.sika.ca.
 - h. Tremco, Beachwood, OH www.tremcosealants.com or Tremco Ltd, Toronto, ON (800) 363-3213.
- B. Materials:
- 1. Design Criteria:
 - a. Compliance: Meet or exceed requirements of these standards:
 - 1) ASTM C920: Elastomeric joint sealant performance standard.
 - 2) ASTM D5893/D5893M: Silicone Joint Sealant for Concrete Pavements.
 - b. Comply with Manufacturer's ambient condition requirements.
 - c. Sealants must meet Manufacturer's shelf-life requirements.
 - d. Sealants must adhere to and be compatible with specified substrates.
 - e. Sealants shall be stable when exposed to UV, joint movements, and environment prevailing at project location.
 - f. Primers (Concrete, stone, masonry, and other nonporous surfaces typically do not require a primer. Aluminum and other nonporous surfaces except glass require use of a primer. Installer Option to use Adhesion Test to determine if primer is required or use primer called out in related sections):
 - 1) Adhesion Test:
 - a) Apply silicone sealant to small area and perform adhesion test to determine if primer is required to achieve adequate adhesion. If necessary, apply primer at rate and in accordance with Manufacturer's instructions. See 'Field Quality Control' in Part 3 of this specification for Adhesive Test.
 - 2) If Primer required, shall not stain and shall be compatible with substrates.
 - 3) Allow primer to dry before applying sealant.
 - 2. Sealants At Exterior Building Elements:
 - a. Description:
 - 1) Weathersealing expansion, contraction, perimeter, and other movement joints which may include all or part of the following for project:
 - a) Aluminum entrance perimeters and thresholds.
 - b) Columns.
 - c) Connections.
 - d) Curtainwalls.
 - e) Door frames.
 - f) EIFS to metal joints.
 - g) Joints and cracks around windows.
 - h) Louvers.
 - i) Masonry.
 - j) Parapet caps.
 - k) Wall penetrations.
 - l) Other joints necessary to seal off building from outside air and moisture.
 - b. Design Criteria:
 - 1) Meet following standards for Sealant:
 - a) ASTM C920: Type S, Grade NS, Class 50 Use NT, M, G, A.
 - 2) Limitations:
 - a) Do not use below-grade applications.
 - b) Do not use on surfaces that are continuously immersed or in contact with water.
 - c) Do not use on wet, damp, frozen or contaminated surfaces.
 - d) Do not use on building materials that bleed oils, plasticizers or solvents, green or partially vulcanized rubber gaskets or tapes.
 - 3) Color:
 - a) Architect to select from Manufacturer's standard colors.
 - b) Match building elements instead of window (do not use white that shows dirt easily).
 - c. Category Four Approved Products. See Section 01 6200 for definitions of Categories:
 - 1) Dow Corning:
 - a) Primer: 1200 Prime Coat.
 - b) Sealant: 791 Silicone Weatherproofing Sealant.

- 2) Momentive Performance Materials (formerly, GE Sealants & Adhesives):
 - a) Primer: SS4044 Primer.
 - b) Sealant: GE SCS2000 SilPruf Silicone Sealant & Adhesive.
- 3) Tremco:
 - a) Primer:
 - (1) Metal surface: No. 20 primer.
 - (2) Porous surfaces: No. 23 primer.
 - b) Sealant: Spectrum 1 Silicone Sealant.

2.2 ACCESSORIES

- A. Bond Breaker Tape:
 1. Pressure sensitive tape as by Sealant Manufacturer to suit application.
 2. Provide tape to prevent adhesion to joint fillers or joint surfaces at back of joint and allow sealant movement.
- B. Joint Backing:
 1. Comply with ASTM C1330.
 2. Flexible closed cell, non-gassing polyurethane or polyolefin rod or bond breaker tape as recommended by Sealant Manufacturer for joints being sealed.
 3. Oversized 25 to 50 percent larger than joint width.
- C. Joint Cleaner:
 1. Non-corrosive and non-staining type as recommended by Sealant Manufacturer, compatible with joint forming materials.
- D. Masking Tape:
 1. Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification Of Conditions:
 1. Examine substrate surfaces and joint openings are ready to receive Work.
 - a. Verify each sealant is compatible for use with joint substrates.
 - b. Verify joint surfaces are clean and dry.
 - c. Ensure concrete surfaces are fully cured.
 2. Sealants provided shall meet Manufacturer's shelf-life requirements.
 3. Notify Architect of unsuitable conditions in writing.
 - a. Do not proceed until unsatisfactory conditions are corrected.
 4. Commencement of Work by installer is considered acceptance of substrate.

3.2 PREPARATION

- A. Surface Preparation:
 1. Remove existing joint sealant materials where specified.
 - a. Clean joint surfaces of residual sealant and other contaminates capable of affecting sealant bond to joint surface using manufacturer's recommended joint preparation methods.
 - b. Repair deteriorated or damaged substrates as recommended by Sealant Manufacturer to provide suitable substrate. Allow patching materials to cure.
 2. Surfaces shall be clean, dry, free of dust, oil, grease, dew, frost or incompatible sealers, paints or coatings that may interfere with adhesion. Prepare substrates in accordance with Manufacturer's instructions:

- a. Porous surfaces: Clean by mechanical methods to expose sound surface free of contamination and laitance followed by blasting with oil-free compressed air.
 - b. Nonporous surfaces: Use two-cloth solvent wipe in accordance with ASTM C1193. Allow solvent to evaporate prior to sealant application.
 - c. High-pressure water cleaning: Exercise care that water does not enter through failed joints.
 - d. Primers:
 - 1) Primers enhance adhesion ability.
 - 2) Use of primers is not a substitution for poor joint preparation.
 - 3) Primers should be used always in horizontal application where there is ponding water.
 3. Field test joints in inconspicuous location.
 - a. Verify joint preparation and primer required to obtain optimum adhesion of sealants to joint substrate.
 - b. When test indicates sealant adhesion failure, modify joint preparation primer, or both and retest until joint passes sealant adhesion test.
 4. Masking: Apply masking tape as required to protect adjacent surfaces and to ensure straight bead line and facilitate cleaning.
- B. Joints:
1. Prepare joints in accordance with ASTM C1193.
 - a. Clean joint surfaces of contaminants capable of affecting sealant bond to joint surface using Manufacturer's recommended instructions for joint preparation methods.
 - b. Remove dirt, dust, oils, wax, paints, and contamination capable of affecting primer and sealant bond.
 - c. Clean concrete joint surfaces to remove curing agents and form release agents.
- C. Protection:
1. Protect elements surrounding the Work of this section from damage or disfiguration.

3.3 APPLICATION

- A. General:
1. Apply silicone sealant in accordance with Manufacturer's instructions.
 2. Do not use damaged or deteriorated materials.
 3. Install primer and sealants in accordance with ASTM C1193 and Manufacturer's instructions.
 4. Apply primer where required for sealant adhesion.
 5. Install sealants immediately after joint preparation.
 6. Do not use silicone sealant as per the following:
 - a. Apply caulking/sealant at temperatures below 40 deg F (4 deg C).
 - b. Below-grade applications.
 - c. Brass and copper surfaces.
 - d. Materials bleeding oils, plasticizers, and solvents.
 - e. Structural glazing and adhesive.
 - f. Surfaces to be immersed in water for prolonged time.
- B. Joint Backing:
1. Install joint backing to maintain sealant joint ratios recommended by Manufacturer.
 2. Install without gaps, twisting, stretching, or puncturing backing material. Use gage to ensure uniform depth to achieve correct profile, coverage, and performance.
 3. Rod for open joints shall be at least 1-1/2 times width of open joint and of thickness to give solid backing. Backing shall fill up joint so depth of sealant bite is no more than 3/8 inch (9.5 mm) deep.
- C. Bond Breaker:
1. Install bond breaker where joint backing is not used or where backing is not feasible.
 - a. Apply bond-breaker tape in shallow joints as recommended by Sealant Manufacturer.
- D. Sealant:

1. Apply sealant with hand-caulking gun with nozzle of proper size to fit joints. Use sufficient pressure to insure full contact to both sides of joint to full depth of joint. Apply sealants in vertical joints from bottom to top.
2. Fill joint opening to full and proper configuration.
3. Apply in continuous operation.
4. Tool joints immediately after application of sealant if required to achieve full bedding to substrate or to achieve smooth sealant surface. Tool joints in opposite direction from application direction, i.e., in vertical joints, from the top down. Do not 'wet tool' sealants.
5. Depth of sealant bite shall be **1/4 inch (6 mm)** minimum and **1/2 inch (12.7 mm)** maximum, but never more than one half or less than one fourth joint width.

- E. Caulk gaps between painted or coated substrates and unfinished or pre-finished substrates. Caulk gaps larger than **3/16 inch (5 mm)** between painted or coated substrates.

3.4 TOLERANCES

- A. Provide joint tolerances in accordance with Manufacturer's printed instructions.

3.5 FIELD QUALITY CONTROL

- A. Adhesion Test (Installer Option to use adhesion test to determine if primer is required).
1. Perform adhesion tests in accordance with Manufacturer's instructions and ASTM C1193, Method A, Field-Applied Sealant joint Hand-Pull Tab:
 - a. Perform five (5) tests for first **1,000 linear feet (300 meters)** of applied silicone sealant and one (1) test for each **1,000 linear feet (300 meters)** seal thereafter or perform one (1) test per floor per building elevation minimum.
 - b. For sealants applied between dissimilar materials, test both sides of joints.
 2. Sealants failing adhesion test shall be removed, substrates cleaned, sealants re-installed, and re-testing performed.
 3. Maintain test log and submit report to Architect indicating tests, locations, dates, results, and remedial actions.

3.6 CLEANING

- A. Remove masking tape and excess sealant.
- B. Clean adjacent materials, which have been soiled, immediately (before setting) as recommended by Manufacturer.
- C. Waste Management: Dispose of products in accordance with manufacturer's recommendation.

END OF SECTION

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DIVISION 09: FINISHES

09 9000 PAINTS AND COATINGS

- 09 9001 COMMON PAINTING AND COATING REQUIREMENTS
- 09 9112 EXTERIOR PAINTED FERROUS METAL
- 09 9113 EXTERIOR PAINTED GALVANIZED METAL

END OF TABLE OF CONTENTS

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SECTION 09 9001

COMMON PAINTING AND COATING REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Common procedures and requirements for field-applied painting and coating.
- B. Related Requirements:
 - 1. Section 05 0503: 'Shop-Applied Metal Coatings' for quality of shop priming of steel and iron.
 - 2. Section 07 9213: 'Elastomeric Joint Sealants' for quality of Elastomeric Joint Sealants.
 - 3. Sections under 09 9000 heading 'Paints and Coatings'.
 - a. Pre-Installation conferences held jointly with Section 09 9001.

1.2 REFERENCES

- A. Definitions:
 - 1. Damage Caused By Others: Damage caused by individuals other than those under direct control of Painting Applicator (MPI(a), PDCA P1.92).
 - 2. Gloss Levels:
 - a. Specified paint gloss level shall be defined as sheen rating of applied paint, in accordance with following terms and values, unless specified otherwise for a specific paint system.

Gloss Level '1'	Traditional matte finish - flat	0 to 5 units at 60 degrees to 10 units maximum at 85 degrees.
Gloss Level '2'	High side sheen flat - 'velvet-like' finish	10 units maximum at 60 degrees and 10 to 35 units at 85 degrees.
Gloss Level '3'	Traditional 'eggshell-like' finish	10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees.
Gloss Level '4'	'Satin-like' finish	20 to 35 units at 60 degrees and 35 units minimum at 85 degrees.
Gloss Level '5'	Traditional semi-gloss	35 to 70 units at 60 degrees.
Gloss Level '6'	Traditional gloss	70 to 85 units at 60 degrees.
Gloss Level "7"	High gloss	More than 85 units at 60 degrees.

- 3. Properly Painted Surface:
 - a. Surface that is uniform in appearance, color, and sheen and free of foreign material, lumps, skins, runs, sags, holidays, misses, strike-through, and insufficient coverage. Surface free of drips, spatters, spills, and overspray caused by Paint Applicator. Compliance will be determined when viewed without magnification at a distance of 5 feet (1.50 m) minimum under normal lighting conditions and from normal viewing position (MPI(a), PDCA P1.92).
- 4. Latent Damage: Damage or conditions beyond control of Painting Applicator caused by conditions not apparent at time of initial painting or coating work.

- B. Reference Standards:
 - 1. The latest edition of the following reference standard shall govern all painting work:
 - a. MPI(a), 'Architectural Painting Specification Manual' by Master Painters Institute (MPI), as issued by local MPI Accredited Quality Assurance Association having jurisdiction.

- b. MPI(r), 'Maintenance Repainting Manual' by Master Painters Institute (MPI), as issued by local MPI Accredited Quality Assurance Association having jurisdiction.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Conferences:
 1. Schedule painting pre-installation conference after delivery of paint or coatings and before or at same time as application of field samples.
 - a. Coordinate pre-installation conferences of all related painting and coating Sections under 09 9000 heading 'Paints and Coatings'.
 - b. Schedule conference before preparation of control samples as specified in Sections under 09 9000 heading 'Paints and Coatings'.
 - c. Conference to be held at same time as Section 09 2900 to review gypsum board finish preparation.
 2. In addition to agenda items specified in Section 01 3100, review following:
 - a. Review Quality Assurance for Approval requirements.
 - b. Review Quality Assurance Field Sample requirements.
 - c. Review Submittal requirements for compliance for MPI Approved Products.
 - d. Review Design Criteria requirements.
 - e. Review Cleaning requirements.
 - f. Review painting schedule.
 - g. Review safety issues.
 3. Review additional agenda items from Sections under 09 9000 heading 'Paints and Coatings'.

1.4 SUBMITTALS

- A. Action Submittals:
 1. Product Data:
 - a. Include following information for each painting product, arranged in same order as in Project Manual.
 - 1) Manufacturer's cut sheet for each product indicating ingredients and percentages by weight and by volume, environmental restrictions for application, and film thicknesses and spread rates.
 - 2) Provide one (1) copy of 'MPI Approved Products List' showing compliance for each MPI product specified.
 - a) MPI Information is available from MPI Approved Products List using the following link: <http://www.paintinfo.com/mpi/approved/index.shtml>.
 - 3) Confirmation of colors selected and that each area to be painted or coated has color selected for it.
 2. Samples: Provide two 4 inch by 6 inch (100 mm by 150 mm) minimum draw-down cards for each paint or coating color selected for this Project.
- B. Informational Submittals:
 1. Manufacturer Instructions:
 - a. Manufacturer's substrate preparation instructions and application instruction for each painting system used on Project.
 2. Qualification Statement:
 - a. Applicator:
 - 1) Provide Qualification documentation if requested by Architect or Owner.
- C. Closeout Submittals:
 1. Include following in Operations And Maintenance Manual specified in Section 01 7800:
 - a. Record Documentation:
 - 1) Manufacturer's documentation:
 - a) Manufacturer's cut sheet for each component of each system.
 - b) Schedule showing rooms and surfaces where each system was used.

1.5 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approval:
 - 1. Conform to work place safety regulations and requirements of those authorities having jurisdiction for storage, mixing, application and disposal of all paint and related hazardous materials.
 - 2. Paint and painting materials shall be free of lead and mercury, and have VOC levels acceptable to local jurisdiction.
 - 3. Master Painters Institute (MPI) Standards:
 - a. Products: Comply with MPI standards indicated and listed in 'MPI Approved Products List'.
 - b. Preparation and Workmanship: Comply with requirements in 'MPI Architectural Painting Specification Manual' for products and coatings indicated.
- B. Qualifications:
 - 1. Applicator: Requirements of Section 01 4301 applies, but not limited to following:
 - a. Minimum five (5) years' experience in painting installations.
 - b. Minimum five (5) satisfactorily completed projects of comparable quality, similar size, and complexity in past three (3) years before bidding.
 - c. Maintain qualified crew of painters throughout duration of the Work.
 - d. Upon request, submit documentation.
- C. Field Samples:
 - 1. Before application of any paint system, meet on Project site with Architect, Owner's representative, and Manufacturer's representative. Architect may select one (1) surface for application of each paint system specified. This process will include establishing acceptable substrate conditions required for Project before application of paints and coatings.
 - 2. Apply paint systems to surfaces indicated by Architect following procedures outlined in Contract Documents and Product Data submission specified above.
 - 3. After approval of samples, proceed with application of paint system throughout Project. Approved samples will serve as standard of acceptability.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
 - 1. Deliver specified products in sealed, original containers with Manufacturer's original labels intact on each container.
 - 2. Deliver amount of materials necessary to meet Project requirements in single shipment.
- B. Storage And Handling Requirements:
 - 1. Store materials in single place.
 - 2. Keep storage area clean and rectify any damage to area at completion of work of this Section.
 - 3. Maintain storage area at 55 deg F (13 deg C) minimum.

1.7 FIELD CONDITIONS

- A. Ambient Conditions:
 - 1. Perform painting operations at temperature and humidity conditions recommended by Manufacturer for each operation and for each product for both interior and exterior work.
 - 2. Apply painting systems at lighting level of 540 Lux (50 foot candles) minimum on surfaces to be painted.
 - a. Inspection of painting work shall take place under same lighting conditions as application.
 - b. If painting and coating work is applied under temporary lighting, deficiencies discovered upon installation of permanent lighting will be considered latent damage as defined in MPI Manual, PDCA P1-92.

PART 2 - PRODUCTS

2.1 SYSTEMS

A. Performance:

1. Design Criteria:

- a. Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- b. All materials, preparation and workmanship shall conform to requirements of 'Architectural Painting Specification Manual' by Master Painters Institute (MPI).
- c. All paint manufacturers and products used shall be as listed under Approved Product List section of MPI Painting Manual.
- d. Provide Premium Grade systems (2 top coats) as defined in MPI Architectural Painting Specification Manual, except as otherwise indicated.
- e. Where specified paint system does not have Premium Grade, provide Budget Grade.
- f. Provide products of same manufacturer for each coat in coating system.
- g. Where required to meet LEED (Leadership in Energy and Environmental Design) program requirements, use only MPI listed materials having an "L" rating designation.
- h. Color Levels:
 - 1) Color Level II:
 - a) Number and placement of interior and exterior paint colors and gloss levels shall be as defined by Color Level II from MPI Manual, PDCA P3-93 as modified in following paragraph.
 - b) No more than one paint color or gloss level will be selected for same substrate within designated interior rooms or exterior areas.
 - 2) Color Level III:
 - a) Number and placement of interior and exterior paint colors and gloss levels shall be Color Level III from MPI Manual, PDCA P3-93 as modified in following paragraph.
 - b) Several paint colors or gloss levels will be selected for same substrate within designated interior rooms or exterior areas.

B. Materials:

1. Materials used for any painting system shall be from single manufacturer unless approved otherwise in writing by painting system manufacturers and by Architect. Include manufacturer approvals in Product Data submittal.
2. Linseed oil, shellac, turpentine, and other painting materials shall be pure, be compatible with other coating materials, bear identifying labels on containers, and be of highest quality of an approved manufacturer listed in MPI manuals. Tinting color shall be best grade of type recommended by Manufacturer of paint or stain used on Project.

PART 3 - EXECUTION

3.1 APPLICATORS

A. Approved Applicators:

1. Meet Quality Assurance Applicator Qualifications as specified in Part 1 of this specification.

3.2 EXAMINATION

A. Verification Of Conditions:

1. Directing applicator to begin painting and coating work will indicate that substrates to receive painting and coating materials have been previously inspected as part of work of other Sections

and are complete and ready for application of painting and coating systems as specified in those Sections.

- B. Pre-Installation Testing:
 - 1. Before beginning work of this Section, examine, and test surfaces to be painted or coated for adhesion of painting and coating systems.
 - 2. Report in writing to Architect of conditions that will adversely affect adhesion of painting and coating work.
 - 3. Do not apply painting and coating systems until party responsible for adverse condition has corrected adverse condition.
- C. Evaluation And Assessment:
 - 1. Report defects in substrates that become apparent after application of primer or first finish coat to Architect in writing and do not proceed with further work on defective substrate until such defects are corrected by party responsible for defect.

3.3 PREPARATION

- A. Protection Of In-Place Conditions:
 - 1. Protect other finish work and adjacent materials during painting. Do not splatter, drip, or paint surfaces not intended to be painted. These items will not be spelled out in detail but pay special attention to the following:
 - a. Do not paint finish copper, bronze, chromium plate, nickel, stainless steel, anodized aluminum, or monel metal except as explicitly specified.
 - b. Keep cones of ceiling speakers completely free of paint. In all cases where painting of metal speaker grilles is required, paint without grilles mounted to speakers and without grilles on ceiling.
 - c. On existing work where ceiling is to be painted, speakers and grilles are already installed, and ceiling color is not being changed, mask off metal grilles installed on ceiling speakers. If ceiling color is being changed, remove metal grilles and paint, and mask off ceiling speakers.
- B. Surface Preparation:
 - 1. Prepare surfaces in accordance with MPI requirements and requirements of Manufacturer for each painting system specified, unless instructed differently in Contract Documents. Bring conflicts to attention of Architect in writing.
 - 2. Fill minor holes and cracks in wood surfaces to receive paint or stain.
 - 3. Surfaces to be painted shall be clean and free of loose dirt. Clean and dust surfaces before painting or finishing.
 - 4. Do no exterior painting while surface is damp, unless recommended by Manufacturer, nor during rainy or frosty weather. Interior surfaces shall be dry before painting. Moisture content of materials to be painted shall be within tolerances acceptable to Paint Manufacturer.
 - 5. Sand woodwork smooth in direction of grain leaving no sanding marks. Clean surfaces before proceeding with stain or first coat application.

3.4 APPLICATION

- A. Interface With Other Work:
 - 1. Coordinate with other trades for materials and systems that require painting before installation.
 - 2. Schedule painting and coating work to begin when work upon which painting and coating work is dependent has been completed. Schedule installation of pre-finished and non-painted items, which are to be installed on painted surfaces, after application of final finishes.
- B. Paint or finish complete all surfaces to be painted or coated as described in Contract Documents, including but not limited to following items.

1. Finish casework and wood trims that are specified to be installed under Section 06 2001 and that are not called out to be factory-or shop-finished. Back prime wood elements to be installed against concrete or masonry or that may be subjected to moisture.
 2. Paint mechanical, electrical, and audio/visual items that require field painting as indicated in Contract Documents. These include but are not limited to:
 - a. Gas pipe from gas meter into building.
 - b. Mechanical flues and pipes penetrating roof.
 - c. Electrical panel and disconnect enclosures.
 - d. Metal protective structures for refrigerant lines.
 3. Metal reveals at ceiling access doors.
 4. Paint inside of chases in occupied spaces flat black for **18 inches (450 mm)** or beyond sightline, whichever is greater.
 5. Paint surfaces behind speaker grilles incorporating grille cloth with flat black paint.
- C. Apply sealant in gaps **3/16 inch (5 mm)** and smaller between two substrates that are both to be painted or coated. Sealants in other gaps furnished and installed under Section 07 9213.
- D. On wood to receive a transparent finish, putty nail holes in wood after application of stain using natural colored type to match wood stain color. Bring putty flush with adjoining surfaces.
- E. In multiple coat paint work, tint each succeeding coat with slightly lighter color, but approximating shade of final coat, so it is possible to check application of specified number of coats. Tint final coat to required color.
- F. Spread materials smoothly and evenly. Apply coats to not less than wet and dry film thicknesses and at spreading rates for specified products as recommended by Manufacturer.
- G. Touch up suction spots after application of first finish coat.
- H. Paint shall be thoroughly dry and surfaces clean before applying succeeding coats.
- I. Use fine sandpaper between coats as necessary to produce even, smooth surfaces.
- J. Make edges of paint adjoining other materials or colors clean, sharp, and without overlapping.
- K. Finished work shall be a 'Properly Painted Surface' as defined in this Section.

3.5 FIELD QUALITY CONTROL

- A. Non-Conforming Work:
1. Correct deficiencies in workmanship as required to leave surfaces in conformance with 'Properly Painted Surface,' as defined in this Section.
 2. Correction of 'Latent Damage' and 'Damage Caused By Others,' as defined in this Section, is not included in work of this Section.

3.6 CLEANING

- A. General:
1. As work proceeds and upon completion of work of any painting Section, remove paint spots from floors, walls, glass, or other surfaces and leave work clean, orderly, and in acceptable condition.
- B. Waste Management:
1. Remove rags and waste used in painting operations from building each night. Take every precaution to avoid danger of fire.

2. Paint, stain and wood preservative finishes and related materials (thinners, solvents, caulking, empty paint cans, cleaning rags, etc.) shall be disposed of subject to regulations of applicable authorities having jurisdiction.
3. Remove debris caused by work of paint Sections from premises and properly dispose.
4. Retain cleaning water and filter out and properly dispose of sediments.

END OF SECTION

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SECTION 09 9112**EXTERIOR PAINTED FERROUS METAL****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Preparing and painting following existing exterior ungalvanized iron and steel surfaces as described in Contract Documents:
- B. Related Requirements:
 - 1. Section 09 9001: 'Common Painting And Coating Requirements':
 - a. Pre-installation conference for Sections under 09 9000 heading 'Paints and Coatings'.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Conferences:
 - 1. Participate in pre-installation conference as specified in Section 09 9001.

PART 2 - PRODUCTS**2.1 SYSTEM**

- A. Manufacturers:
 - 1. Category Four Approved Products and Manufacturers. See Section 01 6200 for definitions of Categories:
 - a. Products listed in edition of MPI Approved Product List current at time of bidding and later are approved.
- B. Description:
 - 1. New Surfaces: Use MPI(a) EXT 5.1M Waterborne Light Industrial Coating system .
 - 2. Previously Finished Surfaces: Use MPI(r) REX 5.1K Waterborne Light Industrial Coating.
- C. Design Criteria:
 - 1. Systems specified are in addition to prime coats provided under other Sections of Project Manual.
 - 2. Finish Requirements: Use MPI Premium Grade finish requirements for work of this Section.
 - 3. Gloss / Sheen Level Required: Gloss Level 5.
- D. Materials:
 - 1. All paints and coatings.
 - a. Primer Coat: MPI Product 107, 'Primer, Rust-Inhibitive, Water Based'.
 - b. Finish Coats: MPI Product 163, 'Light Industrial Coating, Exterior, Water Based, Semi-Gloss (MPI Gloss Level 5).

PART 3 - EXECUTION**3.1 APPLICATION**

- A. General: See appropriate paragraphs of Section 09 9001.

- B. New Surfaces: Clean metal to be painted of rust, mill scale, grease, oil, and welding spatters, burrs, flux, slag, and fume. If all traces of rust cannot be removed, apply rust blocker recommended by Paint Manufacturer before applying primer coat.
- C. Existing Painted Surfaces:
 - 1. Remove deteriorated and chalked existing paint and rust down to sound substrate by scraping or power tools.
 - 2. Clean existing sound painted surfaces as well as scraped and sanded existing painted surfaces as recommended by Paint Manufacturer. If all traces of rust cannot be removed, apply rust blocker recommended by Paint Manufacturer before applying primer coat.
 - 3. Spot prime bare metal surfaces followed by a prime coat over entire surface to be painted.
 - 4. Lightly sand entire surface.
 - 5. Clean surface as recommended by Paint Manufacturer.
 - 6. Apply specified finish coats.

END OF SECTION

SECTION 09 9113**EXTERIOR PAINTED GALVANIZED METAL****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Preparing and painting new exterior exposed galvanized metal surfaces as Described in Contract Documents.
 - 2. Preparing and painting following existing exterior exposed galvanized metal surfaces as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 09 9001: 'Common Painting And Coating Requirements':
 - a. Pre-installation conference for Sections under 09 9000 heading 'Paints and Coatings'.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Conferences:
 - 1. Participate in pre-installation conference as specified in Section 09 9001.

PART 2 - PRODUCTS**2.1 SYSTEM**

- A. Manufacturers:
 - 1. Category Four Approved Products and Manufacturers. See Section 01 6200 for definitions of Categories.
 - a. Products listed in edition of MPI Approved Product List current at time of bidding and later are approved, providing they meet VOC requirements in force where Project is located.
- B. Description:
 - 1. All Other:
 - a. New Surfaces: Use MPI(a) EXT 5.3H Latex Finish system.
 - b. Previously Finished Surfaces: Use MPI(r) REX 5.3H Latex Finish system.
- C. Performance:
 - 1. Design Criteria:
 - a. New Surfaces: MPI Premium Grade finish requirements.
 - b. Deteriorated Existing Surfaces: MPI Premium Grade finish requirements.
 - c. Sound Existing Surfaces: MPI Custom Grade finish requirements.
 - d. Gloss / Sheen Level Required: Gloss Level 5.
- D. Materials:
 - 1. Polyurethane:
 - a. Vinyl Wash Primer Coat: MPI Product 80: 'Primer, Vinyl Wash'.
 - b. Finish Coats:
 - 1) Epoxy MPI Product 101: 'Primer, Epoxy, Anti-Corrosive, for Metal'.
 - 2) Polyurethane MPI Product 72: 'Polyurethane, Two-Component, Pigmented, Gloss (MPI Gloss Level 6-7)'.
 - 2. Latex:
 - a. Waterborne Primer Coat: MPI Product 134: 'Primer, Galvanized, Water Based'.

- b. Finish Coats: MPI Product 11: 'Latex, Exterior Semi-Gloss (MPI Gloss Level 5)'.

PART 3 - EXECUTION

3.1 APPLICATION

- A. General: See appropriate paragraphs of Section 09 9001.
- B. New Surfaces:
 - 1. Clean 'passivated' or 'stabilized' galvanized steel as specified in SSPC-SP1.
 - 2. After removal of 'passivated' or 'stabilized' coating or for surfaces without coating, clean surfaces to be painted with mineral spirits or product recommended by Paint Manufacturer. Change to clean rags or wiping cloths regularly to reduce possibility of re-contamination of surface.
 - 3. Apply prime coat.
 - 4. Apply finish coats.
- C. Existing Painted Surfaces:
 - 1. Remove deteriorated and chalked existing paint and rust deposits down to sound substrate by sanding, scraping, or wire brushing.
 - 2. Clean existing sound painted surfaces as well as scraped and sanded existing painted surfaces as recommended by Paint Manufacturer.
 - 3. Apply prime coat.
 - 4. Apply finish coats.
- D. Existing Unpainted Surfaces:
 - 1. Wirebrush or power wash as necessary to remove 'white rust'.
 - 2. Apply prime coat.
 - 3. Apply finish coats.

END OF SECTION