PROJECT SPECIFICATIONS

TOGSTAD APARTMENT IMPROVEMENTS
421 East Division Street
Arlington, Washington

2012
ARCHITECTURE
2812 Colby Avenue
Everett, WA 98201

September 14, 2017
14c-3510
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END
STILLAGUAMISH TRIBE OF INDIANS

Stillaguamish Tribe of Indians
3322 236th Street NE
PO Box 277
Arlington WA 98223
Phone: (360) 575-3018

ARCHITECT

2812 architecture
2812 Colby Avenue
Everett, WA 98201
Phone: (425) 252-2153
Fax: (425) 742-8130

CIVIL ENGINEER

OCE
2812 Colby Avenue
Everett, WA 98201
ADVERTISEMENT FOR BIDS

Sealed bids will be received at the Stillaguamish Tribe of Indians, 3322 236th St NE, Arlington, WA 98223 and logged until 2:00 P.M. on Thursday, October 12, 2017.

The project is for site and building improvements to the Togstad 6 unit Apartment Building. The improvements involve site work associated with ADA upgrades, paving, landscaping and storm drainage modifications as shown on the drawings. Building improvements incorporate a new exterior stair, closing in the existing open parking garages and remodeling of all 6 apartments. This work includes interior finishes and fixture upgrades, new windows, new roofing and painting of the entire building.

The Contract Documents, consisting of Advertisement for Bids; Information for Bidders; Bids; Proposal; Form of Bid Bond; Form of Contract; General Conditions; Payment Bond; Performance Bond; Drawings; Technical Specifications and Addenda.

Contract documents may be viewed at the offices of 2812 architecture (2812 Colby Avenue, Everett, WA 98201). Drawings and specifications will also be posted on the Stillaguamish Tribe of Indians website (http://www.stillaguamish.com).

Additional sets of drawings and specifications may be secured at the cost of reproduction. No Plans or Specifications will be mailed. Sets of plans and specifications are available for the cost of reproduction from Bill’s Blue Print (425)259-0859. Cost of these sets is nonrefundable.

A Pre-bid conference will be held on Wednesday, October 04, 2017, at 1:00 p.m. at the Project site, 421 East Division Street, Arlington Washington.

All bidders are urged to attend.

Five percent (5%) Bid Deposit is required with sealed bid. (Must be either a surety bond, postal money order, cash, cashiers check, or certified check equal to 5% of the amount of the bid.) When other than a surety provides bid deposit bond, Contractor must provide written assurance of intent to provide Performance Bond. Deposits of unsuccessful bidders will be returned after award.

One hundred percent (100%) Contractor's Payment and Performance Bond is required to be delivered to the District within ten (10) days after notification of the award to the successful bidder and must be approved by Stillaguamish Tribe of Indians.

A Performance Bond for on and off site TESC, public storm drainage system and public street improvements will be required between the contractor and the City of Arlington. The performance bond will be released when inspection and approval of all work has been completed and the maintenance bond noted below is on file with the City of Arlington. The estimated cost of construction for the City Performance Bond is $42,115.40.

A two year, 20% Maintenance Bond associated with the TESC, public storm drainage system and public street improvements will be required between the contractor and the City of Arlington. The estimated cost of construction for the City Maintenance Bond is $5,377.00

Contractors/Subcontractors must comply with Executive Order 11246 as amended by Executive Order 11375 regarding affirmative action and equal opportunity.
1. General Description

The work to be performed under this Contract consists of furnishing of all labor, materials, equipment, and all other items and services necessary to perform site and building improvements associated with the Togstad Apartment Building.

2. Security to be Furnished by Each Bidder

A certified check, bank cashier's check, or bid bond issued by a surety who meets the requirements of Chapter 48.28 RCW on the form provided or equivalent. Payable to Stillaguamish Tribe of Indians for an amount equal to at least five percentage (5%) of the total bid, shall accompany each proposal as evidence of good faith and as a guarantee that if awarded the contract, the bidder will execute the contract and provide Performance and Labor and Material Payment Bonds as provided in these Specifications. Should the successful bidder fail to enter into a contract and furnish a satisfactory performance bond within (10) days after receiving from the Tribe properly prepared contract forms, the certified check, cashier's check or bid bond shall be forfeited as liquidated damages. Bid deposits in cash will not be accepted.

3. Statement of Intended Surety

If the bid deposit is not a bid bond, a properly completed Statement of Intended Surety is required and shall be submitted with the sealed bid.

4. Qualifications of Bidding

The Tribe may take such investigations as deemed necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Tribe all such information for this purpose as the Tribe may request. The Tribe reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Tribe that such bidder is properly qualified to carry out the obligation of the contract and to complete the work contemplated therein. In addition, the Contractor certifies that bidder is registered and licensed as required by the laws of the State of Washington.

5. Naming Subcontractors

Each bidder shall submit as part of their bid the names of the subcontractors listed on the bid form. Indicate by naming itself on lines where a category of work on the list shall not be subcontracted.

6. Execution of Contract

The successful bidder, a Washington State Licensed Contractor, shall be required to execute said contract, and furnish performance and other required bonds, insurance certificate, satisfactory to the Tribe, within ten (10) days after receiving from the Tribe properly-prepared contract documents.

7. Termination for Breach

In the event that any of the contract provisions are violated by the Bidder, the Tribe may serve written notice upon the Bidder of its intention to terminate such contract, such notice to contain the reason therefor, and unless within ten (10) days after the serving of such notice upon the Bidder such violation shall cease and satisfactory arrangement for correction be made, the contract shall, upon expiration of said ten (10) days, cease and terminate. In the event of any such termination, the Tribe shall immediately serve a notice thereof upon the Bidder and the
Tribe may thereafter procure all materials involved in the contract from other sources and the Bidder shall be liable to the Tribe for any excess cost incurred by the Tribe.

8. **Stop Work**

The Tribe reserves the right to halt all work under the contract if the Tribe makes a determination based upon a reasonable belief that any activity of the Contractor constitutes a violation of any federal, state or local law, rule or regulation. The Contractor will have twenty four (24) hours to correct any problem identified by the Tribe. A Contractor’s failure to correct a problem identified by the Tribe by the end of the 24 hour time period will be considered a material breach of the contract by the Contractor.

9. **Equal Opportunity Employer**

Stillaguamish Tribe of Indians, is an Equal Opportunity Employer. Participation by handicapped/disabled, minority, and women-owned businesses is encouraged.

10. **Proposal Sums**

The sum of money shown on the proposal covering all work included in base bid contract documents, together with any Addenda thereto and/or for unit prices called for, or for any alternates called for, shall include all items of labor, materials, equipment, overhead and compensation, to complete all of the work under each particular heading.

11. **Taxes**

The contract sum and any agreed variations thereof shall include all taxes imposed by law, except only State sales tax. Sales tax will be collected from the Tribe, at the current rate for each billing and will be paid to the State by the Contractor in conformance with the law. Contractor shall furnish proof of payment of all taxes required by law prior to final payment by the Tribe.

Retail public work projects (construction and alteration of structures) require sales tax be paid on the entire contract amount (both materials and labor). Tax shall be included as a separate amount on the proposal and on all invoices. The tax rate shall be determined by the project location.

12. **Examination of Site and Conditions**

Before submitting this proposal, the Bidder shall review the plans and is encouraged to attend the pre-bid conference held at the project site, 421 East Division Street, Arlington, Washington on **Wednesday, October 04, 2017 at 1:00 p.m.**, to examine the site of the work and ascertain for himself all of the physical conditions in relation thereto. Failure to take this precaution will not release the Successful Bidder from entering into contracts nor excuse him from performing the work in strict accordance with the terms of the contract. Contractor shall employ, so far as possible, such methods and means in the carrying out of his work as will not cause any interruption or interference with any other contract. No statement made by any officer, agent, or employee of the Tribe or Architect in relation to the physical conditions pertaining to the site of the work will be binding on the Tribe or Architect.

13. **Interpretation of Proposed Contract Documents**

If any person contemplating submitting a bid for the proposed contract is in doubt as to the true meaning of any part of the plans, specifications or other proposed contract documents, he may submit to the Architect a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by Addendum duly issued and a copy of such Addendum will be
mailed or delivered to each person receiving a set of such documents. The Tribe will not be responsible for any other explanations or interpretation of the proposal documents.

14. Security for Faithful Performance

Simultaneously with delivery of the executed contract, the Contractor shall furnish a surety bond for faithful performance of this contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract as specified in the general conditions included herein. This bond shall be in force until completion of the project and acceptance by the Tribe, and also the forty-five (45) day period following acceptance by the Tribe during which liens may be filed. The bond shall cover for a period of one (1) year after acceptance by the Tribe, as respects faulty workmanship and materials.

The surety on such bonds shall be a surety insurer who meets the requirements of Chapter 48.28 RCW and must be satisfactory to the Tribe.

The bonds required by RCW 39.08.010 shall include the base bid and any or all alternates selected by the Tribe.

In an effort to standardize usage of forms, to insure compliance with performance bond requirements and to help expedite processing of contract documents, the successful bidder is requested to utilize the enclosed Performance, Payment & Warranty Bond form rather than their surety's standard form.

15. Prohibition of Alterations

Except as otherwise provided herein, proposals which are incomplete, or which are conditioned in any way, or which contain erasures, alterations, or items not called for in the proposal, or which are not in conformity to the law, may be rejected as informal.

Only the amounts and information asked for on the proposal form furnished will be considered as the bid. Each bidder shall bid upon the work as specified and as provided in the proposal form and as further described in Division 1, Section 01100 Summary. The bidder shall bid upon all alternates indicated on the proposal form as provided herein. When bidding of alternates for which there is no charge, the bidder shall write the words "No charge" in the space provided in the proposal form.

16. Submission of Proposal

NAME OF BIDDER  ____________________________________________

PROPOSAL FOR: Site and building improvements associated with the Togstad Apartment Building

TIME, DATE AND LOCATION OF PROPOSAL OPENING

Bids for this project will be received at the offices of Stillaguamish Tribe of Indians, 3322 236th St NE, Arlington, WA 98223 and logged until 2:00 P.M. on Thursday, October 12, 2017.

Stillaguamish Tribe of Indians will announce at the bid opening when the next Board meeting will be held to decide the successful bidder.
17. **Withdrawal of Proposal**

At any time prior to the scheduled closing time for receipt of proposals, any bidder may withdraw his proposal, either personally or by written request and/or fax and confirmed written request, in the manner set forth herein for modification of proposal. If withdrawal is made personally, proper receipt shall be given therefore.

All bid proposals shall be deemed to be offers to enter into a contract. After the scheduled closing time for the receipt of proposals, or before award of contract, no bidder will be permitted to withdraw his proposal unless said award is delayed for a period exceeding sixty (60) days. Any bids received after the scheduled closing time for receipt of bids shall be returned to the bidder unopened.

18. **Rejection of Proposal**

The Tribe reserves the right to reject any and all proposals. The Tribe reserves the right to waive any informalities in connection with said proposals or bids. If any bidder is interested in more than one proposal, all proposals in which such bidder is interested shall be rejected. If the proposal includes a supplemental schedule of predetermined unit prices for labor and material, or other items for the purpose of establishing a cost basis on unforeseen contract changes, the Tribe reserves the right to reject, without impairing the balance of the proposal, any or all such predetermined unit prices in such supplement which the Tribe may consider excessive or unreasonable.

19. **Time of Completion/Project Schedule**

Time of contract completion shall be 100 consecutive calendar days from the mutually-agreed starting date specified in the Tribe's **Notice to Proceed**.

20. **Qualification for Bidding**

Contractor shall acquaint himself with the special conditions prior to bid submission.

21. **Tribe's Representative**

Questions and inquiries about the Plans and Specifications should be directed to 2812 architecture, 2812 Colby Avenue, Everett, WA 98201, Tel.: (425) 252-2153, 259-7159, FAX: (425) 742-8130.

22. **Special Hazards**

A. The Contractors' Public Liability and Property Damage Insurance shall provide adequate protection against Public Liability coverage for bodily injury and/or Property Damage Liability and include Vehicle Insurance. Contractor's Public Liability Insurance shall be in an amount not less than two million dollars ($2,000,000) for Bodily Injury, including accidental death, to any one person, and in any amount not less than two million dollars ($2,000,000) on account of any one occurrence. Property Damage Liability Insurance shall be in an amount not less than two million dollars ($2,000,000) per occurrence. Vehicular Liability Insurance shall be not less than two million dollars ($2,000,000) for any one person, and two million dollars ($2,000,000) for each occurrence. The Tribe shall be named as additional insured under said insurance. Contractor shall provide to the Tribe a certificate of insurance regarding said requirements in a form acceptable to the Tribe.

B. The Contractor shall either (a) require each of his sub-contractors to procure and maintain during the life of the contract, Subcontractor's Public Liability and Property Damage Insurance,
and Vehicular Liability Insurance of the type but in the minimum amounts of one million dollars ($1,000,000) or (b) insure the activities of the subcontractors in his own policy.

23. **Property Insurance on Site**

The Contractor shall be required to provide and maintain Property Insurance upon the entire work at the site to the full insurable value thereof. This insurance shall include the interests of the Tribe, the Contractor, Subcontractors and Sub-subcontractors in the work and shall insure against the perils of “special form” (an all-risk type coverage, including earthquake and flood). The Contractor shall have insurance on the Industry Standard acceptable format and the limits described.

24. **Alternate Bids**

Contractor shall note that the full description of Alternate Bid items occurs only in the Form of Proposal. Individual items also may be called out in the Plans.

25. **Disposal of Construction/Demolition Debris & Surplus Materials**

The company who is being considered for bid award will be required to submit to the Tribe, within 24 hours after notification, the Disposal of Construction/Demolition Debris and Surplus Materials Form (see form at end of Instructions to Bidders).

26. **Liquidated Damages**

Contractor agrees that the Tribe shall retain or be entitled to recover from the Contractor the sum of **Two Hundred Dollars ($200.00)** from the amount of compensation to be paid for each day after above-mentioned completion date, Sunday and Holidays included, the work remains incomplete. This amount is agreed upon as proper measure of liquidated damages the Tribe will sustain per day by failure of undersigned to complete work at stipulated time and is not to be construed in any sense as a penalty.

27. **Progress Payments**

All periodic payment requests in conformance to the provisions of these specifications shall be made on AIA Form G702 & G703. These shall be submitted to the Architect for approval, on or about the last day of the month and then submitted for payment to the Tribe on the second Monday of the month. Issuance of payment will be within 25 days after the Architect’s approval.

28. **Retained Percentage**

Pursuant to RCW 60.28.010, Stillaguamish Tribe of Indians will retain five percent (5%) of all monies earned by the Contractor until contract completion. Included in this bid package is the Contractor’s Declaration of Option for Management of Statutory Retained Percentage form which is to be submitted by the bidder/contractor within ten (10) days following notice of award.

29. **Surveys, Permits, and Regulations**

Unless otherwise expressly provided for in this contract, the Tribe will furnish the Contractor with all necessary boundary and topography surveys. The Contractor will procure and apply for all permits, licenses, and approvals necessary for the execution of the work. The cost of the Plan Check Fee and Building Permit only have been paid for by the Tribe, all other licenses and fees necessary for the completion of this project are the responsibility of the Contractor. All utility connection fees and assessments are the responsibility of the Tribe.
30. **Builders Risk**

Contractor shall secure all-risk type of builder's risk insurance covering the contract and materials, equipment or other items to be incorporated therein, while the same are located at the construction site, stored off site, or at the place of manufacture. The policy shall cover not less than losses due to fire, flood, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke until the date of final acceptance of the work. The policy may exclude loss or damage caused by or resulting from errors in design or from the use of substandard materials or supplies used knowingly by or at the direction of the insured, but not excluding results, physical loss, or damage to other property covered hereunder. Neither exclusion shall apply in the event of fire, explosion, or acts of God. The maximum deductible allowable under this policy shall be $50,000. The policies providing this insurance shall name the Tribe, the Construction Manager, the Architect, and their subconsultants as additional insured as their respective interests shall appear. The making of progress payments to the Contractor shall not be construed as creating an insurable interest by or for the Tribe of being construed as relieving the Contractor or his subcontractors of responsibility for loss or direct physical loss, damage or destruction occurring prior to final acceptance.
DISPOSAL OF
CONSTRUCTION/DEMOLITION DEBRIS & SURPLUS MATERIALS FORM

<table>
<thead>
<tr>
<th>LOCATION OF DISPOSAL SITE (Include company name, address, and phone number)</th>
<th>TYPE OF MATERIAL TO BE DISPOSED</th>
<th>DISPOSAL METHOD (Such as: to be recycled, stored for reuse at a later date, etc.)</th>
</tr>
</thead>
</table>

ATTENTION CONTRACTORS: A disposal site for construction/demolition debris and surplus materials is not provided by the Owner.

It shall be the responsibility of the successful contractor to dispose of subject materials in an environmentally safe manner, at locations that are authorized and/or licensed to accept such material. Disposal locations and disposal methods shall comply with all applicable federal, state, and local codes.

The Owner reserves the right to take any actions deemed necessary to verify that proposed disposal sites comply with applicable codes. The successful contractor will provide pertinent documentation, such as permit copies, in a timely manner, if requested.

Company Name: ______________________
Signature: ______________________
BIDDER’S CHECKLIST

THE THREE (3) FORMS MUST BE COMPLETED IN FULL AS REQUIRED, AND SUBMITTED COLLECTIVELY AS THE BID PROPOSAL PACKAGE PRIOR TO THE BID SUBMITTAL DEADLINE:

______ (1) BID PROPOSAL FORM.

The unit prices bid must be shown in the space provided. Show unit prices in both words and figures. Bids must be submitted on the proposal form provided.

______ (2) BID DEPOSIT.

The attached bid bond form, or equivalent standard industry bid bond form, must be completed by the surety company and bidder, and submitted with the bid unless bid is accompanied by a certified check, postal money order, cash, or cashier’s check.

The bid deposit amount shall be not less than five percent (5%) of the total bid amount, excluding sales tax.

______ (3) STATEMENT OF BIDDER’S QUALIFICATIONS.
PROPOSAL

To: Stillaguamish Tribe of Indians
    Arlington, Washington

The undersigned bidder declares that he has carefully examined the Plans and Specifications for the Togstad Apartment Improvements, located at 421 East Division Street, Arlington, Washington. Work consists of the construction of site and building improvements for the Togstad Apartments. The Contractor has examined the site and made such investigations as are necessary to determine the conditions to be encountered, and that if his proposal is accepted, he will enter into a contract with the Stillaguamish Tribe of Indians, Arlington, Washington, in the Form of Contract hereto attached, will, to the extent required, provide the necessary design, engineering, drawings, equipment, tools, apparatus and other means of construction and will furnish all labor and materials as specified in the Contract Documents, or called for by the Plans and Specifications, or necessary to complete the work in the manner herein specified, and according to the requirements of the Architect.

The undersigned bidder certifies that his proposal is in all respects fair and is made without collusion on the part of any person, firm or corporation mentioned below, and no officer or employee of the Tribe is personally or financially interested, directly or indirectly, in the proposal or in any purchase of, or sale of, any materials or supplies for the work to which it relates, or any portion of the profits thereof.

The undersigned bidder agrees that he will complete the work in all respects in a timely manner and within a schedule as defined in the Contract document. Contractor agrees that the Tribe shall retain or be entitled to recover from Contractor the sum of Two Hundred ($200.00) for each consecutive calendar day beyond the completion date(s) specified in the Contract document.

Accompanying this Proposal is a Bid Bond or Certified Check in an amount not less than five (5) percent of the total amount of this Proposal, in accordance with the conditions of the Call for Bids. If this proposal shall be accepted by the Tribe, and the undersigned shall fail to execute a Contract and Bond within ten (10) working days from the date of notification, then the Tribe may, at its option, determine that the undersigned has abandoned the Contract and thereupon this Contract shall be null and void and the amount of the Bid Bond or Certified Check accompanying this Proposal shall be forfeited and shall become the property of the Stillaguamish Tribe of Indians.

Bidder is to provide all Labor and Materials necessary to complete the following bid items as described here and as further defined on the Plans and Technical Specifications.

BASE BID: For base bid for all work indicated on the plans as defined in the technical specifications.

The sum of ___________________________dollars ($_____________)

Amount in words  Amount in figures

The above figures do not include Washington State Sales Tax. All Bid Amounts to be shown in words and figures. In case of a discrepancy, the amount in words will govern.
ADDENDA

Receipt of Addenda Number ______ through ______ is hereby acknowledged.

SUB CONTRACTORS

The following are named and will be principal Sub Contractors on the work.

Sitework

Mechanical

Electrical

Plumbing

Wood Framing

METHOD OF AWARD

The Tribe reserves the right to reject any or all bids and any or all alternate bids.

TIME FOR COMPLETION

The undersigned hereby agrees to complete all of the work under this contract within 100 calendar days after the date of the Tribe’s Notice to Proceed with the work. The undersigned agrees that Tribe retain the sum of Two Hundred ($200.00) Dollars from amount of compensation to be paid for each day after above-mentioned completion date, Sunday and Holidays included, the work remains uncompleted. This amount is agreed upon as proper measure of liquidated damages the Tribe will sustain per day by failure of Undersigned to complete work at stipulated time and is not to be construed in any sense as a penalty.

Respectfully Submitted:

_________________________  _______________________
Signature                        Title

_________________________  _______________________
Address                      Date

(SEAL-If Bid is by a Corporation)

_________________________
Contractor’s License Number

Attest:_________________________

Form of Proposal:  Page 2
BID DEPOSIT

Herewith find deposit in the form of ___________________________ (state whether certified check, cashier's check, postal money order; or surety bond), for the amount of $___________, which amount is not less than five percent (5%) of the total bid excluding sales tax.

BID BOND

KNOW ALL MEN BY THESE PRESENTS, THAT, ___________________________ a corporation duly organized under the laws of the State of ___________________________, as principal, and ___________________________, a corporation duly organized under the laws of the State of ___________________________ and authorized to do business in the State of Washington, as surety, are held and firmly bound unto the Snohomish Health District in the full and penal sum of five (5) percent of the total amount of the bid proposal of said principal for the work hereinafter described for the payment of which, well and truly to be made, we bind our heirs, executors, administrators and assigns, and successors and assigns, firmly by these presents.

The condition of this bond is such, that whereas the principal herein is herewith submitting their sealed proposal for the following construction project, to wit:

_________________________________________________________________

said bid and proposal, by reference hereto, being made a part hereof:

NOW, THEREFORE, if the said proposal bid by said principal be accepted, and the contract be awarded to said principal, and if said principal shall duly make and enter into and execute said contract and shall furnish a performance, payment and warranty bond as required by the Snohomish Health District within a period of ten (10) days from and after said award, exclusive of the day of such award, then this obligation shall be null and void, otherwise it shall remain and be in full force and effect.

IN TESTIMONY WHEREOF, the principal and surety have caused these presents to be signed and sealed this ____________ day of __________, 2010

Surety, Name of Company

Principal, Name of Company

Signature of Surety Agent

Principal Signature

Printed Name of Surety Agent

Printed Name of Principal/Title
STATEMENT OF BIDDER’S QUALIFICATIONS

Each bidder submitting a proposal on work included in these specifications shall prepare and submit, as part of this bid, the data requested in the following schedule:

1. Name of Bidder:

2. Business Address:

3. Telephone Number: Fax Number:

4. How many years has said bidder been engaged in the contracting business under the present firm name?

5. Contracts now in hand (gross amount): $

6. General character of work performed by said company:

7. List of more important projects constructed by said company, including approximate cost and dates. (Submit added sheet if necessary.)

8. List three recent customer references where similar work has been completed. Include organization name, address, telephone number, and name of contact person:

9. Bank references:

10. Contractor’s license number:


Company Name

By

Printed Name and Title

Date:

STATEMENT OF BIDDER’S QUALIFICATIONS
CONTRACT DOCUMENTS CHECKLIST

THE FOLLOWING FORMS ARE TO BE EXECUTED BY THE SUCCESSFUL BIDDER AND SUBMITTED TO THE STILLAGUAMISH TRIBE OF INDIANS WITHIN TEN (10) CALENDAR DAYS AFTER THE NOTICE OF AWARD.

__________ (1) AGREEMENT.

This agreement is to be executed by the successful bidder in triplicate.

__________ (2) PERFORMANCE, PAYMENT & WARRANTY BOND.

To be executed by the successful bidder and his surety company.

In an effort to standardize usage of forms, to insure compliance with performance bond requirements and to help expedite processing of contract documents, the successful bidder is requested to utilize the enclosed Performance, Payment & Warranty Bond form rather than their surety’s standard form.

__________ (3) INSURANCE REQUIREMENTS

Proof of insurance which pertains to the project scope of work and required coverage must be submitted in accordance with the attached Insurance Requirements.

__________ (4) HOLD HARMLESS REQUIREMENT
This Contract (“Contract”) for General Contractor services is made and entered into within the Stillaguamish Tribe of Indians, Indian Country, this ___ day of ______, 2017 (“Effective Date”) by and between the STILLAGUAMISH TRIBE OF INDIANS a sovereign, Federally Recognized Tribe (hereafter “Tribe”), whose principal office is at 3322 236th St NE, Arlington, WA 98223, and bidder (hereinafter referred to as “Contractor”), whose principal office is at ________________________, Ph. ____________, Fax: ______________.

ARTICLE 1 EXECUTION, CORRELATION AND INTENT

§ 1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Contract, and any Drawings, Specifications, Attachments, or other documents listed herein, and Modifications issued after execution of this Contract, which are attached to this Contract, and which are labeled as Attachments to this Contract; all of which form the Contract. If anything in other Contract Documents is inconsistent with this Contract, this Contract shall govern.

§ 1.2 THE WORK OF THIS CONTRACT

Contractor shall fully execute the Work described in the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others. Nothing in this Contract shall create a contractual relationship between the Tribe and any person or entity other the Contractor.

ARTICLE 2 OWNERS (TRIBE)

§ 2.1 The Tribe shall designate a representative (Project Officer) authorized to act on the Tribe’s behalf with respect to the Project. The Tribe or such authorized representative shall examine documents submitted by Contractor and shall render decisions in a timely manner and in accordance with the schedule accepted by the Tribe. The Tribe may obtain independent review of the Contract Documents by a separate architect, engineer, contractor, or cost estimator under contract to or employed by the Tribe. Such independent review shall be undertaken at the Tribe’s expense in a timely manner and shall not delay the orderly progress of the Work.

§ 2.2 The Tribe shall cooperate with Contractor in securing non-Tribal building and other permits, licenses and inspections. The Tribe shall not be required to pay the fees for such permits, licenses and inspections unless the cost of such fees is excluded from the Contractor’s Proposal.

§ 2.3 If the Tribe observes or otherwise becomes aware of a fault or defect in the Work or nonconformity with Contractor’s Proposal or Construction Documents, the Tribe shall give prompt written notice thereof to Contractor.

ARTICLE 3 SCOPE OF WORK

§ 3.1 Scope of Work (SOW), bidder shall provide the expertise and any other resources necessary to complete all tasks to complete the project, as described in the SCOPE OF WORK, attached hereto and incorporated into this Contract (Attachment A). Contractor shall be currently licensed and bonded as a professional Contractor in the State of Washington and perform the Project in a manner that meets professional standards for a General Contractor in the State of Washington. Contractor shall be solely responsible for the professional quality, technical accuracy, and timely completion of its work. The general location of the property, owned in total by the Stillaguamish Tribe of Indians, is at ________________________, Arlington in Snohomish County.

ARTICLE 4 TERM OF CONTRACT

Contractor shall begin performance of the project upon award and/or Notice to Proceed, and complete project in phases as detailed in SOW, attached. Any change in performance or services of this Contract
shall require a contract amendment/modification, approved by the Tribe. **TIME IS OF THE ESSENCE** in completion of the Project, and is part of the consideration of the Contract.

Should any additional service be requested that is outside the **SCOPE OF WORK** (SOW) those services must be approved in advance in writing by the Tribe and the new time of completion indicated in the amendment/modification will be considered the final due date for completion of the Project.

**ARTICLE 5 GENERAL RESPONSIBILITIES OF CONTRACTOR**

**§5.1 Payment of Taxes and Procurement of Tribal Licenses and Permits:** Contractor shall pay any applicable Tribal, federal, state and local taxes required by law in connection with its performance under this Contract and shall secure all necessary Tribal licenses and permits, paying the fees therefore. As noted above in Article 2.2, the Tribe will cooperate with the Contractor in securing non-Tribal permits, licenses and inspections.

**§5.2 Compliance with Laws and Regulations:** Contractor shall comply with all applicable Tribal, federal, state and local laws and ordinances, rules, regulations and orders relating to the performance of this Contract. If any of the Contract Documents are at variance therewith, the Contractor shall notify the Project Officer promptly upon discovery of such variance.

**§5.3 Certification of Non-Segregated Facilities:** By signing this Contract, Contractor certifies that it does not maintain or provide for its employees any segregated facilities at any of Contractor’s establishments and that Contractor’s employees are not permitted to perform their services at any location, under this Contract, where segregated facilities are maintained. Contractor agrees that failure to abide by this certification is a breach of this Contract.

**§5.4 Non-Discrimination:** Contractor agrees to comply with all applicable federal, state, county and local civil rights and human rights laws.

**§5.4 Responsibility for Negligence of Employees and Subcontractors:** Contractor assumes full responsibility for the acts, negligence and/or omissions of all of its employees under this contract, for those of its subcontractors and their employees, and for those of all other persons doing work under contract with it. This responsibility specifically extends hereunder to those warranties given by Contractor under Article 10 of the Contract.

**§5.5 Indemnity and Hold Harmless Agreement:** Contractor agrees to indemnify and hold harmless the Tribe, and its entities, and the officers, agents and employees of each, from and against all claims, damages, losses and expenses related to or arising from Contractor’s services or goods as set out in this Contract. Such expenses include reasonable attorney’s fees if it is necessary for the Tribe to commence or defend an action arising out of or associated in any way with Contractor’s performance of the Contract. Such claims include, but are not limited to, claims for bodily injury, illness or death, property damage (including loss of use, or other damage) which are caused in whole or in part by any of Contractor’s negligent, reckless or intentional acts or omissions, or that of Contractor’s subcontractor, or that of anyone employed by them or for whose acts Contractor or Contractor’s subcontractor may be liable.

**ARTICLE 6 BASIS FOR PAYMENT**

**§6.1 Contract Sum.** The Tribe shall pay Contractor the Contract Sum in current funds for the Contractor’s performance of the Contract.

**§ 6.2 Guaranteed Maximum Price.** The contract sum of the Work to be performed and the Contractor’s Fee is guaranteed by the Contractor not to exceed $_________, subject to additions and deductions by Change Order attachment as provided in the Contract Documents. Such maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs that would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Tribe unless a change order applies.
§ 6.3 Disputed Compensation. In the event the Tribes dispute the invoice or any portion thereof, the undisputed portion shall be paid to Contractor, based on contractual terms.

ARTICLE 7 CHANGE ORDERS

§ 7.1 A Change Order (Attachment) is a written instrument prepared by the Contractor and signed by the Tribe and the Contractor, stating their agreement upon all of the following: (1) a change in work scope; (2) the amount of the adjustment, if any, in the Contract Sum; and, (3) the extent of the adjustment, if any, in the Contract Time.

§ 7.2 No Change Order estimated to result in the Contract Sum exceeding the Guaranteed Maximum Price will be valid without a written instrument signed by the Tribe and the Contractor that formally adjusts the Guaranteed Maximum Price.

ARTICLE 8 PAYMENTS

§ 8.1 Prior to the first progress payment under this contract, Contractor shall prepare and submit to the Tribe a detailed preliminary breakdown/schedule of values allocated to various portions of the Work, showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a basis for determining progress payments. The Tribe shall approve the breakdown. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price.

§ 8.2 The Contractor shall submit applications for payments on or before the 5th day of the month for operations completed in accordance with the current schedule of values. Applications for payment shall clearly detail total project cost, work performed to date, and amount of current draw. The Tribe shall pay Contractor on the application for payment within 30 days of receipt for work performed which meets the standards of quality established under the contract, as approved by the Tribe. All amounts owed to the Contractor shall be due and payable upon Substantial Completion.

§ 8.3 “Substantial Completion.” Substantial Completion means the state in progress of the Work that is sufficiently complete so Tribe can occupy or utilize the Work for its intended purpose. Contractor shall notify the Tribe when Work or an agreed portion thereof is substantially completed, by issuing a Certificate of Substantial Completion. Upon Substantial Completion, the Tribe and Contractor shall agree on a punch list of Work yet to be completed and Contractor shall proceed diligently to complete such unfinished Work. Final payment request shall be submitted to:

STILLAGUAMISH TRIBE OF INDIANS
Attention:
P. O. Box 277
Arlington, WA 98223-0277

§ 8.4 Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification, or payment shall not be made:

I hereby certify, to the best of my knowledge and belief, that:
(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;
(2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements; and,
(3) This request for progress payments does not include any amounts that the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

Name:

Title:

Date:
§ 8.5 Except as otherwise provided in applicable law, the Tribe shall retain ten percent (5%) of the amount of progress payments until completion and acceptance of all Work under the contract. Upon final acceptance of work the Contractor shall submit final invoice for retainage.

§ 8.6 All material and Work covered by progress payments made shall, at the time of payment become the sole property of the Tribe, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and Work upon which payments have been made or the restoration of any damaged Work; or, (2) waiving the right of the Tribe to require the fulfillment of all of the terms of the contract. In the event the Work of the Contractor has been damaged by other contractors or persons other than employees of the Tribe in the course of their employment, the Contractor shall restore such damaged Work without cost to the Tribe and seek redress for its damage only from those who directly caused it.

§ 8.7 The Tribe shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all Work; and (2) presentation of written release of all claims against the Tribe arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment.

§ 8.8 Prior to making any payment, the Tribe may require the Contractor to furnish receipts or other evidence of payment from all persons performing Work and supplying material to the Contractor, if the Tribe determines such evidence is necessary to substantiate claimed costs.

§ 8.9 The Tribe shall not (1) determine or adjust any claims for payment or disputes arising thereunder between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of the Tribe to withhold moneys from the Contractor shall in no wise impair the obligations of any surety or sureties under any bonds furnished under this contract.

ARTICLE 9  ACCOUNTING RECORDS

§ 9.1 Contractor shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management under this Contract, and the accounting and control systems shall be satisfactory to the Tribe. The Tribe's accountants shall be afforded access to, and shall be permitted to audit and copy, Contractor's records, books, correspondence, instructions, drawings, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to this Contract, and Contractor shall preserve these for a period of three years after final payment, or for such longer period as may be required by law.

§ 9.2 The Tribe or authorized representatives shall, until three (3) years after final payment under this contract, have access to and the right to examine any of Contractor’s directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, and transcriptions.

ARTICLE 10  WARRANTIES

§ 10.1 In addition to any other warranties in this contract, the Contractor warrants that any services and/or goods provided under this contract are of good quality, conform to the contract requirements and are free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. It is understood between the parties hereto that any and all goods and services that are not so in conformity are defective. This warranty shall continue for a period of two years from the date of final acceptance of the Work. All warranties given under this Article specifically incorporate Contractor’s responsibilities for employees and subcontractors under Article 5, Section 5.4 of this Contract.

§ 10.2 The Contractor shall remedy, at the Contractor’s expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor’s expense, any damage to Tribe-owned or controlled real or personal property when the damage is the result of: (1) The Contractor’s negligence, intentional acts, omissions or failure to conform to contract requirements; or (2) Any defects of equipment, material, workmanship or design furnished by the Contractor.
§ 10.3 The Contractor shall restore any Work damaged in fulfilling the terms and conditions of this clause. The Contractor’s warranty with respect to Work repaired or replaced will run for two years from the date of repair or replacement.

§ 10.4 The Tribe shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defects or damage.

§ 10.5 If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Tribe shall have the right to replace, repair or otherwise remedy the failure, defect, or damage at the Contractor’s expense.

§ 10.6 With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for Work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed in writing, for the benefit of the Tribe; and, (3) Enforce all warranties for the benefit of the Tribe.

§ 10.7 In the event the Contractor’s warranty under § 10.1 of this clause has expired, the Tribe may bring suit at its own expense to enforce a subcontractor’s, manufacturer’s or supplier’s warranty.

§ 10.8 Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defect of material or design furnished by the Tribe nor for the repair of any damage that results from any defect in Tribe furnished material or design.

§ 10.9 Notwithstanding any provisions herein to the contrary, the establishment of the time periods in paragraphs §10.1 and § 10.3 above relate only to the specific obligation of the Contractor to correct the work, and have no relationship to the time within which its obligation to comply with the contract may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor’s liability with respect to its obligation other than specifically to correct the Work.

§ 10.10 This warranty shall not limit the Tribe’s rights under the Inspection and Acceptance of Construction Article 11, Section 11.10 of this Contract with respect to latent defects, gross mistakes or fraud.

ARTICLE 11 INSPECTIONS AND ACCEPTANCE OF CONSTRUCTION

§ 11.1 Definitions. As used in this clause:

(1) “Acceptance” means the act of an authorized representative of the Tribe by which the Tribe approves and assumes ownership of the Work performed under this Contract. Acceptance may be partial or complete.

(2) “Inspection” means examining and testing the Work performed under the Contract (including, when appropriate, raw materials, equipment, components, and intermediate assemblies) to determine whether it conforms to Contract requirements.

(3) “Testing” means that element of inspection that determines the properties or elements, including functional operation of materials, equipment, or their components, by the application of established scientific principles and procedures.

§ 11.2 Contractor shall maintain an adequate inspection system and perform such inspections as will ensure the work performed under the contract conforms to contract requirements. All Work is subject to Tribal inspection at reasonable times before acceptance to ensure strict compliance with the terms of the Contract.

§ 11.3 Tribal inspections and tests are for the sole benefit of the Tribe and do not relieve the Contractor of responsibility for providing adequate quality control measures.

§ 11.4 The presence or absence of Tribe’s inspector does not relieve the Contractor from any Contract requirement, nor is the inspector authorized to change any term or condition of the specifications without the Tribe’s written authorization. The Tribe shall give all instructions and approvals with respect to the work to the Contractor.
§ 11.5 Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing safe and convenient inspections and tests as may be required by Tribe. Tribe may charge to Contractor any additional cost of inspection or test when Work is not ready at time specified by Contractor for inspection/test, or when prior rejection makes re-inspection or retest necessary. Tribe shall perform all inspections and tests in a manner that will not unnecessarily delay Work.

§ 11.6 The Tribe may conduct routine inspections of the construction site on a daily basis.

§ 11.7 Contractor shall, without charge, replace or correct Work found by the Tribe not to conform to contract requirements, unless the Tribe decides that it is in its interest to accept the Work with an appropriate adjustment in contract price. Contractor shall promptly segregate and remove rejected material from the premises.

§ 11.8 If Contractor does not promptly replace or correct rejected Work, the Tribe may by contract or otherwise, replace or correct the Work and charge the cost to Contractor, or terminate for default Contractor’s right to proceed.

§ 11.9 If any Work requiring inspection is covered up without approval of the Tribe, it must be, if requested by the Tribe, uncovered at the expense of Contractor. If at any time before final acceptance of the entire Work, the Tribe considers it necessary or advisable to examine Work already completed by removing or tearing it out, Contractor, shall on request, promptly furnish all necessary facilities, labor, and material. If such Work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, Contractor shall defray all the expenses of the examination and of satisfactory reconstruction. If, however, such Work is found to meet the requirements of the Contract, the Tribe shall make an equitable adjustment to cover the cost of the examination and reconstruction, including, if completion of the Work was thereby delayed, an extension of time.

§ 11.10 Contractor shall notify the Tribe, in writing, as to the date when in its opinion all or a designated portion of the Work will be substantially completed and ready for inspection. Unless otherwise specified in the Contract, the Tribe shall accept, as soon as practicable after completion and inspection, all Work required by the Contract or that portion of the Work the Tribe determines and designates can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the Tribe’s right under any warranty or guarantee.

ARTICLE 12 LIQUIDATED DAMAGES FOR DELAY

Solely for any delay caused by Contractor in achieving Substantial Completion of the Work, Contractor shall pay the Tribe the sum of $200 per calendar day, as liquidated damages, until such time Work is completed and accepted.

ARTICLE 13 INDEPENDENT CONTRACTOR

Contractor is retained as an independent contractor, not employee or agent of the Tribe and shall be responsible for its own Work. Contractor and its employees and/or subcontractors shall not be eligible for any benefit available to Tribal employees, including, but not limited to, workers compensation insurance, state disability insurance, unemployment insurance, health and life insurance, vacation or sick leave, bonus, pension or savings plans, and the like. No income, social security, state disability or other federal or state payroll tax will be deducted from payments made to Contractor, employees or subcontractors under this Contract. Contractor agrees to pay all state and federal taxes and other levies and charges when due on account of monies paid to Contractor and to defend, indemnify and hold the Tribe harmless from and against any and all liability resulting from failure to do so.

ARTICLE 14 NO PARTNERSHIP

This Contract does not create a partnership relationship. Contractor does not have authority to enter into contracts on the Tribe’s behalf.

ARTICLE 15 PROJECT COORDINATION AND NOTICES

Day-to-day project coordination and communications shall be conducted between the Tribal Project Officer (PO) and the Contractor’s Project Manager as designated below. The Contractor’s Project Manager is the Contractor’s representative for this Contract, and shall be responsible for the performance of this Contract,
and shall have signature authority for the Contractor for all matters related to this Contract. All notices of other communications to either party shall be deemed given when made in writing and personally delivered, faxed, or mailed, postage paid, to:

STILLAGUAMISH TRIBE OF INDIANS  GENERAL CONTRACTOR
Project Officer (PO) Casey Stevens
P. O. Box 277
Arlington, WA 98223-0277
Ph (360) 652-7362
Fax (360) 659-3113

ARTICLE 16 INSURANCE AND INDEMNIFICATION

A. Insurance Required
CONTRACTOR shall, at all times during the term of this Contract and extended terms thereof, be BONDED and provide and maintain at its own expense, the following types of insurance protecting the interests of the Tribe, with limits of liability not less than those specified below:

1. Workers' Compensation Insurance as statutorily required, insuring against any and all claims of workers for compensation arising out of workers' compensation claims.

2. Commercial General Liability Insurance in amounts not less than $1,000,000, one million dollars, each occurrence, Combined Single Limit for Bodily Injury and Property Damage. The Contractor shall name the Tribe as an additional insured.

3. Automobile Liability Insurance in an amount not less than $1,000,000, one million dollars, for any hired, owned, or non-owned vehicles used in performance of the work.

4. Professional Liability Insurance in amounts not less than $1,000,000, one million dollars, insuring CONTRACTOR for professional errors/omissions in the performance of work under this Contract.

B. Certification of Insurance
CONTRACTOR shall provide Certificates of Insurance in form and content satisfactory to the Tribe, evidencing all coverage stated above. The Tribe shall be a named insured under the certificate of Insurance.

C. Notice of Cancellation
Policies and/or certificates must specifically provide to the Tribe a thirty-day written notice of cancellation, nonrenewal, or material change.

ARTICLE 17 SUBCONTRACTING

Contractor shall have the authority to engage subcontractors for portions of the Work as Contractor wishes to complete the Work. The Contractor shall notify the Tribe of any subcontractors used in the performance of the Work. The Tribe shall communicate with subcontractors through Contractor. Contractor retains full responsibility under this Contract as outlined in Article 5, Section 5.4 above.

ARTICLE 18 CONFIDENTIALITY

Contractor shall not disclose or permit the disclosure of any documents or records which contain Confidential Information, whether labeled this way or not, (information not generally available to the public) provided to Contractor by the Tribe, except to its agents, employees, and consultants who need such confidential information in order to properly perform their duties under this Contract.

ARTICLE 19 OWNERSHIP OF DOCUMENTS

CONTRACTOR agrees that all documents, reports, materials, or other subject matter prepared, procured, or produced in the rendition of services under this Contract shall become the exclusive property of the Tribe upon payment for services rendered hereunder; and all such documents, reports, materials, or other subject matter shall be delivered to the Tribe as specified in this Contract or upon any termination thereof.
ARTICLE 20  CONFLICT OF INTEREST

Contractor covenants that it presently has no interest, and shall not have any interest, direct or indirect, which would conflict in any manner with the performance of services required under this Contract.

ARTICLE 21  COMPLIANCE WITH LAW

A. Generally.
CONTRACTOR agrees to comply with any and all applicable state, local and tribal laws and regulations in the performance of any Work related to this Project.

B. Other Requirements.
CONTRACTOR agrees to comply with all applicable requirements of the federal regulations relating to contracting, found at 24 Code of Federal Register Part 1000.16 and Part 85. To the extent that they may apply to CONTRACTOR, these requirements include:

1. Nondiscrimination requirements under 24 CFR Section 1000.12;
2. Labor standards under 24 CFR Section 1000.16 and title 29 CFR Parts 1,3,5 and 7 (“Davis Bacon”);
3. Environmental review requirements under 24 CFR Section 1000.18;
4. Administrative requirements as listed in 24 CFR Section 1000.26;
5. Conflict of interest provisions under 24 CFR Section 1000.30 and Part 85.36;
6. Prohibitions in 24 CFR Part 24 with regard to the use of debarred, suspended, or ineligible contractors, see 24 CFR Section 1000.44;
7. The Drug-Free Workplace Act of 1988;
8. The Indian preference requirements pursuant to Section 7(b) of the Indian Self-Determination and Education Assistance Act, 25 USC 450 (e) (b), see 24 CFR Section 1000.48; and
9. All other applicable portions of 24 CFR Part 1000, and all other applicable laws and regulations.

ARTICLE 22  AUDITS AND RETENTION OF RECORDS

Contractor shall permit access by the Tribe to any books, documents, papers, and records of the Contractor that are directly pertinent to this Contract for the purpose of making audits, examination, excerpts, and transcriptions. Contractor agrees to retain all required records for three years after the Tribe has made final payment under this Contract and all other pending matters are closed.

ARTICLE 23  SUSPENSIONS

The Tribe may give written notice to Contractor to suspend Work on the project or any part thereof. The Tribe shall not be obligated to consider a claim for additional compensation if Contractor is given written notice to resume Work within 120 calendar days. If notice to resume Work is not given within 120 calendar days, Contractor shall be entitled to an equitable adjustment in compensation.

ARTICLE 24  RESOLUTION OF DISPUTES

In the event of a dispute arising under this Contract, Contractor shall notify the Tribal PO promptly in writing. The Tribe shall respond to the complaint in writing in a timely manner. Contractor and the Tribe agree to meet in person and to cooperate in good faith to attempt to resolve any controversy or claim arising out of or relating to this Contract. This Contract has been and shall be construed as having been made and delivered to the Stillaguamish Tribe of Indians, and it is mutually understood and agreed by each party hereto that this Contract shall be governed by the laws of the Stillaguamish Tribe of Indians, both as to interpretation and performance, unless Tribal law conflicts with Federal law, in which case Federal law will apply. In the event that the parties are unable to resolve the dispute informally, the parties agree to submit the dispute to mediation before a mutually agreed-upon mediator, each party to share equally in the costs of the mediation.
ARTICLE 25  TERMINATION

The Tribe may terminate this Contract at any time for its convenience, or for failure of Contractor to fulfill its obligations under this Contract. The Tribe shall terminate by delivering to Contractor a Notice of Termination specifying the reason therefore and the effective date of termination. In the case of the Tribe’s proposed termination for breach under this Contract, the Contractor and the Tribe may negotiate a reasonable period for cure. Upon the effective date of termination, the Contractor shall immediately discontinue all services and deliver to the Tribe all information and records accumulated or generated in performing this Contract, whether completed or in process. If the termination is for convenience of the Tribe, the Tribe shall be liable only for payment for accepted services rendered before the date of termination.

ARTICLE 26  SOVEREIGN IMMUNITY

Nothing in this Agreement or any actions taken by the Stillaguamish Tribe of Indians under this Agreement shall constitute or be construed, in any way, as a waiver or diminishment of the sovereign immunity of the Stillaguamish Tribe of Indians, or its enterprises, agents or employees.

ARTICLE 26  EXTENT OF CONTRACT

The entire Contract between the Tribe and Contractor is comprised of multiple documents, including all appendices and attachments to this CONTRACT FOR GENERAL CONTRACTOR SERVICES, namely the REQUEST FOR BIDS, SCOPE OF WORK (Attachment A), RATE SCHEDULE (Attachment B), BID OFFER SHEET (Attachment C), BID ACCEPTANCE/CONTRACT AWARD (Attachment D), and if submitted, INDIAN ENTERPRISE QUALIFICATION STATEMENT (Attachment E) CHANGE ORDER (Attachment F) and any forms provided by the Tribe for use in the completion of this Contract. All such documents constitute the entire and integrated Contract between the Tribe and Contractor and supersede all prior negotiations, representations or agreements, either written or oral. This Contract may be amended only by written instrument signed by both the Tribe and Contractor. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral.

ARTICLE 27  SEVERABILITY

If any term, covenant, or condition of this Contract is held by a court of competent jurisdiction to be invalid or unenforceable, the remainder of this Contract shall remain in effect.

ARTICLE 28  EXECUTION

(Check applicable provision.)

_____ The parties agree that this Contract will be considered signed when the signature of a party is delivered by facsimile or electronic transmission. Signatures transmitted by facsimile or electronic transmission shall have the same effect as original signatures.

OR

_____ This Contract shall be executed in duplicate originals, with each party retaining one fully executed duplicate original of the Contract.

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of __________, 2012.
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<th>CONTRACTOR</th>
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PERFORMANCE, PAYMENT & WARRANTY BOND  
RCW 39.08

KNOW ALL PERSONS BY THESE PRESENTS, that, 

(Name of Contractor) 

doing business as an 

(Individual, Partnership, or Corporation organized under the laws of the State of WA)

and licensed to do business in the State of Washington as a contractor, as 

PRINCIPAL, and 

(Name of Surety) 
corporation organized under the laws of the State of 

(if not corporation explain ___________________________________________)

and authorized to transact business in the State of Washington as a surety, as SURETY, their heirs, executors, administrators, successors and assigns, are jointly and severally held and bound unto the Stillaguamish Tribe of Indians, Arlington, Washington, hereinafter called the Tribe, for payment in the sum of ___________________________ Dollars ($__________). 

Surety agrees that in all matters relating to this obligation, that surety is bound by the laws of the State of Washington and that surety is subject to the jurisdiction of the State of Washington.

THE CONDITION OF THIS OBLIGATION IS THAT: WHEREAS, on the _________________ day of _______________ , 20___, the PRINCIPAL executed a contract with the Tribe for

Project Name: ____________________________________________ 

Project Number: ____________________________ Bid Number: __________

WHEREAS, the PRINCIPAL, in the terms, conditions and provisions of the contract, agreed to furnish all material and do certain work, to-wit: that the PRINCIPAL will undertake and complete the project identified above according to the maps, plans, specifications and other documents made a part of said contract, which contract as so executed, is attached hereto, and by this reference is incorporated herein and made a part hereof as fully for all purposes as if set forth at length.

NOW, THEREFORE, if the PRINCIPAL shall faithfully and truly observe and comply with the terms, conditions, and provisions of said contract in all respects and shall well and truly and fully do and perform all matters and things undertaken to be performed under said contract, upon the terms proposed therein, and within the time prescribed therein, and until the same is accepted by the Tribe, and shall pay all laborers, mechanics, subcontractors and material persons, and all persons who shall supply such contractor or subcontractor with provisions and supplies for the carrying on of such work, and shall in all respects faithfully perform said contract according to law, then this obligation is to be void, otherwise to remain in full force and effect.

WITNESS our hands this ________ day of _____________________ , 20___.
PRINCIPAL

Name: ___________________________  By: ___________________________
(Signature of Authorized Rep.)

Address: ___________________________  (Typed Name of Authorized Rep.)

_________________________________  Title: ___________________________

SURETY

Name: ___________________________  By: ___________________________
(Attorney-in-fact for SURETY*)

_________________________________  (Typed name of Attorney-in-Fact)

Name/Address of Local Office or Agent

ACCEPTED:

By: ___________________________  Date: ___________________________

Approved as to form:

By: ___________________________  Date: ___________________________

*This bond must be accompanied by a fully executed Power of Attorney appointing the Attorney-in-Fact.
STILLAGUAMISH TRIBE OF INDIANS
INSURANCE REQUIREMENTS

All contracts, licenses, permits, or other written agreements wherein Stillaguamish Tribe of Indians, herein referred to as the "Tribe" is being insured by the other contracting party or where there is a "Hold Harmless" provision shall contain the following insurance provisions.

INSURANCE

1. Such contracting party shall obtain and maintain continuously liability insurance appropriate to the activity and/or other insurance necessary to protect the public within limits of liability not less than:

$2,000,000.00 Combined Single Limit/Bodily Injury & Property Damage with coverage endorsements to include Broad Form Contractual, Broad Form Property Damage, Tribe's Contractor's Protective, XCU, Auto and Non-owned Auto, unless such additional coverage endorsements are not applicable.

2. Such insurance shall name as additional insured Stillaguamish Tribe of Indians, its officers, elected officials, agents, and employees and shall not be reduced or canceled without thirty (30) days written prior notice to the Tribe.

3. Such insurance in its provision for additional insured, shall include a "Cross Liability Endorsement", "Severability of Interests", or "Separation of Insureds" provision indicating:

"The inclusion of more than one insured under this policy shall not affect the rights of any insured as respects any claim, suit, or judgment made or brought by or for any other insured or by or for any employee of any other insured. The policy shall protect each insured in the same manner as though a separate policy had been issued to each except that nothing herein shall operate to increase the company's liability beyond the amount or amounts for which the insurer would have been liable had only one insured been named."

4. If coverage is on a claims-made basis, the retroactive dates shall be prior to or coincide with the date of this contract, and the policy shall state that coverage is claims made, and state the retroactive date. The Contractor shall maintain coverage for the duration of this contract. It is further agreed that either the Contractor or Stillaguamish Tribe of Indians may invoke the tail option on behalf of the other party and that the Extended Reporting Period premium shall be paid by the Contractor.
PROOF OF INSURANCE

The successful bidder will be required to provide satisfactory written evidence of proper insurance coverage within ten (10) days after bid award.

Proof of insurance must be in the following form:

Declaration pages of your commercial general liability which pertain to the project scope of work, and required coverage, along with a copy of the additional insured endorsement (ISO/C2010) that adds “Stillaguamish Tribe of Indians, its officers, elected officials, agents, and employees” as an additional insured. The Tribe may request that the successful bidder provide a copy of the entire policy, if questions arise about particular coverages.

NOTE

THE STANDARD ACCORD FORM (CERTIFICATE OF INSURANCE) IS NOT ACCEPTABLE AS PROOF OF INSURANCE

THE BID AWARD IS NOT CONSIDERED FINAL UNTIL THE APPROPRIATE INSURANCE DOCUMENTS ARE RECEIVED AND APPROVED BY THE TRIBE

Please make it clear to your firm’s insurance representative that the insurance industry’s standard Accord Form or other similar insurance certificates are not acceptable as proof of appropriate insurance coverage. Also, submittal of prior insurance documents in a timely manner is extremely important.

Please provide a copy of these guidelines to your insurance representative.
HOLD HARMLESS REQUIREMENTS

The CONTRACTOR shall assume the risk of, be liable for, and pay all damage, loss, cost and expense of any party arising out of the performance of this contract, except that caused by negligence and/or willful misconduct solely of the Stillaguamish Tribe of Indians and its employees acting within the scope of their employment. The CONTRACTOR shall hold harmless from and indemnify Stillaguamish Tribe of Indians, its elected and appointed officials, employees, and agents, against all claims, losses, suits, actions, costs, counsel fees, litigation costs, expenses, damages, judgments, or decrees by reason of damage to any property or business and/or any death, injury of disability to or of any person or party, including any employee, arising out of or suffered, directly or indirectly, by reason of or in connection with the performance of this Contract or any act, error or omission of the CONTRACTOR, CONTRACTOR’S employees, agents, or subcontractors, whether by negligence or otherwise. Provided, that if the claims for damages arise out of bodily injury to persons or damage to property and caused by or result from the concurrent negligence of (1) the Tribe and its elected or appointed officials, employees, or agents and (2) the CONTRACTOR and its agents, employees, or subcontractors, the hold harmless and indemnity provisions of this contract shall be valid and enforceable only to the extent of the negligence of the CONTRACTOR, its agents, employees, or subcontractors. The CONTRACTOR’S obligation shall include, but not be limited to, action, error or omission or breach of any common law, statutory or other delegated duty by the CONTRACTOR, CONTRACTOR’S employees, agents, or subcontractors.
By submitting a bid proposal, bidder acknowledges and agrees to the hold harmless terms stated above.
GENERAL CONDITIONS

1. Contract and Contract Documents

Contract Documents defined as: Contract specification manual, including bidding requirements and technical specifications; working drawings, including, civil, landscape, architecture, structural, mechanical and electrical; signed agreement, bonds, addenda and change orders shall form part of the contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth. The table of contents, titles, headings, running headlines, and marginal notes contained herein and in said documents are solely to facilitate reference to various provisions of the contract documents and in no way affect, limit, or cast light on the interpretation of the provisions to which they refer.

2. Definitions

The following terms, as used in these General Conditions are respectively defined as follows:

(a) "Contractor": A person, firm, or corporation with whom this Contract is made by the Tribe.

(b) "Subcontractor": A person, firm, or corporation supplying labor and materials or only labor for work at the site of the project for, and under separate contract or agreement with, the Contractor.

(c) "Work on (at) the project": Work to be performed at the location of the project, including the transportation of materials and supplies to or from the location of the project by employees of the Contractor and any Subcontractor.

(d) "Apprentice": (1) A person employed and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau; or (2) a person in his first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, or who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Council (where appropriate) to be eligible for probationary employment as an apprentice.

(e) "Trainee": A person receiving on-the-job training in a construction operation under a program which is approved (but not necessarily sponsored) by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, and which is reviewed from time to time by the Manpower Administration to ensure that the training meets adequate standards.

(f) "Contract Documents": Are defined as: Contract specification manual, including bidding requirements and technical specifications; working drawings, including, civil, landscape, architecture, structural, mechanical and electrical. Signed agreement, bonds, addenda and change orders.

3. Authority of Architect

The Architect is the Tribe’s construction site representative. The Tribe has delegated his authority to the Architect to make initial decisions regarding questions which may arise as to the quality or acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of the work under the contract.
The Architect interprets the intent and meaning of the contract and makes initial decisions with respect to the Contractor’s fulfillment of the contract and the Contractor’s entitlement to compensation. The Contractor shall look initially to the Architect in matters relating to the contract. The Architect’s decisions are subject to review by the Tribe.

Inspection of Construction: The Architect and Tribe or a designated representative(s) shall have access to the work and to the site of the work and to the places where work is being prepared or where materials, equipment, and machinery are being obtained for the work. If requested by the Architect or Tribe the Contractor shall provide the assistance necessary for obtaining such access, and shall provide information related to the inspection of construction. Absence of such access or information, as needed, may result in the nonacceptance of the work.

Change Orders: The Architect has the authority to initiate or recommend change orders. Such change orders are subject to review and approval by the Tribe.

4. **Additional Instructions and Detail Drawings**

The Contractor will furnish additional instructions and detail drawings as necessary to carry out the work included in the contract. The additional drawings and instructions thus supplied to the Contractor will coordinate with these performance documents. The Contractor will carry out the work in accordance with additional detail drawings and instructions. The Contractor, and the Tribe will prepare jointly (a) a schedule, fixing the dates at which special detail drawings will be required, such drawings, if any, to be furnished to the Tribe in accordance with said schedule, and (b) a schedule fixing the respective dates for the submission of shop drawings, the beginning of manufacture, testing, and installation of materials, supplies, and equipment, and the completion of the various parts of the work; each such schedule to be subject to change from time to time in accordance with the progress of the work.

5. **Shop or Setting Drawings**

The Contractor shall promptly submit the Tribe five copies of each shop or setting drawings in accordance with the predetermined schedule. After the Tribe examines and returns the drawings, the Contractor shall make any indicated corrections to the drawings, and return two corrected copies to the Tribe. Regardless of corrections made in or approval given to such drawings by the Tribe, the Contractor will nevertheless be responsible for the accuracy of such drawings and for their conformity to the Plans and Specifications, unless he notifies the Tribe in writing of any deviations, at the time he furnishes such drawings.

6. **Materials, Services, and Facilities**

It is understood that, except as otherwise specifically stated in the contract documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to execute, complete, and deliver the work within the specified time.

Any work necessary to be performed after regular hours, on Sundays or Legal Holidays, shall be performed without additional expense to the Tribe.

7. **Contractor’s Title to Materials**

No materials or supplies for the work shall be purchased by the Contractor or any subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the work, free from all liens, claims, or encumbrances.

General Conditions: Page 2
8. **Inspection and Testing of Materials**

All materials and equipment used in the construction of the project shall be subject to adequate testing and inspection in accordance with accepted standards. The laboratory or inspection agency will be selected by the Tribe. Unless noted otherwise in these Specifications the cost of special testing required shall be born by the General Contractor.

Materials of construction, particularly those upon which the strength and durability of the structure may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for intended uses.

9. **"Or Equal" Clause**

Whenever a material, article, or piece of equipment is identified on the Plans or in the Specifications by reference to manufacturers or vendors names, trademarks, catalog numbers, etc., it is intended merely to establish a standard; and, any material, article, or equipment of other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the article, material, or equipment so proposed is, in the opinion of the Tribe, of equal substance and function. It shall not be purchased or installed by the Contractor without the Tribes written approval.

10. **Patents**

The Contractor shall hold and save the Tribe and its officers, agents, servants, and employees harmless from liability of any kind or nature, including costs and expenses for or on account of, any patented or un-patented invention, process, article, or appliance manufactured or used in the performance of the contract, including its use by the Tribe, unless otherwise specifically stipulated in the contract documents.

License or Royalty Fee: License and/or Royalty Fees for the use of a process which is authorized by the Tribe, must be reasonable, and will be paid directly by the Tribe to the holder of the patent or his authorized licensee.

If the Contractor uses any design, device, or materials covered by letters patent, or copyright, he shall provide for such use by suitable agreement with the Tribe of such patented or copyrighted design, device, or material. It is mutually agreed and understood that, without exception, the contract price shall include all royalties or costs arising from the use of such design, device, or materials, in any way involved in the work.

The Contractor and/or his Sureties shall indemnify and save harmless the Tribe from any and all claims for infringement by reason of the use of such patented or copyrighted design, device, or materials, or any trademark or copyright in connection with work under this contract, and shall indemnify the Tribe for any cost, expense, or damage which it may be obliged to pay by reason of such infringement at any time during the prosecution of the work or after completion of the work.

11. **Surveys, Permits, and Regulations**

Unless otherwise expressly provided for in this contract, the Tribe will furnish the Contractor with boundary surveys. The Contractor will procure and apply for all permits, licenses, and approvals necessary for the execution of the work. The cost of the Plan Check Fee and Building Permit have been paid for by the Tribe, all other licenses and fees necessary for the completion of this project, is the responsibility of the Contractor.
The Contractor shall comply with all laws, ordinances, rules, orders, and regulations relating to the performance of the work, the protection of adjacent property, and the maintenance of passageways, guard fences, and other protective facilities.

12. **Contractor's Obligations**

The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities, and means, except as herein otherwise expressly specified, necessary of proper to perform and complete all the work required by this contract, within the time herein specified, in accordance with the provisions of this contract and said specifications and in accordance with the plans and drawings covered by this contract and any and all supplemental plans and drawings, and in accordance with the direction of the Tribe as given from time to time during the progress of the work. He shall furnish, erect, maintain, and remove such construction plant and such temporary works as may be required. The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements, and limitations of the contract and specifications, and shall do, carry on, and complete the entire work to satisfaction of the Tribe.

13. **Weather Conditions**

In the event of temporary suspension of work, or during inclement weather, or whenever the Tribe shall direct, the Contractor will, and will cause his subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the Tribe materials have been damaged or injured by reason of failure on the part of the Contractor or any of his subcontractors to so protect his work, such materials shall be removed and replaced at the expense of the Contractor.

14. **Protection of Work and Property - Emergency**

The Contractor shall, at all times, guard the Tribe’s property from injury or loss in connection with this contract. He shall, at all times, safely guard and protect his own work, and that of adjacent property, from damage. The Contractor shall replace or make good any such damage, loss, or injury unless such be caused directly by errors contained in the contract or by the Tribe, or his duly authorized representative.

In case of an emergency which threatens loss or injury of property and/or safety of life, the contractor will be allowed to act without previous instructions from the Tribe in a diligent manner. Any claim for compensation of the Contractor due to such extra work shall be promptly submitted to the Tribe for approval.

Where the Contractor has not taken action but has notified the Tribe of an emergency threatening injury to persons or damage to the work or any adjoining property, he shall act as instructed or authorized by the Tribe.

The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in a manner provided in paragraph 18 of these General Conditions.

15. **Inspection**

The authorized representatives of the Tribe shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records.

16. **Reports, Records and Data**

The Contractor shall submit to the Tribe such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Tribe may request concerning work performed or to be performed under this contract.

General Conditions: Page 4
17. **Superintendence by Contractor**

At the site of the work, the Contractor shall employ a construction superintendent or foreman who shall have full authority to act for the Contractor. It is understood that such representative will be acceptable to the Tribe.

18. **Changes in Work**

No changes in the work covered by the approved contract documents shall be made without prior written approval of the Tribe. Charges or credits for the work covered by the approved change shall be determined by one or more or a combination of the following methods:

(a) Unit bid prices previously approved.
(b) An actual lump sum.
(c) The actual cost of:

(1) Labor, including foreman;
(2) Materials entering permanently into the work;
(3) The ownership or rental cost of construction plant and equipment during the time of use on the extra work;
(4) Power and consumable supplies for the operation of power equipment;
(5) Insurance;
(6) Social Security and old age and unemployment contributions.

To the cost under 18(c), there shall be added a fixed fee agreed upon but not to exceed fifteen (15) percent of the estimated cost of the work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit, and any other general expense.

19. **Extras**

Without invalidating the contract, the Tribe may order extra work of the kind bid upon, or make changes by altering, adding to, or deducting from the work, the contract sum being adjusted accordingly, and the consent of the Surety being first obtained where necessary or desirable. All the work of the kind bid upon shall be paid for at the price stipulated in the proposal, and no claims for extra work or materials shall be allowed unless the work is ordered in writing by the Tribe and the price is stated in the order.

20. **Correction of Work**

All work, all materials, whether incorporated in the work or not, all processes of manufacture, and all methods of construction shall be at all times and places subject to the inspection of the Tribe who shall be the final judge of the quality and suitability of the work, materials, processes of manufacture, and methods of construction for the purposes of which they are used. Should they fail to meet his approval, they shall be forthwith reconstructed, made good, replaced and/or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall immediately be removed from the site. If, in the opinion of the Tribe, it is undesirable to replace any defective or damaged materials, or to reconstruct or correct any portion of the work injured or not performed in accordance with the contract documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amounts as in the judgment of the Tribe shall be equitable.

If the Contractor fails to commence or correct any nonconforming work within a fourteen-day period after receipt of written notice from the Tribe, the Tribe may correct the nonconforming work at the expense of the Contractor.
21. **Claims for Extra Costs**

No claim for extra work or cost shall be allowed unless the same was done in pursuance of a written order of the Tribe, as aforesaid and the claim presented with the first estimate after the changed or extra work is done. When work is performed under the terms of sub-paragraph 18(c) of these General Conditions, the Contractor shall furnish satisfactory bills, payrolls, and vouchers covering all items of cost and, when requested by the Tribe, give the Tribe access to accounts relating thereto.

22. **Subsurface Condition Found Different**

Should the Contractor encounter subsurface and/or latent conditions at the site materially differing from those shown on the Plans or indicated in the Specifications, he shall immediately give notice to the Tribe if such conditions before they are disturbed. The Tribe will thereupon promptly investigate, and if he finds that they materially differ from those shown on the Plans or indicated in the Specifications, he will at once make such changes in the Plans and/or Specifications as he may find necessary, and any increase or decrease of cost resulting from such changes to be adjusted in the manner provided in paragraph 18 of these General Conditions.

23. **Construction Schedule and Periodic Estimates**

Immediately after execution and delivery of the contract, and before the first partial payment is made, the Contractor shall deliver to the Tribe an estimated construction progress schedule in a form satisfactory to the Tribe, showing the proposed dates of commencement and completion of each of the various sub-divisions of work required under the Contract Documents and the anticipated amount of each monthly payment that will become due the Contractor in accordance with the progress schedule. The Contractor shall also furnish on forms to be supplied by the Tribe (a) a detailed estimate giving a complete breakdown of the contract price and (b) periodic itemized estimates of work done for the purpose of making partial payment thereon. The costs employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a base for additions to or deductions from the Contract price.

24. **Progress Payments**

The successful Bidder(s) shall submit “Architect Form G702 and G703” each month. Payments made shall be viewed by both parties as progress payments and shall not, in any way, relieve the Contractor of performance obligations under the contract, nor shall payment be viewed as approval or acceptance of work performed under this contract.

Final payment of retainage (5%) shall be withheld until all provisions of the contract are met and the Tribe receives the following, with the final payment request:

(a) Final completion report certifying compliance with all provisions of the contract, including necessary clean-up and punch list items.

(b) Letter from bonding company authorizing final payment.

(c) Approved Affidavits of Wages Paid by Contractor and subcontractor.

(d) Expiration of the thirty (30) day lien period and release from the State of Washington Departments of Revenue, Employment Security, and Labor and Industries. Any liens must also be settled.

(e) Guarantee effective from the date of acceptance by the Tribe.
25. **Acceptance of Final Payment as Release**

The acceptance by the Contractor of final payment shall be and shall operate as a release to the Tribe of all claims and all liability to the Contractor for all things done or furnished in connection with this work, and for every act and neglect of the Tribe and others relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Contractor or his Sureties from any obligation under this contract or the Performance and Payment Bond.

26. **Payments by Contractor**

The Contractor shall pay (a) for all transportation and utility services not later than the twentieth day of the calendar month following that in which services are rendered, (b) for all materials, tools, and other expendable equipment to the extent of ninety percent of the cost thereof, not later than the twentieth day of the calendar month following that in which such materials, tools and equipment are delivered at the project site, and the balance of the cost thereof not later than the thirtieth day following the completion of that part of the work in or on which such materials, tools, and equipment are incorporated or used and (c) to each of his subcontractors, not later than the fifth day following each payment to the Contractor, the respective amount allowed the Contractor on account of the work performed by his subcontractors to the extent of each subcontractors interest therein.

27. **Additional or Substitute Bond**

If at any time the Tribe, for justifiable cause, shall be or become dissatisfied with the Surety or Sureties for the Performance and/or Payment Bonds, the Contractor shall, within five days after notice from the Tribe to do so, substitute an acceptable bond (or bonds) in such form and sum and signed by such other Surety or Sureties as may be satisfactory to the Tribe. No further payments shall be deemed due nor shall be made until the new Surety or Sureties shall have furnished such an acceptable bond to the Tribe.

28. **Assignments**

The Contractor shall not assign the whole or any part of this contract or any monies due or to become due hereunder without written consent of the Tribe. In case the Contractor assigns all or any part of any monies due or to become due under this contract, the instruments of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the Contractor shall be subject to prior claims of all persons, firms, and corporations for services rendered or material supplied for the performance of the work called for in this contract.

29. **Separate Contracts**

The Contractor shall cooperate with those of other Contractors. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of the work. The Contractor, including his subcontractors, shall keep informed on the progress and the detail work of the Contractors, and shall notify the Tribe immediately of lack of progress or defective workmanship on the part of the other Contractors. Failure of the Contractor to keep informed of the work progressing on the site, and failure to give notice of lack of progress or defective workmanship by other, shall be construed as acceptance by him of the status of the work as being satisfactory and in proper coordination with his own work.

30. **Subcontracting**

The Contractor may utilize the services of specialty subcontractors on those parts of the work which under normal contracting practices are performed by specialty contractors.
The Contractor shall not award any work to any subcontractor without prior written approval of the Tribe, which approval will not be given until the Contractor submits to the Tribe a written statement concerning the proposed award to the subcontractor, which statement shall contain such information as the Tribe may require.

The Contractor shall be as fully responsible to the Tribe for the acts and omissions of this subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts or omissions of persons directly employed by him.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and other contract documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Tribe may exercise over the Contractor under any provisions of the contract documents.

Nothing contained in this contract shall create any contractual relation between any subcontractor and the Tribe.

31. Use of Premises and Removal of Debris

The Contractor expressly undertakes, at his own expense:

(a) To take every precaution against injury to persons or damage to property;

(b) To store his apparatus, materials, supplies, and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other contractors;

(c) To place upon the work or any part thereof only such loads as are consistent with the safety of the portion of the work;

(d) To frequently clean up all refuse, rubbish, scrap metals, and debris caused by his operations, to the end that at all times the work site shall present a neat, orderly, and workmanlike appearance;

(e) Before final payment, remove all surplus materials, false-work, temporary structures, including foundations thereof, plant of any description, and debris of any nature resulting from his operations, and to put the site in a neat orderly condition;

(f) To effect all cutting, fitting, or patching of his work required to make the same to conform to the plans and specifications and, except with the consent of the Tribe, not to cut or otherwise alter the work of any other Contractor.

32. Quantities of Estimate

Whenever the estimated quantities of work to be done and materials to be furnished on a unit price basis under this contract are shown in any of the documents including the proposal, they are given for use in comparing bids, and the right is expressly reserved, except as herein otherwise specifically limited, to increase or decrease them as may be deemed necessary or desirable by the Tribe to complete the work contemplated by this contract, and such increase or decrease shall in no way vitiate this contract, nor shall any such increase or decrease give cause for claims or liability for damages.
33. **General Guarantee**

Neither the final certificate of payment, nor any provision in the contract documents, nor partial or entire occupancy by the Tribe, shall constitute an acceptance of work not done in accordance with the contract documents, or relieve the Contractor of liability in respect to any express warranties, or responsibility for any faulty material or workmanship. The Contractor shall remedy any defects in the work and pay for any damage for other work resulting therefrom, which shall appear within a period of one year from the date of final acceptance of work unless a longer period is specified. The Tribe will give notice of observed defects with reasonable promptness.

34. **Notice and Service Thereof**

Any notice to any Contractor from the Tribe relative to any part of this contract shall be in writing, and considered delivered and the service thereof completed, when said notice is posted, by certified or registered mail, to the said Contractor at his last given address, or delivered in person to said Contractor or his authorized representative on the work.

35. **Required Provisions Deemed Inserted**

Each and every provision of law and clause required by law to be inserted in this contract, shall be deemed to be inserted, and the contract shall be read and enforced as though it were included herein, and if, through mistake or otherwise, any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the contract shall forthwith be physically amended to make such insertion or correction.

36. **Use and Occupancy Prior to Acceptance by Tribe**

The Contractor agrees to the use and occupancy of a portion of the project before formal acceptance by the Tribe, provided the Tribe:

(a) Secures written consent of the Contractor.

(b) Secures consent of the Surety.

(c) Secures endorsement from the insurance carrier(s) permitting occupancy of the building or use of the project during the remaining period of construction.

37. **Suspension of Work**

Should the Tribe be prevented or enjoined from proceeding with work or from authorizing its prosecution, by reason of any litigation, the Contractor shall not be entitled to make or assert claim for damage by reason of such delay, but time for completion of the work will be extended to such reasonable time as the Tribe may determine will compensate for time lost by such delay, with such determination set forth in writing.

38. **Stipulation of Venue**

It is agreed by the Contractor that venue for any lawsuit arising out of this contract shall be Snohomish County. Contractors shall include a "Stipulation of Venue in Snohomish County" in all subcontracts hereunder. Should the contractor be a non-resident of Washington State, he shall designate a Washington resident as agent upon whom process may be served before commencing work under this contract.
39. Disputes and Litigation

Determination by Architect: Questions regarding meaning and intent of the Contract Documents shall be referred by the Contractor in writing to the Architect for his decision. If the Contractor disagrees with the Architect’s decision or considers that the decision requires extra work, he shall, within five days, notify the Architect in writing of the disagreement or of the claimed extra work involved and of the estimated cost of said work.

Appeals to the Tribe’s Representative: In the event the Contractor disagrees with any determination or decision of the Architect, the Contractor shall, within 15 days of the date of such determination or decision, appeal the determination or decision in writing to the Tribe’s Representative. Such written notice of appeal shall include all documents and other information that the Contractor believes necessary to substantiate the appeal.

The Tribe’s Representative will review the appeal and transmit his decision in writing to the Contractor within 30 days from the date or receipt of the appeal. Failure of the Contractor to appeal the decision or determination of the Architect within said 15 day period will constitute a waiver of the Contractor’s right to thereafter assert any claim resulting from such determination of decision.

Litigation: The Superior Court of Snohomish County, Washington, shall have exclusive jurisdiction and venue over all matters in question between the Tribe and Contractor. This contract shall be interpreted and construed in accordance with the laws of the State of Washington.

40. Performance, Payment & Warranty Bond and Labor & Materials Payment Bond

The Tribe shall have the right to require the Contractor to furnish bonds covering the faithful performance of the Contract and the payment of all obligations including labor and material payments arising during the Contract. These Bonds shall be provided as required in the Bidding Documents or in the Contract Documents.

41. Definition of Completion

The word "Completion", as used in the General Conditions and Specifications, shall be defined as "substantial completion". The date of substantial completion is the date certified by the Tribe, as the date construction is sufficiently complete, in accordance with the contract documents, as to allow the Tribe to occupy the project or designated portion thereof, for the use for which it is intended.
TECHNICAL SPECIFICATIONS
SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Project consists of site and building improvements to the existing Togstad Apartment building.

1. Project Location: 421 East Division Street. Arlington, Washington 98223

B. Owners Representative:

Chris Boser
Housing Director
Stillaguamish Tribe of Indians
3322 236th Street NE
P.O. Box 277
Arlington, WA 98223
Phone: (360) 575-3018

C. Architect:

2812 architecture
2812 Colby Ave.
Everett, WA 98201
Phone: (425) 252-2153
Email: office@2812architecture.com

D. Architects Consultants: The Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:

1. Civil Engineer:

OCE
2812 Colby Avenue
Everett, WA 98201
Email: ojerry26@yahoo.com

1.3 USE OF PREMISES
A. General: Contractor shall have full use of premises for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

END OF SECTION 01100
SECTION 01250 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

1.3 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within 14 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

   a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
   b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
   c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
5. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor.

1.6 CONSTRUCTION CHANGE DIRECTIVE


B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01250
SECTION 01290 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.3 DEFINITIONS

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

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor’s Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with Continuation Sheets.

b. Submittals Schedule.

2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the start of construction.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

a. Project name and location.
b. Name of Architect.
c. Architect’s project number.
d. Contractor’s name and address.
e. Date of submittal.

2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
   a. Related Specification Section or Division.
   b. Description of the Work.
   c. Name of subcontractor.
   d. Name of manufacturer or fabricator.
   e. Name of supplier.
   f. Change Orders (numbers) that affect value.
   g. Dollar value.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.

4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
   a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.

5. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

6. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
   a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

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

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

   1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
C. Payment Application Times: The date for each progress payment will be determined by Owner. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 15 days before the date for each progress payment.


E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
   1. Entries shall match data on the Schedule of Values and Contractor’s Construction Schedule. Use updated schedules if revisions were made.
   2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

F. Transmittal: Submit (3) signed and notarized original copies of each Application for Payment to Architect. One copy shall include waivers of lien and similar attachments if required.
   1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic’s Lien: With each Application for Payment, submit waivers of mechanic’s lien from every entity who is lawfully entitled to file a mechanic’s lien arising out of the Contract and related to the Work covered by the payment.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
   1. List of subcontractors.
   2. Schedule of Values.
   3. Contractor’s Construction Schedule (preliminary if not final).
   4. Products list.
   5. Schedule of unit prices.
   7. List of Contractor’s staff assignments.
   8. List of Contractor’s principal consultants.
   11. Initial progress report.
   13. Certificate of insurance and insurance policies.
   15. Data needed to acquire Owner’s insurance.
   16. Initial settlement survey and damage report if required.
I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01290
SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

   1. General project coordination procedures.
   2. Conservation.
   3. Coordination Drawings.
   4. Administrative and supervisory personnel.
   5. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

   1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

   1. Preparation of Contractor's Construction Schedule.
   2. Preparation of the Schedule of Values.
   3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

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

1.4 ADMINISTRATIVE AND SUPERVisory PERSONNEL

A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

1. Include special personnel required for coordination of operations with other contractors.

1.5 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within (3) days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than (15) days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
   a. Tentative construction schedule.
   b. Phasing.
c. Critical work sequencing.
d. Designation of responsible personnel.
e. Procedures for processing field decisions and Change Orders.
f. Procedures for processing Applications for Payment.
g. Distribution of the Contract Documents.
h. Submittal procedures.
i. Preparation of Record Documents.
j. Use of the premises.
k. Responsibility for temporary facilities and controls.
l. Parking availability.
m. Office, work, and storage areas.
n. Equipment deliveries and priorities.
o. First aid.
q. Progress cleaning.
r. Working hours.

C. Progress Meetings: Conduct progress meetings at regular intervals. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

b. Review present and future needs of each entity present, including the following:

1) Interface requirements.
2) Sequence of operations.
3) Status of submittals.
4) Deliveries.
5) Off-site fabrication.
6) Access.
7) Site utilization.
8) Temporary facilities and controls.
9) Work hours.
10) Hazards and risks.
11) Progress cleaning.
12) Quality and work standards.
13) Change Orders.
14) Documentation of information for payment requests.

3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

   a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01310
SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Preliminary Construction Schedule.
2. Contractor's Construction Schedule.
3. Daily construction reports.
4. Special reports.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
2. Predecessor activity is an activity that must be completed before a given activity can be started.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

F. Major Area: A story of construction, a separate building, or a similar significant construction element.
G. Milestone: A key or critical point in time for reference or measurement.

H. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

1.4 SUBMITTALS

A. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

B. Preliminary Construction Schedule: Submit two printed copies; one a single sheet of reproducible media, and one a print.

C. Contractor's Construction Schedule: Submit two printed copies of initial schedule, one a reproducible print and one a blue- or black-line print, large enough to show entire schedule for entire construction period.

D. Daily Construction Reports: Submit two copies at weekly intervals.

E. Special Reports: Submit two copies at time of unusual event.

1.5 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

C. Auxiliary Services: Cooperate with photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities including temporary lighting.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
2. Startup and Testing Time: Include not less than 14 days for startup and testing.
3. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
6. Work Restrictions: Show the effect of the following items on the schedule:
   a. Coordination with existing construction.
   b. Limitations of continued occupancies.
   c. Uninterruptible services.
   d. Partial occupancy before Substantial Completion.
   e. Use of premises restrictions.
   g. Seasonal variations.
   h. Environmental control.

2.2 PRELIMINARY CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within seven days of date established for the Notice to Proceed.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)
A. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.

2.4 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. High and low temperatures and general weather conditions.
5. Accidents.
6. Meetings and significant decisions.
7. Unusual events (refer to special reports).
8. Stoppages, delays, shortages, and losses.
9. Meter readings and similar recordings.
10. Emergency procedures.
11. Orders and requests of authorities having jurisdiction.
12. Change Orders received and implemented.
13. Construction Change Directives received.
14. Services connected and disconnected.
15. Equipment or system tests and startups.
16. Partial Completions and occupancies.
17. Substantial Completions authorized.

2.5 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION (not used)

END OF SECTION 01320
SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

   a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architects receipt of submittal.

   1. Initial Review: Allow seven days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.

   2. Concurrent Review: Where concurrent review of submittals by Architect’s consultants, Owner, or other parties is required, allow 14 days for initial review of each submittal.

D. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review if received from sources other than Contractor.

   1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by
Architect on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.

2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.

PART 2 - PRODUCTS

2.1 SUBMITTALS

A. General: Prepare and submit Submittals required by individual Specification Sections.

1. Number of Copies: Submit four copies of each submittal, unless otherwise indicated. Architect will return at least two copies. Mark up and retain one returned copy as a Project Record Document.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
   a. Manufacturer's written recommendations.
   b. Manufacturer's product specifications.
   c. Manufacturer's installation instructions.
   d. Standard color charts.
   e. Manufacturer's catalog cuts.
   f. Wiring diagrams showing factory-installed wiring.
   g. Printed performance curves.
   h. Operational range diagrams.
   i. Mill reports.
   j. Standard product operating and maintenance manuals.
   k. Compliance with recognized trade association standards.
   l. Compliance with recognized testing agency standards.
   m. Application of testing agency labels and seals.
   n. Notation of coordination requirements.
C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Include the following information, as applicable:
   a. Dimensions.
   b. Identification of products.
   c. Fabrication and installation drawings.
   d. Roughing-in and setting diagrams.
   e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
   f. Shopwork manufacturing instructions.
   g. Templates and patterns.
   h. Schedules.
   i. Design calculations.
   j. Compliance with specified standards.
   k. Notation of coordination requirements.
   l. Notation of dimensions established by field measurement.

2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

D. Samples: Prepare physical units of materials or products, including the following:

1. Comply with requirements in Division 1 Section "Quality Requirements" for mockups.
2. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
3. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side that includes the following:
   a. Generic description of Sample.
   b. Product name or name of manufacturer.
   c. Sample source.

5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
6. Number of Samples for Initial Selection: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit three copies of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."

B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

C. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that installer complies with requirements and, where required, is authorized for this specific Project.

F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

G. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.

H. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

I. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.
J. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

K. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

M. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

N. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures."

O. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

P. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.
Q. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

R. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

S. Material Safety Data Sheets: Submit information directly to Owner. If submitted to Architect, Architect will not review this information but will return it with no action taken.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
SECTION 01400 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.

2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.

3. Requirements for Contractor to provide quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

C. Related Sections include the following:

1. Division 1 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.

2. Division 1 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.

3. Divisions 2 through 16 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with
requirements. Services do not include contract enforcement activities performed by Architect.

C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.4 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.5 REGULATORY REQUIREMENTS

1.6 SUBMITTALS

A. Qualification Data: For testing agencies specified in “Quality Assurance” Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Description of test and inspection.
3. Identification of applicable standards.
4. Identification of test and inspection methods.
5. Number of tests and inspections required.
6. Time schedule or time span for tests and inspections.
7. Entity responsible for performing tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

D. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Ambient conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

E. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

B. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

C. 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.

D. 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.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
1. Requirement for specialists shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.

G. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.

H. Preconstruction Testing: Testing agency shall perform preconstruction testing for compliance with specified requirements for performance and test methods.

1. Contractor responsibilities include the following:
   a. Provide test specimens and assemblies representative of proposed materials and construction. Provide sizes and configurations of assemblies to adequately demonstrate capability of product to comply with performance requirements.
   b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
   c. Fabricate and install test assemblies using installers who will perform the same tasks for Project.
   d. When testing is complete, remove assemblies; do not reuse materials on Project.

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

1.8 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner’s responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.

2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.

3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
a. Contractor shall not employ the same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.

3. Where quality-control services are indicated as Contractor’s responsibility, submit a certified written report, in duplicate, of each quality-control service.

4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor’s responsibility.

5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Special Tests and Inspections: Owner will engage a testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.

1. Testing agency will notify Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

2. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.

3. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.

4. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

5. Testing agency will retest and reinspect corrected work.

D. Manufacturer’s Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.

E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor’s responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.


1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.

5. Do not perform any duties of Contractor.
G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field-curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

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 Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
2. Comply with the Contract Document requirements for Division 1 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

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

END OF SECTION 01400
SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

B. Temporary utilities include, but are not limited to, the following:

1. Sewers and drainage.
2. Water service and distribution.
3. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
4. Heating and cooling facilities.
5. Ventilation.
6. Electric power service.
7. Lighting.
8. Telephone service.

C. Support facilities include, but are not limited to, the following:

1. Temporary roads and paving.
2. Dewatering facilities and drains.
3. Project identification and temporary signs.
5. Field offices.
6. Storage and fabrication sheds.
7. Lifts and hoists.
8. Temporary stairs.
9. Construction aids and miscellaneous services and facilities.

D. Security and protection facilities include, but are not limited to, the following:

1. Environmental protection.
2. Stormwater control.
3. Tree and plant protection.
4. Site enclosure fence.
5. Security enclosure and lockup.
6. Barricades, warning signs, and lights.
7. Covered walkways.
8. Temporary enclosures.
9. Temporary partitions.
10. Fire protection.

1.3 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Owner's construction forces.
2. Occupants of Project.
3. Architect.
4. Testing agencies.
5. Personnel of authorities having jurisdiction.

B. Water Service: Use water from Owner's existing water system without metering and without payment of use charges.

C. Electric Power Service: Electric power from Owner's existing power system without metering and without payment of use charges.

1.4 QUALITY ASSURANCE

A. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.


C. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry."

D. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
E. Water: Potable.

2.2 EQUIPMENT

A. General: Provide equipment suitable for use intended.

B. Field Offices: Mobile units with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading.

C. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
   1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

D. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

E. Drinking-Water Fixtures: Containerized, bottled-water drinking-water units including paper cup supply.

F. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
   1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
   2. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed.

G. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

H. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
3. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel who handle materials that require wash up. Dispose of drainage properly. Supply cleaning compounds appropriate for each type of material handled.

B. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed.

1. Maintain a minimum temperature of 50 deg F in permanently enclosed portions of building for normal construction activities, and 65 deg F for finishing activities and areas where finished Work has been installed.

C. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

D. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

E. Telephone Service: Provide temporary telephone service throughout construction period for common-use facilities used by all personnel engaged in construction activities. Install separate telephone line for each field office and first-aid station.

1. At construction office telephone, post a list of important telephone numbers.
   a. Police and fire departments.
   b. Ambulance service.
3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.
2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.

C. Dewatering Facilities and Drains: Comply with requirements in applicable Division 2 Sections for temporary drainage and dewatering facilities and operations not directly associated with construction activities included in individual Sections. Where feasible, use same facilities. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining property nor endanger permanent Work or temporary facilities.
2. Before connection and operation of permanent drainage piping system, provide temporary drainage where roofing or similar waterproof deck construction is completed.
3. Remove snow and ice as required to minimize accumulations.

D. Common-Use Field Office: Provide an insulated, weathertight field office for use as a common facility by all personnel engaged in construction activities; of sufficient size to accommodate required office personnel and meetings of 10 persons at Project site. Keep office clean and orderly.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.
B. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains.

C. Site Enclosure Fence: Before construction operations begin, install portable chain-link enclosure fence with lockable entrance gates. Enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.

D. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

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

F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
   1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
   2. Vertical Openings: Close openings of 25 sq. ft. or less with plywood or similar materials.
   3. Horizontal Openings: Close openings in floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
   4. Install tarpaulins securely using fire-retardant-treated wood framing and other materials.
   5. Where temporary wood or plywood enclosure exceeds 100 sq. ft. in area, use fire-retardant-treated material for framing and main sheathing.

G. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
   1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.
      a. Field Offices: Class A stored-pressure water-type extinguishers.
      b. Other Locations: Class ABC dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for exposures.
      c. Locate fire extinguishers where convenient and effective for their intended purpose; provide 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 firefighting. Prohibit smoking in hazardous fire-exposure areas.
4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.

3.5 OPERATION, TERMINATION, AND REMOVAL

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

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour 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.

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

1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION 01500
SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers’ standard warranties on products; special warranties; product substitutions; and comparable products.

1.3 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer’s product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.

2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.

3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.
D. **Manufacturer's Warranty:** Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

E. **Special Warranty:** Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

1.4 **QUALITY ASSURANCE**

A. **Compatibility of Options:** If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

   1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
   2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.5 **PRODUCT DELIVERY, STORAGE, AND HANDLING**

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

   1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
   2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
   3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
   4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
   5. Store products to allow for inspection and measurement of quantity or counting of units.
   6. Store materials in a manner that will not endanger Project structure.
   7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
   8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
   9. Protect stored products from damage.

B. **Storage:** Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.
1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.

2.2 PRODUCT SUBSTITUTIONS
A. Timing: Architect will consider requests for substitution. Requests may be considered or rejected at discretion of Architect.

2.3 COMPARABLE PRODUCTS

A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.

2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.

3. Evidence that proposed product provides specified warranty.

4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.

5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01600
SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

2. Field engineering and surveying.
4. Coordination of Owner-installed products.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.
8. Correction of the Work.

B. Related Sections include the following:

1. Division 1 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
2. Division 1 Section "Submittal Procedures" for submitting surveys.
3. Division 1 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
4. Division 1 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

EXECUTION REQUIREMENTS 01700 - 1
3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping, and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
   a. Description of the Work.
   b. List of detrimental conditions, including substrates.
   c. List of unacceptable installation tolerances.
   d. Recommended corrections.

2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect and Owner not less than 10 days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's or Owner's written permission.

C. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.


3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for
mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

   1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.

   2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

   1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

   2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.

   3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

E. Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

   1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.

3.5 INSTALLATION
A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

   1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
   2. Allow for building movement, including thermal expansion and contraction.

G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction forces.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.

   1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
   2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive
3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

   2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

   1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

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

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01700
SECTION 01731 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

B. Related Sections include the following:

1. Divisions 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

   a. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 15 and 16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.3 DEFINITIONS

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

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

1.4 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

C. Miscellaneous Elements: Do not cut and patch elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.5 WARRANTY

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

PART 2 - PRODUCTS

2.1 MATERIALS

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

B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

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

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

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

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

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

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.

3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.

5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.

6. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and
appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

END OF SECTION 01731
SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

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

1.2 SUMMARY
   A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
      1. Inspection procedures.
      2. Project Record Documents.
      3. Operation and maintenance manuals.
      4. Warranties.
      5. Instruction of Owner's personnel.
      6. Final cleaning.
   B. Related Sections include the following:
      1. Divisions 2 through 16 Sections for specific closeout and special cleaning requirements for products of those Sections.

1.3 SUBSTANTIAL COMPLETION
   A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
      1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
      2. Advise Owner of pending insurance changeover requirements.
      3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
      4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
      5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
      6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

1.6 PROJECT RECORD DOCUMENTS

A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.

1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

   a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
   b. Accurately record information in an understandable drawing technique.
   c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
   d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.

2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
3. Mark important additional information that was either shown schematically or omitted from original Drawings.
4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where
installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

D. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.7 OPERATION AND MAINTENANCE MANUALS

A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:

1. Operation Data:
   a. Emergency instructions and procedures.
   b. System, subsystem, and equipment descriptions, including operating standards.
   c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
   d. Description of controls and sequence of operations.
   e. Piping diagrams.

2. Maintenance Data:
   a. Manufacturer's information, including list of spare parts.
   b. Name, address, and telephone number of Installer or supplier.
   c. Maintenance procedures.
   d. Maintenance and service schedules for preventive and routine maintenance.
   e. Maintenance record forms.
   f. Sources of spare parts and maintenance materials.
   g. Copies of maintenance service agreements.
   h. Copies of warranties and bonds.

B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.
1.8 Warranties

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.

3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 DEMONSTRATION AND TRAINING

A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Provide instructors experienced in operation and maintenance procedures.

2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.

3. Schedule training with Owner with at least seven days' advance notice.

4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.

3.2 FINAL CLEANING
A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

   a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
   b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
   c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
   d. Remove tools, construction equipment, machinery, and surplus material from Project site.
   e. Remove snow and ice to provide safe access to building.
   f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
   g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
   h. Sweep concrete floors broom clean in unoccupied spaces.
   i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
   j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
   k. Remove labels that are not permanent.
   l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

   1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

   m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
   n. Replace parts subject to unusual operating conditions.
   o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
q. Clean ducts, blowers, and coils if units were operated without filters during construction.
r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
s. Leave Project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01770
SECTION 02080 - PIPED UTILITIES - BASIC MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Piping materials and installation instructions common to most piping systems.
   2. Transition fittings.
   3. Sleeves.
   4. Identification devices.
   5. Grout.
   6. Piped utility demolition.

1.3 DEFINITIONS

A. Exposed Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions.

B. Concealed Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

C. The following are industry abbreviations for plastic materials:
   2. CPVC: Chlorinated polyvinyl chloride plastic.
   3. PE: Polyethylene plastic.
   4. PVC: Polyvinyl chloride plastic.

1.4 SUBMITTALS

A. Product Data: For the following:
   1. Dielectric fittings.
   2. Identification devices.

1.5 DELIVERY, STORAGE, AND HANDLING
A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

1.6 COORDINATION

A. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
   1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 PIPE, TUBE, AND FITTINGS

A. Refer to individual Division 2 piping Sections for pipe, tube, and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.3 JOINING MATERIALS

A. Refer to individual Division 2 piping Sections for special joining materials not listed below.

B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

D. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

E. Solvent Cements for Joining Plastic Piping:
   1. ABS Piping: ASTM D 2235.
   2. CPVC Piping: ASTM F 493.
   3. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
   4. PVC to ABS Piping Transition: ASTM D 3138.
2.4 TRANSITION FITTINGS

A. AWWA Transition Couplings: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.
   1. Manufacturers:
      b. Dresser Industries, Inc.; DMD Div.
      c. Ford Meter Box Company, Incorporated (The); Pipe Products Div.
      d. JCM Industries.
      e. Smith-Blair, Inc.
      f. Viking Johnson.
   2. Underground Piping NPS 1-1/2 and Smaller: Manufactured fitting or coupling.

B. Plastic-to-Metal Transition Fittings CPVC and PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint end.

C. Plastic-to-Metal Transition Unions: MSS SP-107, CPVC and PVC four-part union. Include brass end, solvent-cement-joint end, rubber O-ring, and union nut.

2.5 SLEEVES

A. Mechanical sleeve seals for pipe penetrations are specified in Division 15 Section "Basic Mechanical Materials and Methods."

B. Galvanized-Steel Sheet: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

C. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

D. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.


F. Molded PE: Reusable, PE, tapered-cup shaped, and smooth-outer surface with nailing flange for attaching to wooden forms.

2.6 GROUT

A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.
2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.1 PIPED UTILITY DEMOLITION

A. Refer to Division 1 Sections "Cutting and Patching" for general demolition requirements and procedures.

B. Disconnect, demolish, and remove piped utility systems, equipment, and components indicated to be removed.
   1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
   2. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
   3. Equipment to Be Removed: Disconnect and cap services and remove equipment.
   4. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make operational.
   5. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.2 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements and Division 2 Sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

D. Install piping to permit valve servicing.

E. Install piping at indicated slopes.

F. Install piping free of sags and bends.
G. Install fittings for changes in direction and branch connections.

H. Select system components with pressure rating equal to or greater than system operating pressure.

I. Sleeves are not required for core-drilled holes.

J. Install sleeves for pipes passing through concrete and masonry walls and concrete floor and roof slabs.
   1. Cut sleeves to length for mounting flush with both surfaces.
      a. Exception: Extend sleeves installed in floors of equipment areas or other wet areas 2 inches above finished floor level.
   2. Install sleeves in new walls and slabs as new walls and slabs are constructed.
      a. Steel Pipe Sleeves: For pipes smaller than NPS 6.
      b. Steel Sheet Sleeves: For pipes NPS 6 and larger, penetrating gypsum-board partitions.

K. Verify final equipment locations for roughing-in.

L. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.3 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 2 Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
   1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
   2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

E. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.
F. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
2. ABS Piping: Join according to ASTM D 2235 and ASTM D 2661 Appendixes.
3. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.
4. PVC Pressure Piping: Join schedule number ASTM D 1785. PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
5. PVC Nonpressure Piping: Join according to ASTM D 2855.
6. PVC to ABS Nonpressure Transition Fittings: Join according to ASTM D 3138 Appendix.

G. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D 3212.

3.4 PIPING CONNECTIONS

A. Make connections according to the following, unless otherwise indicated:

1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.

3.5 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

A. Install equipment level and plumb, unless otherwise indicated.

B. Install equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference with other installations. Extend grease fittings to an accessible location.

C. Install equipment to allow right of way to piping systems installed at required slope.

3.6 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Refer to Division 5 Section "Metal Fabrications" for structural steel.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor piped utility materials and equipment.

C. Field Welding: Comply with AWS D1.1.

3.7 GROUTING

A. Mix and install grout for equipment base bearing surfaces, pump and other equipment base plates, and anchors.
B. Clean surfaces that will come into contact with grout.
C. Provide forms as required for placement of grout.
D. Avoid air entrapment during placement of grout.
E. Place grout, completely filling equipment bases.
F. Place grout on concrete bases and provide smooth bearing surface for equipment.
G. Place grout around anchors.
H. Cure placed grout.

END OF SECTION 02080
SECTION 02300 - EARTHWORK

PART 1 - GENERAL

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

1.2 SUMMARY
   A. This Section includes the following:
      1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns, and plantings.
      2. Excavating and backfilling for buildings and structures.
      3. Drainage course for slabs-on-grade.
      4. Subbase course for concrete walks and pavements.
      5. Base course for asphalt paving.
      6. Subsurface drainage backfill for walls and trenches.
      7. Excavating and backfilling trenches within building lines.

1.3 DEFINITIONS
   A. Backfill: Soil materials used to fill an excavation.
      1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
      2. Final Backfill: Backfill placed over initial backfill to fill a trench.
   B. Base Course: Layer placed between the subbase course and asphalt paving.
   C. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.
   D. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
   E. Drainage Course: Layer supporting slab-on-grade used to minimize capillary flow of pore water.
   F. Excavation: Removal of material encountered above subgrade elevations.
      1. Additional Excavation: Excavation below subgrade elevations as directed by Architect. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
      2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Architect. Unauthorized excavation, as
well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Layer placed between the subgrade and base course for asphalt paving, or layer placed between the subgrade and a concrete pavement or walk.

J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

K. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Contact utility-locator service for area where Project is located before excavating.

B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT, or a combination of these group symbols.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
D. Backfill and Fill: Satisfactory soil materials.

E. Subbase: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2- inch sieve and not more than 12 percent passing a No. 200 sieve.

F. Base: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

G. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

H. Bedding: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

I. Drainage Fill: Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2- inch sieve and 0 to 5 percent passing a No. 8 sieve.

J. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.

K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.3 EXPLOSIVES
A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL
A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.5 EXCAVATION FOR STRUCTURES
A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS
A. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.

3.7 EXCAVATION FOR UTILITY TRENCHES
A. Excavate trenches to indicated gradients, lines, depths, and elevations.
B. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.
C. Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.

3.8 APPROVAL OF SUBGRADE
A. Notify Architect when excavations have reached required subgrade.

B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
   1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

C. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill may be used when approved by Architect.
   1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

3.11 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:
   1. Construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
   2. Surveying locations of underground utilities for record documents.
   3. Inspecting and testing underground utilities.
   4. Removing concrete formwork.
   5. Removing trash and debris.
   6. Removing temporary shoring and bracing, and sheeting.
   7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

3.12 UTILITY TRENCH BACKFILL
A. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

B. Backfill trenches excavated under footings and within 18 inches of bottom of footings; fill with concrete to elevation of bottom of footings.

C. Provide 4-inch-thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase.

D. Place and compact initial backfill of subbase material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.

   1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.

E. Coordinate backfilling with utilities testing.

F. Fill voids with approved backfill materials while shoring and bracing, and as sheeting is removed.

G. Place and compact final backfill of satisfactory soil material to final subgrade.

H. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.13 FILL

A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.

B. Place and compact fill material in layers to required elevations as follows:

   1. Under grass and planted areas, use satisfactory soil material.
   2. Under walks and pavements, use satisfactory soil material.
   3. Under steps and ramps, use engineered fill.
   4. Under building slabs, use engineered fill.
   5. Under footings and foundations, use engineered fill.

3.14 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.

   1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF BACKFILLS AND FILLS

A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
   1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill material at 95 percent.
   2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 92 percent.
   3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 85 percent.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
   1. Provide a smooth transition between adjacent existing grades and new grades.
   2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
   1. Lawn or Unpaved Areas: Plus or minus 1 inch.
   2. Walks: Plus or minus 1 inch.
   3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.17 SUBSURFACE DRAINAGE

A. Drainage Piping: Drainage pipe is specified in Division 2 Section "Foundation Drainage Systems."
3.18 SUBBASE AND BASE COURSES

A. Install separation fabric on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.

B. Under pavements and walks, place subbase course on prepared subgrade and as follows:
   1. Place base course material over subbase.
   2. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
   3. Shape subbase and base to required crown elevations and cross-slope grades.
   4. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.
   5. When thickness of compacted subbase or base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

3.19 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.20 PROTECTION
A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
   1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
   1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 02300
SECTION 02620 - SUBDRAINAGE

PART 1 - GENERAL

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

1.2 SUMMARY
   A. This Section includes subdrainage systems for the following:
      1. Foundations.
      2. Underslab areas.
      3. Landscaped areas.

PART 2 - PRODUCTS

2.1 DRAINAGE PIPES AND FITTINGS

2.2 CLEANOUTS
   A. PVC Pipe: ASTM D 3034, PVC cleanout threaded plug and threaded pipe hub.

2.3 MOLDED-SHEET DRAINAGE PANELS
   A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      1. American Wick Drain Corporation.
      3. GREENSTREAK/Western Textile Products.
      4. Ling Industrial Fabrics, Inc.
      5. TC Mirafi.

2.4 SOIL MATERIALS
A. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, ASTM D 448, coarse aggregate, Size No. 57, with 100 percent passing 1-1/2-inch sieve and not more than 5 percent passing No. 8 sieve.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces and areas for suitable conditions where subdrainage systems are to be installed.

B. If subdrainage is required for landscaping, locate and mark existing utilities, underground structures, and aboveground obstructions before beginning installation and avoid disruption and damage of services.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Division 2 Section "Earthwork."

3.3 IDENTIFICATION

A. Materials and their installation are specified in Division 2 Section "Earthwork." Arrange for installation of green warning tapes directly over piping.

1. Install warning tape or detectable warning tape over piping.

3.4 PIPING INSTALLATION

A. Install piping beginning at low points of system, true to grades and alignment indicated, with unbroken continuity of invert. Bed piping with full bearing in filtering material. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions and other requirements indicated.

1. Foundation Subdrainage: Install piping pitched down in direction of flow, at a minimum slope of 0.5 percent and with a minimum cover of 36 inches, unless otherwise indicated.
2. Lay perforated pipe with perforations down.
3. Lay open-joint pipe spaced as indicated on Drawings or, if not indicated, with 1/4-inch space between ends. Cover top two-thirds of joint opening with open-joint screening material and tie with corrosion-resistant wire.
4. Excavate recesses in trench bottom for bell ends of pipe. Lay pipe with bells facing upslope and with spigot end entered fully into adjacent bell.

B. Use increasers, reducers, and couplings made for different sizes or materials of pipes and fittings being connected. Reduction of pipe size in direction of flow is prohibited.
3.5 FOUNDATION SUBDRAINAGE CLEANOUT INSTALLATION

A. Install cleanouts from subdrainage piping to grade. Locate cleanouts at beginning of piping run and at changes in direction. Install fittings so cleanouts open in direction of flow in piping.

B. In vehicular-traffic areas, use NPS 4 cast-iron soil pipe and fittings for subdrainage piping branch fittings and riser extensions to cleanout plug. Set cleanout frames and covers in a cast-in-place concrete anchor, 18 by 18 by 12 inches in depth. Set top of cleanout plug flush with grade. Cast-iron pipe may also be used for cleanouts in nonvehicular-traffic areas.

C. In nonvehicular-traffic areas, use NPS 4 PVC pipe and fittings for subdrainage piping branch fittings and riser extensions to cleanout plug. Set cleanout frames and covers in a cast-in-place concrete anchor, 12 by 12 by 4 inches in depth. Set top of cleanout plug 1 inch above grade.

3.6 CONNECTIONS

A. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

3.7 FIELD QUALITY CONTROL

A. Testing: After installing drainage fill to top of pipe, test drain piping with water to ensure free flow before backfilling. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.

3.8 CLEANING

A. Clear interior of installed piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed. Place plugs in ends of uncompleted pipe at end of each day or when work stops.

END OF SECTION 02620
SECTION 02630 - STORM DRAINAGE

PART 1 - GENERAL

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

1.2 SUMMARY
   A. This Section includes storm drainage outside the building.

1.3 SUBMITTALS
   A. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.4 DELIVERY, STORAGE, AND HANDLING
   A. Do not store plastic structures, pipe, and fittings in direct sunlight.
   B. Protect pipe, pipe fittings, and seals from dirt and damage.
   C. Handle precast concrete manholes and other structures according to manufacturer's written rigging instructions.

1.5 PROJECT CONDITIONS
   A. Site Information: Perform site survey, research public utility records, and verify existing utility locations.
   B. Locate existing structures and piping to be closed and abandoned.
   C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
      1. Notify Architect not less than two days in advance of proposed utility interruptions.
      2. Do not proceed with utility interruptions without Architect's written permission.

PART 2 - PRODUCTS

2.1 MATERIALS
STORM DRAINAGE
A. As provided in Civil Drawings and as required by governing jurisdiction.

PART 3 - EXECUTION

3.1 EARTHWORK
   A. Excavating, trenching, and backfilling are specified in Division 2 Section "Earthwork."

3.2 IDENTIFICATION
   A. Materials and their installation are specified in Division 2 Section "Earthwork." Arrange
      for installing green warning tapes directly over piping and at outside edges of
      underground structures.
      1. Use warning tape or detectable warning tape over piping.

3.3 INSTALLATION, GENERAL
   A. General Locations and Arrangements: Drawing plans and details indicate general
      location and arrangement of underground storm drainage piping. Location and
      arrangement of piping layout take design considerations into account. Install piping as
      indicated, to extent practical.
   B. Install piping beginning at low point, true to grades and alignment indicated with
      unbroken continuity of invert. Place bell ends of piping facing upstream. Install
      gaskets, seals, sleeves, and couplings according to manufacturer's written instructions
      for use of lubricants, cements, and other installation requirements. Maintain swab or
      drag in line, and pull past each joint as it is completed.

3.4 FIELD QUALITY CONTROL
   A. Clear interior of piping and structures of dirt and superfluous material as work
      progresses. Maintain swab or drag in piping, and pull past each joint as it is
      completed.
      1. Place plug in end of incomplete piping at end of day and when work stops.
      2. Flush piping between manholes and other structures to remove collected debris.
   B. Inspect interior of piping to determine whether line displacement or other damage has
      occurred. Inspect after approximately 24 inches of backfill is in place, and again at
      completion of Project.
   C. Test new piping systems, and parts of existing systems that have been altered,
      extended, or repaired, for leaks and defects.

END OF SECTION 02630
SECTION 02741 - ASPHALT PAVING

PART 1 - GENERAL

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

1.2 SUMMARY
   A. This Section includes the following:
      1. Asphalt paving.
      2. Asphalt patching.

1.3 SYSTEM DESCRIPTION
   A. Provide asphalt paving as shown on civil drawings.

1.4 PROJECT CONDITIONS
   A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:
      1. Prime and Tack Coats: Minimum surface temperature of 60 deg F.
      2. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
      3. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.

PART 2 - PRODUCTS

2.1 MATERIALS
   A. See civil drawings for requirements.

PART 3 - EXECUTION

3.1 EXAMINATION
   A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.
B. Proof-roll subbase to locate areas that are unstable or that require further compaction.

C. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 PATCHING

A. Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.

B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd..

1. Allow tack coat to cure undisturbed before applying asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

C. Patching: Fill excavated pavements with asphalt base mix and, while still hot, compact flush with adjacent surface.

3.3 JOINTS

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.

1. Compact asphalt at joints to a density within 2 percent of specified course density.

3.4 SEAL COATING

A. Slurry Seal: Apply slurry coat in a uniform thickness according to ASTM D 3910 and allow to cure.

1. Roll slurry seal to remove ridges and provide a uniform, smooth surface.

3.5 FIELD QUALITY CONTROL

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

B. Remove and replace or install additional asphalt where test results or measurements indicate that it does not comply with specified requirements.

END OF SECTION 02741
SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

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

1.2 SUMMARY
   A. This Section specifies cast-in-place concrete, including formwork, reinforcement, concrete materials, mix design, placement procedures, and finishes.

1.3 SUBMITTALS
   A. Product Data: For each type of manufactured material and product indicated.
   B. Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
      1. Indicate amounts of mix water to be withheld for later addition at Project site.
   C. Steel Reinforcement Shop Drawings: Details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement." Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.

1.4 QUALITY ASSURANCE
   A. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
   B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
   C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING
A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.


D. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.


E. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, deformed, grade per structural drawings.

B. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

2.3 REINFORCEMENT ACCESSORIES

A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:

B. Joint Dowel Bars: Plain-steel bars, ASTM A 615/A 615M, Grade 60. Cut bars true to length with ends square and free of burrs.

2.4 CONCRETE MIX
A. Concrete mix as shown on structural drawings.

2.5 VAPOR RETARDERS
A. Vapor Retarder: Polyethylene sheet not less than 6 mils thick.
B. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D 448, Size 10, with 100 percent passing a No. 4 sieve and 10 to 30 percent passing a No. 100 sieve; meeting deleterious substance limits of ASTM C 33 for fine aggregates.

2.6 RELATED MATERIALS

2.7 FABRICATING REINFORCEMENT
A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

PART 3 - EXECUTION

3.1 FORMWORK
A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.
B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
D. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
E. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
F. Chamfer exterior corners and edges of permanently exposed concrete.
G. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

H. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

I. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor bolts, accurately located, to elevations required.

3.3 REMOVING FORMS

A. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.

3.4 VAPOR RETARDERS

A. Vapor Retarder: Place, protect, and repair vapor-retarder sheets according to ASTM E 1643 and manufacturer's written instructions.

B. Fine-Graded Granular Material: Cover vapor retarder with fine-grained granular material, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch or minus 3/4 inch.

3.5 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
E. Install welded wire fabric in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.6 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth as shown on structural drawings.

D. Dowel Joints: Install dowel sleeves and dowels or dowel bar and support assemblies at joints where indicated.

1. Use dowel sleeves or lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.7 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Before placing concrete, water may be added at Project site, subject to limitations of ACI 301.

C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.

D. Deposit concrete in forms in horizontal layers no deeper than 48 inches and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.

1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

3.8 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding ACI 347R limits for class of surface specified.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch in height.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.9 FINISHING FLOORS AND SLABS

A. General: Comply with recommendations in ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

C. Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

3.10 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
3.11  JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

C. Install semirigid epoxy joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.12  CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect’s approval.

3.13  FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Sampling and testing for quality control may include those specified in this Article.
PART 1 - GENERAL

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

1.2 SUMMARY
   A. This Section includes the following
      1. Steel pipe and tube handrails and railings.

1.3 PERFORMANCE REQUIREMENTS
   A. Structural Performance of Handrails and Railings: Provide handrails and railings complying with requirements of local building codes.
   B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.4 SUBMITTALS
   A. Shop Drawings: Show fabrication and installation of handrails and railings. Include plans, elevations, sections, component details, and attachments to other Work.

1.5 STORAGE
   A. Store handrails and railings in a dry, well-ventilated, weathertight place.

1.6 PROJECT CONDITIONS
   A. Field Measurements: Verify handrail and railing dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.7 COORDINATION
   A. Coordinate installation of anchorages for handrails and railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be...
embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.8 SCHEDULING

A. Schedule installation so handrails and railings are mounted only on completed walls. Do not support temporarily by any means that does not satisfy structural performance requirements.

PART 2 - PRODUCTS

2.1 METALS

A. General: Provide metal free from pitting, seam marks, roller marks, stains, discolorations, and other imperfections where exposed to view on finished units.

B. Steel and Iron: Provide steel and iron in the form indicated, complying with the following requirements:

1. Steel Tubing: Cold-formed steel tubing, ASTM A 500, Grade A, unless another grade is required by structural loads.

C. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated.

2.2 WELDING MATERIALS, FASTENERS, AND ANCHORS

A. Welding Electrodes and Filler Metal: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

B. Fasteners for Interconnecting Handrail and Railing Components: Use fasteners fabricated from same basic metal as fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.

1. Provide concealed fasteners for interconnecting handrail and railing components and for attaching them to other work, unless otherwise indicated.
2. Provide concealed fasteners for interconnecting handrail and railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are the standard fastening method for handrails and railings indicated.
3. Provide Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.

2.3 PAINT

A. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664;
selected for good resistance to normal atmospheric corrosion, compatibility with finish paint systems indicated, and capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.

2.4 FABRICATION

A. General: Fabricate handrails and railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.

B. Assemble handrails and railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

C. Form changes in direction of railing members as follows:
   1. By bending.

D. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.

E. Welded Connections: Fabricate handrails and railings for connecting members by welding. Cope components at perpendicular and skew connections to provide close fit, or use fittings designed for this purpose. Weld connections continuously to comply with the following:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove flux immediately.
   4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

F. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect handrail and railing members to other work, unless otherwise indicated.

G. Provide inserts and other anchorage devices for connecting handrails and railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by handrails and railings. Coordinate anchorage devices with supporting structure.

H. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.
I. Ease exposed edges. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.

J. Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.

K. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated. Close ends of returns, unless clearance between end of railing and wall is 1/4 inch or less.

L. Fillers: Provide fillers made from steel plate, or other suitably crush-resistant material, where needed to transfer wall bracket loads through wall finishes to structural supports. Size fillers to suit wall finish thicknesses and to produce adequate bearing area to prevent bracket rotation and overstressing of substrate.

2.5 FINISHES, GENERAL

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

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

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

D. Provide exposed fasteners with finish matching appearance, including color and texture, of handrails and railings.

2.6 STEEL FINISHES

A. Galvanized Handrails and Railings: Hot-dip galvanize exterior steel and iron handrails and railings to comply with ASTM A 123. Hot-dip galvanize hardware for exterior steel and iron handrails and railings to comply with ASTM A 153/A 153M.

B. For nongalvanized steel handrails and railings, provide nongalvanized ferrous-metal fittings, brackets, fasteners, and sleeves, except galvanize anchors to be embedded in exterior concrete or masonry.

C. Preparation for Shop Priming: After galvanizing, thoroughly clean handrails and railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic-phosphate process.

PART 3 - EXECUTION
3.1 EXAMINATION

A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements have been clearly marked for Installer. Locate reinforcements and mark locations if not already done.

3.2 INSTALLATION, GENERAL

A. Fit exposed connections together to form tight, hairline joints.

B. Perform cutting, drilling, and fitting required to install handrails and railings. Set handrails and railings accurately in location, alignment, and elevation; measured from established lines and levels and free from rack.

1. Do not weld, cut, or abrade surfaces of handrail and railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.

2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.

3. Align rails so variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.

C. Adjust handrails and railings before anchoring to ensure matching alignment at abutting joints. Space posts at interval indicated, but not less than that required by structural loads.

D. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing handrails and railings and for properly transferring loads to inplace construction.

3.3 RAILING CONNECTIONS

A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of handrails and railings.

B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.

3.4 ATTACHING HANDRAILS TO WALLS

A. Attach handrails to wall with wall brackets. Provide bracket with 1-1/2-inch clearance from inside face of handrail and finished wall surface.

B. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

C. Secure wall brackets to building construction as follows:
1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
2. For hollow masonry anchorage, use toggle bolts.
3. For wood stud partitions, use hanger or lag bolts set into wood backing between studs. Coordinate with carpentry work to locate backing members.
4. For steel-framed gypsum board assemblies, use hanger or lag bolts set into wood backing between studs. Coordinate with stud installation to locate backing members.
5. For steel-framed gypsum board assemblies, fasten brackets directly to steel framing or concealed reinforcements using self-tapping screws of size and type required to support structural loads.

3.5 CLEANING

A. Clean aluminum and stainless steel by washing thoroughly with clean water and soap and rinsing with clean water.

B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material.

C. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9 Section "Painting."

D. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.6 PROTECTION

A. Protect finishes of handrails and railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at the time of Substantial Completion.

B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 05521
SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

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

1.2 SUMMARY
   A. This Section includes the following:
      1. Framing with dimension lumber.
      2. Wood blocking and nailers.
      3. Sheathing.

1.3 DELIVERY, STORAGE, AND HANDLING
   A. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL
   A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
      1. Factory mark each piece of lumber with grade stamp of grading agency.
      2. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.
      3. Provide dry lumber with 15 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.

2.2 DIMENSION LUMBER
   A. General: Provide dimension lumber of grades indicated according to the American Lumber Standards Committee National Grading Rule provisions of the grading agency indicated.
   B. Exterior Framing: Construction or No. 2 grade and the following species:
      1. Douglas fir-larch; WCLIB or WWPA.
2. Hem-fir; WCLIB or WWPA.

C. Joists, Rafters, and Other Framing Not Listed Above: Construction or No. 2 grade and the following species:

1. Douglas fir-larch; WCLIB or WWPA.
2. Hem-fir; WCLIB or WWPA.

2.3 MISCELLANEOUS LUMBER

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

1. Blocking.
2. Cants.

B. For items of dimension lumber size, provide Construction, Stud, or No. 2 grade lumber with 19 percent maximum moisture content and the following species:

1. Hem-fir; WCLIB, or WWPA.

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

1. Hem-fir Superior or C & Btr Finish grade; WCLIB, or WWPA.

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

1. Hem-fir, Construction or 2 Common grade; WCLIB, or WWPA.

2.4 SHEATHING

A. Plywood Roof Sheathing: Exterior, Structural I sheathing.

1. Span Rating: Not less than 16/0.
2. Thickness: Not less than 5/8". See structural drawings.

2.5 FASTENERS

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

1. Where rough carpentry is exposed to weather, in ground contact provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails, Brads, and Staples: ASTM F 1667.
C. Power-Driven Fasteners: CABO NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1.

F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

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


2.6 MISCELLANEOUS MATERIALS

A. Building Paper: Asphalt-saturated organic felt complying with ASTM D 226, Type I (No. 15 asphalt felt), unperforated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

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

B. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

C. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.

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

1. CABO NER-272 for power-driven fasteners.

E. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.
3.2 WOOD BLOCKING, AND NAILER INSTALLATION

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

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build anchor bolts into masonry during installation of masonry work. Where possible, secure anchor bolts to formwork before concrete placement.

3.3 WOOD FRAMING INSTALLATION, GENERAL


B. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

C. Do not splice structural members between supports.

END OF SECTION 061000
SECTION 06105 - MISCELLANEOUS CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Framing with dimension lumber.
2. Equipment bases and support curbs.
3. Wood blocking, cant, and nailers.
4. Wood furring and grounds.
5. Sheathing.
7. Interior wood trim.
8. Shelving and clothes rods.

1.3 DEFINITIONS

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

1. NELMA - Northeastern Lumber Manufacturers Association.
2. NLGA - National Lumber Grades Authority.
3. SPIB - Southern Pine Inspection Bureau.
4. WCLIB - West Coast Lumber Inspection Bureau.
5. WWPA - Western Wood Products Association.

1.4 SUBMITTALS

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

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
Include physical properties of treated materials, both before and after exposure to elevated temperatures when tested according to ASTM D 5516 and ASTM D 5664.
3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.5 DELIVERY, STORAGE, AND HANDLING
A. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL
A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
   1. Factory mark each piece of lumber with grade stamp of grading agency.
   2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
   3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
   4. Provide dressed lumber, S4S, unless otherwise indicated.
   5. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.
   6. Provide dry lumber with 15 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.
B. Wood Structural Panels:
   1. Plywood: As indicated on drawings.
   2. Oriented Strand Board: As indicated on drawings.
   3. Thickness: As needed to comply with requirements specified but not less than thickness indicated.
   4. Factory mark panels according to indicated standard.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS
A. Preservative Treatment by Pressure Process: AWPA C2 (lumber) except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).
1. Preservative Chemicals: Acceptable to authorities having jurisdiction.

2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry material after treatment. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.

D. Application: Treat items indicated on Drawings, and the following:
   1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
   2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
   3. Wood floor plates that are installed over concrete slabs directly in contact with earth.

2.3 DIMENSION LUMBER

A. General: Provide dimension lumber of grades indicated according to the American Lumber Standards Committee National Grading Rule provisions of the grading agency indicated.

B. Non-Load-Bearing Interior Partitions: No 2 grade and any of the following species:
   1. Hem-fir or Hem-fir (north); NLGA, WCLIB, or WWPA.
   2. Western woods; WCLIB or WWPA.

C. Other Framing: No. 2 grade and any of the following species:
   1. Douglas fir-larch; WCLIB or WWPA.
   2. Hem-fir; WCLIB or WWPA.

2.4 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction, including the following:
   1. Equipment bases and support curbs.
   2. Blocking.
   3. Cants.
   5. Furring.
B. For exposed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Hem-fir or Hem-fir (north), Superior or C & Btr Finish grade; NLGA, WCLIB, or WWPA.

2.5 INTERIOR WOOD TRIM

A. Softwood Lumber Trim for Transparent Finish (Stain or Clear Finish): Kiln-dried finished lumber (S4S) of one of the following species and grades:

1. Grade Superior or C & Btr Finish Douglas fir-larch; NLGA, WCLIB, or WWPA.

2.6 SHELVING AND CLOTHES RODS

A. Shelving: 3/4-inch.

1. Shelf Cleats: 3/4-by-5-1/2-inch boards with holes to receive clothes rods, of same species and grade indicated above for interior lumber trim for opaque finish.
2. Shelf Brackets: Prime-painted formed steel with provision to support clothes rod where rod is indicated.

2.7 PANEL PRODUCTS

A. Miscellaneous Concealed Plywood: Exterior sheathing, span rating to suit framing in each location, and thickness as indicated but not less than 1/2 inch.

B. Telephone and Electrical Equipment Backing Panels: Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2 inch thick.

2.8 FASTENERS

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

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


C. Power-Driven Fasteners: CABO NER-272.

D. Wood Screws: ASME B18.6.1.

E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
F. Lag Bolts: ASME B18.2.1.

G. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

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


2.9 METAL FRAMING ANCHORS

A. General: Provide galvanized steel framing anchors of structural capacity, type, and size indicated and acceptable to authorities having jurisdiction.


PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.

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

C. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.

D. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.

E. Countersink fastener heads on exposed carpentry work and fill holes with wood filler.

F. Use fasteners of appropriate type and length. Predrill members when necessary to avoid splitting wood.

3.2 WOOD GROUND, BLOCKING, AND NAILER INSTALLATION
A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

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

3.3 WOOD FURRING INSTALLATION

A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.

1. Fire block furred spaces of walls, at each floor level and at ceiling, with wood blocking or noncombustible materials accurately fitted to close furred spaces.

3.4 WOOD TRIM INSTALLATION

A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches long except where necessary. Stagger joints in adjacent and related standing and running trim. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints.

1. Match color and grain pattern across joints.
2. Install trim after gypsum board joint-finishing operations are completed.
3. Drill pilot holes in hardwood before fastening to prevent splitting. Fasten to prevent movement or warping. Countersink fastener heads and fill holes.
4. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining finish carpentry with 1/32-inch maximum offset for flush installation and 1/16-inch maximum offset for reveal installation.
SECTION 06200 – FINISH CARPENTRY

PART 1 - GENERAL

1.1 DESCRIPTION

A. Provide and install finish carpentry items indicated, including closed shelving, millwork, cabinets, hand rails, moldings, and trim. Hang wood doors, windows, and install hardware.

B. This Section includes:
1. Exterior Millwork, including: standing and running trim.
2. Interior Millwork, including: standing and running trim, cabinets and countertops.

1.2 DELIVERY, HANDLING AND STORAGE

A. Deliver materials at specified moisture content. Protect material from moisture damage during delivery and storage. Prime and back-prime all cabinets, and finish wood trim prior to delivery at the job.

1.3 SUBMITTALS

A. Product data. Unless otherwise indicated, submit the following for each type of product provided under work of this Section.

1. VOC data:
   a. Adhesives:
      1) Submit manufacturer's product data for adhesives. Indicate VOC limits of the product. Submit MSDS highlighting VOC limits.
      2) Submit Green Seal Certification to GS-36 and description of the basis for certification.
      3) Submit manufacturer's certification that products comply with SCAQMD #1168.
   b. Engineered Wood Products: Provide documentation that composite wood and agrifiber products contain no added urea-formaldehyde resins.

B. Shop Drawings:
1. Architect to be provided with copies of shop drawings of all millwork prior to fabrication as called for in these Specifications.

1.3 QUALITY ASSURANCE

C. VOC emissions: Provide low VOC products.
1. Adhesives and sealants: Comply with California's South Coast Air Quality Management District (SCAQMD) #1168
2. Aerosol adhesives: Comply with Green Seal GS-36
3. Clear wood finishes: Comply with SCAQMD #1113
4. Engineered Wood Products: Provide products with no added urea formaldehyde.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Lumber: As specified in Section 06100 – Rough Carpentry

B. Sheathing and Panel Products:
   1. Hardwood Wood Veneer Plywood: 3/4 inch thick veneer panels over a formaldehyde-free substrate.

2.2 WOOD CABINETS

A. Provide casework for following areas, per AWI Sections 100, 200 and 400:
   1. Full plywood construction cabinets in AWI Custom Grade, flush overlay design, with plastic laminate at countertops and all other exposed surfaces.
   2. Base, casing, trim, interior rail and wall caps and miscellaneous millwork: Select from the following, unless otherwise indicated:
      a. Hardwood derived from certified sustainable sources.
      b. Salvaged lumber.
      c. Finger jointed pine or any western softwood species.
      d. Low-emission Medium Density Fiberboard.
   3. Veneer panels:
      a. Substrate: Select from the following, unless otherwise indicated:
         1) Cellulose honeycomb core.
         2) Medium Density Fiberboard.
         3) Compressed straw particleboard.
   4. Veneer:
      a. Veneer: Select from the following, unless otherwise indicated:
         1) Certified sustainably harvested lumber.
      b. Biocomposite.
   5. Countertops
      a. Plastic Laminate: Refer to drawings
      b. Manufacturer: Wilsonart or as approved.
      c. Type: General purpose, 1/16 inch, high pressure laminate.
      d. Color: To be selected by Architect from Manufacturer’s standard colors.
      e. Surface finish: Satin or low luster surface.

2.3 FINISH MATERIALS

A. Cabinet Hardware:
   1. Cabinet Doors
   2. 1 pr. Hinges 73T – 5580 “Blum Mfg.”
   3. Pulls #66 – Don Jo
B. Cabinet Drawers:
   1. 1 pr. Drawer slide 3834 Accurite Mfg
   2. 1 ea. Pull #66 – 626 Don Jo

2.4 Molding, Trim, Chair Rail, Window Surrounds
   1. Type: \( \frac{3}{8} \)" thickness, beveled, size per drawing

PART 3 - EXECUTION

3.1 INSPECTION AND PREPARATION

A. Inspection: Examine and coordinate related work and adjacent surfaces prior to starting work of this section. Commencing finished carpentry work in each location constitutes acceptance of condition of subsurfaces and materials. Require removal and repair of substandard work.

B. General Requirements
   1. Prime and Backprime: Prime and backprime in accordance with Painting Section 09900.
   2. Millwork Installation: Do not install millwork until adjacent surfaces are thoroughly dry.

END OF SECTION
SECTION 07210 - BUILDING INSULATION

PART 1 - GENERAL

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

1.2 SUMMARY
A. This Section includes the following:
   1. Insulation under slabs-on-grade.
   2. Cavity wall insulation.
   3. Concealed building insulation.
   4. Vapor retarders.

1.3 SUBMITTALS
A. Product Data: For each type of product indicated.
B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for insulation products.

1.4 QUALITY ASSURANCE
A. Source Limitations: Obtain each type of building insulation through one source.

1.5 DELIVERY, STORAGE, AND HANDLING
A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS
A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Extruded-Polystyrene Board Insulation:
   a. DiversiFoam Products.
   b. Dow Chemical Company.
   c. Owens Corning.
   d. Tenneco Building Products.

2. Glass-Fiber Insulation:
   a. CertainTeed Corporation.
   c. Knauf Fiber Glass.
   d. Owens Corning.

3. Slag-Wool-/Rock-Wool-Fiber Insulation:
   a. Fibrex Insulations Inc.
   b. Owens Corning.
   c. Thermafiber.

2.2 INSULATING MATERIALS

A. General: Provide insulating materials that comply with requirements and with referenced standards.

   1. Preformed Units: Sizes to fit applications indicated; selected from manufacturer's standard thicknesses, widths, and lengths.

B. Extruded-Polystyrene Board Insulation: ASTM C 578, of type and density indicated below, with maximum flame-spread and smoke-developed indices of 75 and 450.

C. Unfaced, Slag-Wool-/Rock-Wool-Fiber Board Insulation: ASTM C 612, maximum flame-spread and smoke-developed indices of 15 and 0, respectively; passing ASTM E 136 for combustion characteristics.

D. Unfaced Mineral-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from glass; with maximum flame-spread and smoke-developed indices of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

E. Faced Mineral-Fiber Blanket Insulation: ASTM C 665, Type III (blankets with reflective membrane facing), Class A (membrane-faced surface with a flame spread of 25 or less); Category 1 (membrane is a vapor barrier), faced with foil-scrim-kraft, foil-scrim, or foil-scrim-polyethylene vapor-retarder membrane on one face; consisting of fibers manufactured from glass.

2.3 VAPOR RETARDERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
B. Products: Subject to compliance with requirements, provide one of the following:

C. Polyethylene Vapor Retarder: ASTM D 4397, 6 mils thick, with maximum permeance rating of 0.13 perm.

D. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for Sections in which substrates and related work are specified and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of substances harmful to insulations or vapor retarders, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

3.3 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice and snow.

C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

D. Water-Piping Coordination: If water piping is located on inside of insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.

E. Apply single layer of insulation to produce thickness indicated, unless multiple layers are otherwise shown or required to make up total thickness.

3.4 INSTALLATION OF GENERAL BUILDING INSULATION

A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with
adhesive or use mechanical anchorage to provide permanent placement and support of units.

B. Seal joints between closed-cell (nonbreathing) insulation units by applying adhesive, mastic, or seallant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.

C. Set vapor-retarder-faced units with vapor retarder to warm side of construction, unless otherwise indicated. Do not obstruct ventilation spaces, except for firestopping.

1. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.

D. Install mineral-fiber blankets in cavities formed by framing members according to the following requirements:

1. Use blanket widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
2. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.

E. For wood-framed construction, install mineral-fiber blankets according to ASTM C 1320 and as follows:

1. With faced blankets having stapling flanges, secure insulation by inset, stapling flanges to sides of framing members.
2. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to produce airtight installation after concealing finish material is in place.

F. Place loose-fill insulation into spaces and onto surfaces as shown, either by pouring or by machine blowing to comply with ASTM C 1015. Level horizontal applications to uniform thickness as indicated, lightly settle to uniform density, but do not compact excessively.

3.5 INSTALLATION OF VAPOR RETARDERS

A. General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

B. Seal vertical joints in vapor retarders over framing by lapping not less than two wall studs. Fasten vapor retarders to framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches o.c.

C. Seal overlapping joints in vapor retarders with adhesives or vapor-retarder tape according to vapor-retarder manufacturer's instructions. Seal butt joints and fastener
penetrations with vapor-retarder tape. Locate all joints over framing members or other solid substrates.

D. Firmly attach vapor retarders to substrates with mechanical fasteners or adhesives as recommended by vapor-retarder manufacturer.

E. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarder.

F. Repair any tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarder.

3.6 PROTECTION

A. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07210
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product data for each type of product specified, including details of construction relative to materials, dimensions of individual components, profiles, textures, and colors.

C. Samples for initial selection in the form of manufacturer's sample finishes showing the full range of colors and profiles available for each type of asphalt shingle indicated.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's unopened bundles or containers with labels intact.

B. Handle and store materials at Project site to prevent water damage, staining, or other physical damage. Store roll goods on end. Comply with manufacturer's recommendations for job-site storage, handling, and protection.

1.4 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installing asphalt shingles only when existing and forecasted weather conditions will permit work to be performed according to manufacturers' recommendations and warranty requirements, and when substrate is completely dry.

1.5 WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
B. Special Warranty: Submit a written warranty signed by manufacturer agreeing to repair or replace asphalt shingles that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, deformation or deterioration of asphalt shingles beyond normal weathering.

1. Warranty Period: Manufacturer's standard but not less than 50 years after date of Substantial Completion.

1.6 EXTRA MATERIALS

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

1. Furnish 1 square coverage of asphalt shingles, identical to those to be installed, in unbroken bundles.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. CertainTeed Corporation.
2. Elk Corporation of America.
3. GAF Building Materials Corporation.
4. Pabco Roofing Products.
5. Tamko Asphalt Products, Inc.

2.2 ASPHALT SHINGLES

A. Colors, Blends, and Patterns: Where manufacturer's standard products are indicated, provide asphalt shingles with the following requirements:

1. Provide Architect's selections from manufacturer's full range of colors, textures, and patterns for asphalt shingles of type indicated.

B. Laminated Asphalt Shingles: Mineral-surfaced, self-sealing, 3-tab, fiberglass-based, strip asphalt shingles, double-layer fiberglass mat construction with a random-cut sawtooth design complying with ASTM D 3018, Type I, and with the following requirements:

2. Fire-Test-Response Classification: Class A.
C. Hip and Ridge Shingles: Manufacturer's standard, factory-precut units to match asphalt shingles.

2.3 METAL TRIM AND FLASHING

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

2.4 ACCESSORIES

A. Breathable Membrane: a. Vaproshield; SlopeShieldSA commercial quality, self-adhering roofing underlayment membrane (vapor permeance rating of 59 perms).

B. Water and Ice Shield: Grace Water and Ice Shield or approved equal. As manufactured by Grace Construction Products 62 Whittemore Avenue; Cambridge, MA 02140 (866) 333-3SBM (3726) Fax: (410) 431-7392; www.graceconstruction.com

C. Nails: Hot-dip galvanized steel. Fasteners must be placed in the nailing area as described in the manufacturers installation instructions. Standard type roofing nails with 1" minimum dia. plastic washer should be used. Nail shanks should be made of minimum 12 gauge wire, and a minimum head diameter of 3/8 in. Nails should be long enough to penetrate through the existing rigid insulation and 3/4 in. into the roof deck.

1. Where nails are in contact with flashing, prevent galvanic action by providing nails made from the same metal as that of the flashing.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrate for compliance with requirements for substrates, installation tolerances, and other conditions affecting performance of asphalt shingles. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with noncorrosive roofing nails.

B. Coordinate installation with flashings and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roof sheathing have been installed and are securely fastened against movement.
3.3 INSTALLATION

A. General: Comply with manufacturer’s instructions and recommendations.
   1. Fasten asphalt shingles to roof sheathing with nails.

B. Breathable Membrane: Apply 1 layer of breathable membrane horizontally over entire surface to receive asphalt shingles, lapping succeeding courses a minimum of 6 inches, end laps a minimum of 12 inches, and hips and valleys a minimum of 18 inches. Fasten with sufficient number of roofing nails or noncorrosive staples to hold underlayment in place until asphalt shingle installation.

C. Water and Ice Shield: Apply water and ice shield at locations as shown on drawings.

D. Flashing: Install metal flashing and trim as indicated.

E. Install asphalt shingles, beginning at roof’s lower edge, with a starter strip of roll roofing or inverted asphalt shingles with tabs removed. Fasten asphalt shingles in the desired weather exposure pattern; use number of fasteners per shingle as recommended by manufacturer. Use vertical and horizontal chalk lines to ensure straight coursing.
   1. Cut and fit asphalt shingles at valleys, ridges, and edges to provide maximum weather protection. Provide same weather exposure at ridges as specified for roof. Lap asphalt shingles at ridges to shed water away from direction of prevailing wind.
   2. Use fasteners at ridges of sufficient length to penetrate sheathing as specified.

3.4 ADJUSTING

A. Replace any damaged materials installed under this Section with new materials that meet specified requirements.

END OF SECTION 07310
SECTION 07460 - CEMENT FIBER SIDING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fiber cement lap siding, trim, fascia, moulding and accessories, James Hardie HZ10 Engineered for Climate Siding.

1.2 REFERENCES


B. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.

1.3 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

B. Shop Drawings: Provide detailed drawings of atypical non-standard applications of cementitious siding materials which are outside the scope of the standard details and specifications provided by the manufacturer.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Minimum of 2 years experience with installation of similar products.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store siding on edge or lay flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.

C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.6 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.7 WARRANTY

A. Product Warranty: Limited, non-pro-rated product warranty.
   1. HardiePlank HZ10 Lap Siding for 30 years.
2. HardieTrim HZ Boards for 15 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: James Hardie Building Products, Inc., which is located at: 26300 La Alameda Suite 400; Mission Viejo, CA 92691; Toll Free Tel: 866-274-3464; Tel: 949-367-4980

2.2 SIDING

A. Lap Siding: HardiPlank lap siding as manufactured by James Hardie Building Products, Inc.
   1. Cedarmill lap siding, 5" exposure. Color per drawings.

B. Trim:

2.3 FASTENERS

A. Framing Fasteners:
   1. Wood Framing: As recommended by manufacturer.

2.4 UNDERLAYMENT

A. Synthetic Underlayment: Grace Ultra or approved equal. As manufactured by Grace Construction Products 62 Whittemore Avenue; Cambridge, MA 02140 (866) 333-3SBM (3726) Fax: (410) 431-7392; www.graceconstruction.com

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If framing preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Nominal 2 inch by 4 inch (51 m by 102 mm) wood framing selected for minimal shrinkage and complying with local building codes, including the use of water-resistant barriers or vapor barriers where required. Minimum 1-1/2 inches (38 mm) face and straight, true, of uniform dimensions and properly aligned.
   1. Install water-resistant barriers and claddings to dry surfaces.
   2. Repair any punctures or tears in the water-resistant barrier prior to the installation of the siding.
   3. Protect siding from other trades.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.
B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Install underlayment as required in accordance with local building code requirements.

D. The underlayment must be appropriately installed with penetration and junction flashing in accordance with local building code requirements.

3.3 INSTALLATION - HARDIEPLANK LAP SIDING

A. Install materials in strict accordance with manufacturer's installation instructions.

B. Substrate: As indicated on drawings.

C. Install a 1 ¼” starter strip to ensure a consistent plank angle.

D. Maintain clearance between siding and adjacent finished grade.

E. At the juncture of the roof and vertical surfaces, flashing and counterflashing shall be installed per the roofing manufacturer's instructions. Provide a 1" - 2" clearance between the roofing and the bottom edge of the siding and trim.

H. Allow minimum vertical clearance between the edge of siding and any other material in strict accordance with the manufacturer's installation instructions.

I. Maintain a 1/4" clearance between the bottom of JamesHardie products and horizontal flashing.

J. Wind Resistance: Where a specified level of wind resistance is required, Hardie Plank siding is installed to substrate and secured with a minimum two fasteners described in Table No. 6, 7 and 8 in National Evaluation Service Report No. NER-405.

1.1 INSTALLATION - HAR DiETRIM HZ10 BOARDS

A. Install materials in strict accordance with manufacturer's installation instructions. Install flashing around all wall openings.

B. Fasten through trim into structural framing or code complying sheathing. Fasteners must penetrate minimum 3/4 inch (19 mm) or full thickness of sheathing. Additional fasteners may be required to ensure adequate security.

C. Place fasteners no closer than 3/4 inch (19 mm) and no further than 2 inches (51 mm) from side edge of trim board and no closer than 1 inch (25 mm) from end. Fasten maximum 16 inches (406 mm) on center.

D. Maintain clearance between trim and adjacent finished grade.

E. Trim inside corner with a single board trim both side of corner.

F. Outside Corner Board Attach Trim on both sides of corner with 16 gage corrosion resistant finish nail 1/2 inch (13 mm) from edge spaced 16 inches (406 mm) apart,
weather cut each end spaced minimum 12 inches (305 mm) apart.

G. Allow 1/8 inch gap between trim and siding.

H. Seal gap with high quality, paint-able caulk.

I. Fasten through overlapping boards. Do not nail between lap joints.

J. Overlay siding with single board of outside corner board then align second corner board to outside edge of first corner board. Do not fasten HardieTrim boards to HardieTrim boards.

K. Install HardieTrim Fascia boards to rafter tails or to sub fascia.

1.2 FINISHING

A. Finish unprimed siding with a minimum one coat high quality, alkali resistant primer and one coat of either, 100 percent acrylic or latex or oil based, exterior grade topcoats or two coats high quality alkali resistant 100 percent acrylic or latex, exterior grade topcoat within 90 days of installation. Follow paint manufacturer's written product recommendation and written application instructions.

1.3 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.
SECTION 07620 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

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

1.2 SUMMARY
   A. This Section includes sheet metal flashing and trim in the following categories:
      1. Metal flashing.

1.3 PERFORMANCE REQUIREMENTS
   A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.

1.4 SUBMITTALS
   A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
   B. Product Data including manufacturer’s material and finish data, installation instructions, and general recommendations for each specified flashing material and fabricated product.
   C. Shop Drawings of each item specified showing layout, profiles, methods of joining, and anchorage details.

1.5 QUALITY ASSURANCE
   A. Installer Qualifications: Engage an experience Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

1.6 PROJECT CONDITIONS
   A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.
PART 2 - PRODUCTS

2.1 METALS

A. Galvanized Steel Sheet: ASTM A 526, G 90, commercial quality, or ASTM A 527, G 90, lock-forming quality, hot-dip galvanized steel sheet with 0.20 percent copper, mill phosphatized where indicated for painting; not less than 0.0396 inch thick, unless otherwise indicated.

B. Coil-Coated Galvanized Steel Sheet: Zinc-coated, commercial-quality steel sheet conforming to ASTM A 755, G 90 coating designation, coil coated with high-performance fluoropolymer coating not less than 0.0336 inch thick, unless otherwise indicated.

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Solder: ASTM B 32, Grade Sn50, used with rosin flux.

B. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened.

C. Asphalt Mastic: SSPC-Paint 12, solvent-type asphalt mastic, nominally free of sulfur and containing no asbestos fibers, compounded for 15-mil (0.4-mm) dry film thickness per coat.

D. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.

E. Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 7 Section "Joint Sealants."

F. Epoxy Seam Sealer: 2-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior and interior nonmoving joints, including riveted joints.

G. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.

H. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.

I. Roofing Cement: ASTM D 4586, Type I, asbestos free, asphalt based.

2.3 FABRICATION, GENERAL
A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA’s "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.

B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.

D. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.

E. Expansion Provisions: Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

F. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

G. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.

H. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.

I. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.
   1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

2.4 SHEET METAL FABRICATIONS

A. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements but not less than that listed below for each application and metal.

B. Exposed Trim, Gravel Stops, and Fasciae: Fabricate from the following material:
   1. Coil-Coated Galvanized Steel: 24 gauge minimum thickness.

C. Base Flashing: Fabricate from the following material:
   1. Galvanized Steel: 24 gauge minimum thickness.
   2. Coil-Coated Galvanized Steel: 24 gauge minimum thickness.
D. Counterflashing: Fabricate from the following material:
   1. Galvanized Steel: 24 gauge minimum thickness.
   2. Coil-Coated Galvanized Steel: 24 gauge minimum thickness.

E. Valley Flashing: Fabricate from the following material:
   1. Coil-Coated Galvanized Steel: 24 gauge minimum thickness.

F. Drip Edges: Fabricate from the following material:
   1. Coil-Coated Galvanized Steel: 24 gauge minimum thickness.

G. Eave Flashing: Fabricate from the following material:
   1. Coil-Coated Galvanized Steel: 24 gauge minimum thickness.

2.5 COIL-COATED GALVANIZED STEEL SHEET FINISH
A. High-Performance Organic Coating Finish: Apply the following system by coil-coating process on galvanized steel sheet as recommended by coating manufacturers and applicator.
   1. Fluoropolymer 2-Coat Coating System: Manufacturer’s standard 2-coat, thermocured system composed of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2.

PART 3 - EXECUTION

3.1 EXAMINATION
A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION
A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer’s installation instructions, and SMACNA’s "Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.

B. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
C. Roof-Edge Flashings: Secure metal flashings at roof edges according to FM Loss Prevention Data Sheet 1-49 for specified wind zone.

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

   1. Do not solder the following metals:
      a. Coil-coated galvanized steel sheet.

   2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.

E. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.

   1. Use joint adhesive for nonmoving joints specified not to be soldered.

F. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.

G. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.


H. Counterflashings: Coordinate installation of counterflashings with installation of assemblies to be protected by counterflashings. Install counterflashings in reglets or receivers. Secure in a waterproof manner by means of snap-in installation and sealant, lead wedges and sealant, interlocking folded seam, or blind rivets and sealant. Lap counterflushing joints a minimum of 2 inches and bed with sealant.

I. Equipment Support Flashing: Coordinate equipment support flashing installation with roofing and equipment installation. Weld or seal flashing to equipment support member.

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

   1. Turn lead flashing down inside vent piping, being careful not to block vent piping with flashing.

   2. Seal and clamp flashing to pipes penetrating roof, other than lead flashing on vent piping.
3.3 CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.

B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

END OF SECTION 07620
SECTION 07920 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes sealants for the following applications, including those specified by reference to this Section:

1. Exterior joints in the following vertical surfaces and nontraffic horizontal surfaces:
   a. Joints between different materials.
   b. Perimeter joints between materials and frames of doors and windows.
   c. Other joints as indicated.

2. Exterior joints in the following horizontal traffic surfaces:
   a. Control, expansion, and isolation joints in cast-in-place concrete slabs.
   b. Other joints as indicated.

3. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
   a. Perimeter joints of exterior openings where indicated.
   b. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
   c. Joints between plumbing fixtures and adjoining walls, floors, and counters.
   d. Other joints as indicated.

1.3 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
C. Product Certificates: Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.

D. Product Test Reports: From a qualified testing agency indicating sealants comply with requirements, based on comprehensive testing of current product formulations.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.

B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

C. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
2. When joint substrates are wet.

B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

PART 2 - PRODUCTS
2.1 PRODUCTS AND MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer’s full range for this characteristic.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Comply with ASTM C 920.

2.4 LATEX JOINT SEALANTS

A. Latex Sealant Standard: Comply with ASTM C 834.

2.5 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330.

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

3. Remove laitance and form-release agents from concrete.

4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond, do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such
contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions required.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.

E. Install sealants by proven techniques to comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses provided for each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealants from surfaces adjacent to joint.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

3.4 FIELD QUALITY CONTROL

A. Evaluation of Field-Test Results: Sealants not evidencing adhesive failure or noncompliance with other requirements, will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements.

3.5 CLEANING
A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

END OF SECTION 07920
SECTION 08110 - STEEL DOORS AND FRAMES

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Steel doors.
2. Steel door frames.

1.3 DEFINITIONS

A. Steel Sheet Thicknesses: Thickness dimensions, including those referenced in ANSI A250.8, are minimums as defined in referenced ASTM standards for both uncoated steel sheet and the uncoated base metal of metallic-coated steel sheets.

1.4 SUBMITTALS

A. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, sound and fire-resistance ratings, and finishes.

B. Shop Drawings: Show the following:

1. Elevations of each door design.
2. Details of doors including vertical and horizontal edge details.
3. Frame details for each frame type including dimensioned profiles.
4. Details and locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, accessories, joints, and connections.
7. Coordination of glazing frames and stops with glass and glazing requirements.

C. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

1.5 QUALITY ASSURANCE

A. Steel Door and Frame Standard: Comply with ANSI A 250.8, unless more stringent requirements are indicated.

1.6 DELIVERY, STORAGE, AND HANDLING
A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.

B. Inspect doors and frames on delivery for damage, and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinsh items match new work and are acceptable to Architect. Remove and replace damaged items that cannot be repaired as directed.

C. Store doors and frames at building site under cover. Place units on minimum 4-inch-high wood blocking. Avoid using nonvent plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove cartons immediately. Provide minimum 1/4-inch spaces between stacked doors to permit air circulation.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Hot-Rolled Steel Sheets: ASTM A 569/A 569M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

B. Cold-Rolled Steel Sheets: ASTM A 366/A 366M, Commercial Steel (CS), or ASTM A 620/A 620M, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.

2.2 DOORS

A. General: Provide doors of sizes, thicknesses, and designs indicated.

B. Interior Doors: Provide doors complying with requirements indicated below by referencing ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level: Level 2 and Physical Performance Level B (Heavy Duty), Model (Full Flush).

C. Exterior Doors: Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:

D. Door Louvers: Provide louvers for interior doors, where indicated, that comply with SDI 111C, with blades or baffles formed of 0.020-inch- thick, cold-rolled steel sheet set into 0.032-inch- thick steel frame.

E. Vision Lite Systems: Manufacturer’s standard kits consisting of glass lite moldings to accommodate glass thickness and size of vision lite indicated.

2.3 FRAMES
A. General: Provide steel frames for doors, transoms, sidelights, borrowed lights, and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.

B. Frames of 0.053-inch-thick steel sheet unless otherwise indicated.

C. Door Silencers: Except on weather-stripped frames, fabricate stops to receive three silencers on strike jambs of single-door frames and two silencers on heads of double-door frames.

D. Supports and Anchors: Fabricated from not less than 0.042-inch-thick, electrolytic zinc-coated or metallic-coated steel sheet.

E. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153/A 153M, Class C or D as applicable.

2.4 FABRICATION

A. General: Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at project site.

B. Exterior Door Construction: For exterior locations and elsewhere as indicated, fabricate doors, panels, and frames from metallic-coated steel sheet. Close top and bottom edges of doors flush as an integral part of door construction or by addition of 0.053-inch-thick, metallic-coated steel channels with channel webs placed even with top and bottom edges.

C. Interior Door Faces: Fabricate exposed faces of doors and panels, including stiles and rails of nonflush units, from the following material:

   1. Cold-rolled steel sheet.

D. Core Construction: Manufacturer's standard core construction that produces a door complying with SDI standards.

E. Clearances for Non-Fire-Rated Doors: Not more than 1/8 inch at jambs and heads, except not more than 1/4 inch between pairs of doors. Not more than 3/4 inch at bottom.

F. Clearances for Fire-Rated Doors: As required by NFPA 80.

G. Single-Acting, Door-Edge Profile: Square edge.

I. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.

J. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.

K. Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled, provide doors fabricated as thermal-insulating door and frame assemblies and tested according to ASTM C 236 or ASTM C 976 on fully operable door assemblies.

L. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.

M. Frame Construction: Fabricate frames to shape shown.
   1. Fabricate frames with mitered or coped and continuously welded corners.
   2. Provide welded frames with temporary spreader bars.

N. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.

O. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

P. Glazing Stops: Manufacturer's standard, formed from 0.032-inch- thick steel sheet.
   1. Provide nonremovable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
   2. Provide screw-applied, removable, glazing stops on inside of glass, louvers, and other panels in doors.

Q. Astragals: As required by NFPA 80 to provide fire ratings indicated.

2.5 FINISHES

A. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
B. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.

1. Except for frames located in existing walls or partitions, place frames before construction of enclosing walls and ceilings.
2. In metal-stud partitions, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Attach wall anchors to studs with screws.
3. Install fire-rated frames according to NFPA 80.
4. For openings 90 inches or more in height, install an additional anchor at hinge and strike jambs.

C. Door Installation: Comply with ANSI A250.8. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.

1. Fire-Rated Doors: Install within clearances specified in NFPA 80.

3.2 ADJUSTING AND CLEANING

A. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.

B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION 08110
SECTION 08200 - WOOD DOORS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Furnish and install doors as shown on Drawings and as specified herein. Refer to Door Schedule on Drawings for requirements of individual doors.

1.2 STANDARD SPECIFICATIONS


B. Provide U.L. labels for fire-rated doors.

1.3 CODES

Comply with requirements of the current edition of the Uniform Building Code.

1.4 SUBMITTALS

A. Submit manufacturer's published literature for specified products and accessories, including specifications, physical characteristics, performance data, and instructions, for review and approval by Contractor.

1.5 GUARANTEE

A. Provide one-year guarantee from final acceptance agreeing to repair or replace defective doors, which have warped (bowed, cupped or twisted). The guarantee shall also include refurbishing and reinstallation which may be required to repair or replacement of defective doors.

1.6 HANDLING

A. Store and protect doors to prevent damage, warping, or exposure to moisture. Protect surfaces from damage after installation.

PART 2 - PRODUCTS

2.1 DOORS

A. Doors:

1. Solid core, pre-hung, factory pre-finished and prepared for hardware. Flush Fir or approved equivalent.
2. See Door schedule for door sizes and locations. All interior doors shall be 1-3/4 thick, minimum.

2.2 DOOR FRAMES

A. Interior Door Frames: Shall be from solid stock or finger joint Fir pre-finished to match doors.

2.5 PROVISIONS FOR HARDWARE

A. Prepare doors and frames for hardware per hardware manufacturer's recommendations. See Section 08710 for Hardware.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set frames plumb and true and true and brace until securely and permanently anchored in place. Install doors and hardware and adjust to operate smoothly and evenly to Contractor's satisfaction. Install weather stripping at all exterior doors.

B. Install door hardware as described in Section 06200 - Finish Carpentry.

END OF SECTION
SECTION 08311 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Wall access doors and frames.
   2. Ceiling access doors and frames.

1.3 SUBMITTALS

A. Product Data: For each type of door and frame indicated. Include construction details relative to materials, individual components and profiles, finishes, and fire ratings (if required) for access doors and frames.

B. Shop Drawings: Show fabrication and installation details of customized doors and frames. Include plans, elevations, sections, details, and attachments to other Work.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain doors and frames through one source from a single manufacturer.

B. Fire-Rated Access Doors and Frames: Units complying with NFPA 80 that are identical to access door and frame assemblies tested for fire-test-response acceptable to authorities having jurisdiction:

1.5 COORDINATION

A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed equipment.

PART 2 - PRODUCTS

2.1 MANUFACTURERS
A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Access Doors:
   a. Acudor Products, Inc.
   c. Cendrex, Inc.
   d. Cesco Products.
   e. Elmdor/Stoneman; Div. of Acorn Engineering Co.
   f. Jensen Industries.
   g. J. L. Industries, Inc.
   h. Karp Associates, Inc.
   i. Larsen's Manufacturing Company.
   j. MIFAB Manufacturing, Inc.
   k. Milcor Limited Partnership.
   l. Nystrom Building Products Co.
   m. Precision Plumbing Products, Inc.
   n. Williams Bros. Corporation of America (The).

2.2 MATERIALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Cold-Rolled Steel Sheets: ASTM A 366/A 366M, Commercial Steel (CS), or ASTM A 620/A 620M, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness; with minimum thickness indicated representing specified nominal thickness according to ASTM A 568/A 568M. Electrolytic zinc-coated steel sheet, complying with ASTM A 591/A 591M, Class C coating, may be substituted at fabricator's option.

2.3 PAINT

A. Shop Primers: Provide primers that comply with Division 9 Section "Painting."

B. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664; selected for good resistance to normal atmospheric corrosion, compatibility with finish paint systems indicated, and capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.

C. Shop Primer for Metallic-Coated Steel: Organic zinc-rich primer complying with SSPC-Paint 20 and compatible with topcoat.

   1. Locations: wall and ceiling surfaces.
   2. Door: Minimum 0.060-inch- thick sheet metal, set flush with exposed face flange of frame.
   3. Frame: Minimum 0.060-inch- thick sheet metal with 1-inch wide, surface-mounted trim.
   4. Hinges: Continuous piano hinge.
   5. Latch: Screwdriver-operated cam latch.

2.5 FABRICATION

A. General: Provide access door assemblies manufactured as integral units ready for installation.

B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

C. Steel Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of supports indicated.
   1. Exposed Flanges: Nominal 1 to 1-1/2 inches wide around perimeter of frame.
   2. Provide mounting holes in frames to attach frames to metal or wood framing in plaster and drywall construction and to attach masonry anchors in masonry construction.

D. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.

2.6 STEEL FINISHES

A. Apply shop primer to uncoated surfaces of metal fabrications. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

2.7 PREPARATION

A. Advise installers of other work about specific requirements relating to access door and floor door installation, including sizes of openings to receive access door and frame, as well as locations of supports, inserts, and anchoring devices.

2.8 INSTALLATION

A. Comply with manufacturer's written instructions.

B. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finish surfaces.
C. Install flush with adjacent finish surfaces or recessed to receive finish material.

2.9 ADJUSTING AND CLEANING

A. Adjust doors and hardware after installation for proper operation.

B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

END OF SECTION 08311
SECTION 08320 - VINYL SLIDING DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following types of aluminum-framed windows:

   1. Sliding Patio Door.

1.3 PERFORMANCE REQUIREMENTS

A. Overall Standards: Comply with ANSI/AAMA/101/I.S.2, except where noted herein.

B. Manufacturer Qualifications:

   1. Minimum 10 years experience in producing vinyl windows.
   2. Member AAMA & NFRC.

1.4 SUBMITTALS

A. Product Data: Submit Manufacturers product data.

B. Shop Drawings: Include window schedule, elevations, sections, details, & multiple-window assembly details. Include head, sill & jamb conditions; operable parts & direction/handing; and special mullion reinforcement details.

C. Samples: Submit selection samples for verification, include the following:

   1. Exterior Color: Minimum 1x4 color chips.

D. Quality Assurance/Control Submittals:

   2. U-Factor and Structural Rating charts required for NFRC and AAMA labeling requirements.
   3. Installation Instructions: AAMA 2400, ("Mounting Flange Installation") or AAMA 2410 ("Flush Fin Installation").

1.5 QUALITY ASSURANCE
A. Installer Qualifications: An installer acceptable to aluminum window manufacturer for installation of units required for this Project.

B. Source Limitations: Obtain aluminum windows through one source from a single manufacturer.

C. Product Options: Information on Drawings and in Specifications establishes requirements for vinyl windows' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify aluminum window openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.7 DELIVERY STORAGE AND HANDLING

A. Comply with Manufacturer's/Dealer's ordering instructions and lead time requirements to avoid construction delays.

B. Delivery: Deliver materials in Manufacturer's standard packaging for protection of product.

C. Storage & Protection: Store products away from exposure to environmental conditions that may be harmful to materials.

D. Store materials off ground in an upright position. Provide cover from weather and construction activity.

E. Follow Manufacturer's instructions on label applied to units.

1.8 WARRANTY

A. Warranty Period: Ten years from date of Substantial Completion.

B. Guarantee windows against defects in materials and workmanship including costs for replacement parts and labor.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Products supplied by the following manufacturer:
B. Window Series: Milgard Style Line® Series

2.2 MANUFACTURED UNITS

A. Proprietary Products: Tubular Extruded Poly Vinyl Chloride (PVC) Windows
   1. Style Line® Series Doors
   2. Glazing
   3. Accessories

2.3 MATERIALS

A. Integral color PVC compound containing impact-resistant solid plasticizer, titanium
dioxide UV inhibitor, and surface and color stabilizers.

B. Weatherstripping:
   1. Vinyl compression bulb seal

2.4 SYSTEM DESCRIPTION

A. General Performance Requirements: Products and systems provided must be
manufactured, fabricated, and installed to the following performance criteria:
   2. U-Factor (NFRC 100): See drawings
   3. SHGC – Solar Heat Gain Coefficient (NFRC 200): See drawings

B. Structural Requirements: Products and systems provided must be capable of
withstanding wind loads based on testing units representative of those indicated for
Project that pass AAMA/NWWDA 101/I.S.2/NAFS, Uniform Structural Load Test:

C. Design Wind Loads: Determine design wind loads, according to ASCE, Section 6,
applicable to Product from basic wind speeds (MPH) at 33 feet above grade, based
upon mean roof heights indicated on Elevations.

2.5 DOOR TYPES

A. Sliding Patio Door –6630 Series, 1” nail fin setback
4. Structural Class: SD-LC35.
5. Hardware:
   a. Handle and lock: Interior and outside pull with lever-operated 1 point jamb lock.
   b. Keyed exterior cylinder lock. Schlage compatible
   c. Rollers: Two sets of dual stainless steel, 1-1/2" diameter rollers on raised monorail stainless steel track.

2.6 GLAZING
   A. Insulated Glass Units: ASTM E 774, Class A
      1. Glazing Type: Dual (Specify)
         a. SunCoatMAX® Low-E/Clear

2.7 INSECT SCREENS: Provide tight fitting screen (with hardware) for operating windows
   A. Sliding Screen (sliding glass doors)
      1. Frame: Roll-formed aluminum, 2" x 13/16".
      2. Hardware:
         a. Lock: Lever action.
         b. Rollers: 2 adjustable nylon rollers each at top and bottom.
   B. Screen Mesh:
      1. Charcoal colored fiberglass mesh.

2.8 FABRICATION
   A. Fabricate frames and sash with mitered and fusion welded corners and joints.
   B. Trim and finish corners and welds to match adjacent surfaces.
   C. Provide concealed metal reinforcements in sash frame for attachment of lock mechanism.
   D. Factory interior glaze (except Double Hung and Double Slider) with snap-on mitered PVC glazing stops matching bevels on the sash and frame. Insulated glass units shall be reglazable without dismantling sash framing.

2.9 FINISHES
   A. Frame and Sash Color: (Specify)
      1. Exterior: As selected from manufacturers standard colors.
2. Interior: White.

B. Hardware:
   1. Matched to interior frame finish

C. Screen Frame Color:
   1. Matched to exterior frame color

2.10 SOURCE QUALITY CONTROL
   A. Inspect doors in accordance with Manufacturer's Quality Control Program as required by AAMA Gold Label Certification.

PART 3 - EXECUTION

3.1 EXAMINATION
   A. Examine openings in which windows will be installed.
      1. Verify that framing complies with AAMA 2400 (Mounting Flange Installation) & AAMA 2410 (Flush Fin Installation).
      2. Verify that fasteners in framed walls are fully driven and will not interfere with window installation.
   B. Coordinate with responsible entity to correct unsatisfactory conditions.
   C. Commencement of work by installer is acceptance of substrate conditions.

3.2 INSTALLATION
   A. Install doors in framed walls in accordance with AAMA 2400 ("Mounting Flange Installation") and/or AAMA 2410 ("Flush Fin Installation").
   B. Do not remove temporary labels.
   C. Install insect screens.

3.3 ADJUSTING
   A. Adjust operating sashes and ventilators, screens, hardware, and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.

3.4 PROTECTION AND CLEANING
A. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.

B. Clean surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION 08320
SECTION 08530 - VINYL WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following types of aluminum-framed windows:
   1. Fixed windows.
   2. Horizontal Sliding Windows

1.3 PERFORMANCE REQUIREMENTS

A. Overall Standards: Comply with ANSI/AAMA/101/l.S.2, except where noted herein.

B. Manufacturer Qualifications:
   1. Minimum 10 years experience in producing vinyl windows.
   2. Member AAMA & NFRC.

1.4 SUBMITTALS

A. Product Data: Submit Manufacturers product data.

B. Shop Drawings: Include window schedule, elevations, sections, details, & multiple-window assembly details. Include head, sill & jamb conditions; operable parts & direction/handing; and special mullion reinforcement details.

C. Samples: Submit selection samples for verification, include the following:
   1. Exterior Color: Minimum 1x4 color chips.

D. Quality Assurance/Control Submittals:
   1. Qualifications: Proof of Manufacturer’s qualifications.
   2. U-Factor and Structural Rating charts required for NFRC and AAMA labeling requirements.
   3. Installation Instructions: AAMA 2400, (“Mounting Flange Installation”) or AAMA 2410 (“Flush Fin Installation”).

1.5 QUALITY ASSURANCE
A. Installer Qualifications: An installer acceptable to aluminum window manufacturer for installation of units required for this Project.

B. Source Limitations: Obtain aluminum windows through one source from a single manufacturer.

C. Product Options: Information on Drawings and in Specifications establishes requirements for vinyl windows' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify aluminum window openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.7 DELIVERY STORAGE AND HANDLING

A. Comply with Manufacturer's/Dealer's ordering instructions and lead time requirements to avoid construction delays.

B. Delivery: Deliver materials in Manufacturer's standard packaging for protection of product.

C. Storage & Protection: Store products away from exposure to environmental conditions that may be harmful to materials.

D. Store materials off ground in an upright position. Provide cover from weather and construction activity.

E. Follow Manufacturer's instructions on label applied to units.

1.8 WARRANTY

A. Warranty Period: Ten years from date of Substantial Completion.

B. Guarantee windows against defects in materials and workmanship including costs for replacement parts and labor.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Products supplied by the following manufacturer:
B. Window Series: Milgard Style Line® Series

2.2 MANUFACTURED UNITS
A. Proprietary Products: Tubular Extruded Poly Vinyl Chloride (PVC) Windows
   1. Style Line® Series Windows
   2. Glazing
   3. Accessories

2.3 MATERIALS
A. Integral color PVC compound containing impact-resistant solid plasticizer, titanium dioxide UV inhibitor, and surface and color stabilizers.

B. Weatherstripping:
   1. Vinyl compression bulb seal

2.4 SYSTEM DESCRIPTION
A. General Performance Requirements: Products and systems provided must be manufactured, fabricated, and installed to the following performance criteria:
   2. U-Factor (NFRC 100): See drawings
   3. SHGC – Solar Heat Gain Coefficient (NFRC 200): See drawings

B. Structural Requirements: Products and systems provided must be capable of withstanding wind loads based on testing units representative of those indicated for Project that pass AAMA/NWWDA 101/I.S.2/NAFS, Uniform Structural Load Test:

C. Design Wind Loads: Determine design wind loads, according to ASCE, Section 6, applicable to Product from basic wind speeds (MPH) at 33 feet above grade, based upon mean roof heights indicated on Elevations.

2.5 WINDOW TYPES
A. Horizontal Slider –6130 Series, 1" nail fin setback
3. Structural Class:
   a. 71-1/2" X 59-1/2" and smaller: HS-LC25.
   b. Larger than 71-1/2" x 59-1/2": HS-R20.
4. Hardware:
   a. Positive action locking mechanism.
   b. Nylon rollers, extruded vinyl snap-on monorail roller track.
5. Weatherstripping: Fin seal polypropylene pile.

B. Single Hung – 6230 Series, 1" nail fin setback
3. Structural Class: H-LC30
4. Hardware:
   a. Positive action locking mechanism.
   b. Concealed block and tackle balancer.
5. Weatherstripping: Fin seal polypropylene pile.

C. Picture Window with Horizontal Slider Frame - 6331 Series, 1" nail fin setback
2. Structural Class: F-C40.

2.6 GLAZING

A. Insulated Glass Units: ASTM E 774, Class A
   1. Glazing Type: Dual (Specify)
      a. SunCoatMAX® Low-E/Clear

2.7 INSECT SCREENS: Provide tight fitting screen (with hardware) for operating windows

A. Screen Frame:
   1. Cambered formed aluminum with rigid plastic corner keys.

B. Screen Mesh:
   1. Charcoal colored fiberglass mesh.

2.8 FABRICATION

A. Fabricate frames and sash with mitered and fusion welded corners and joints.
B. Trim and finish corners and welds to match adjacent surfaces.
C. Provide concealed metal reinforcements in sash frame for attachment of lock mechanism.
D. Factory interior glaze (except Double Hung and Double Slider) with snap-on mitered PVC glazing stops matching bevels on the sash and frame. Insulated glass units shall be reglazable without dismantling sash framing.

1. Note: Field glazing is required for large window units (over 40 sq. ft).

2.9 FINISHES

A. Frame and Sash Color: (Specify)
   1. Exterior: As selected from manufacturers standard colors.
   2. Interior: White.

B. Hardware:
   1. Matched to interior frame finish

C. Screen Frame Color:
   1. Matched to exterior frame color

2.10 SOURCE QUALITY CONTROL

A. Inspect windows in accordance with Manufacturer’s Quality Control Program as required by AAMA Gold Label Certification.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine openings in which windows will be installed.
   1. Verify that framing complies with AAMA 2400 (Mounting Flange Installation) & AAMA 2410 (Flush Fin Installation).
   2. Verify that fasteners in framed walls are fully driven and will not interfere with window installation.

B. Coordinate with responsible entity to correct unsatisfactory conditions.

C. Commencement of work by installer is acceptance of substrate conditions.

3.2 INSTALLATION

A. Install windows in framed walls in accordance with AAMA 2400 (“Mounting Flange Installation”) and/or AAMA 2410 (“Flush Fin Installation”).

B. Do not remove temporary labels.
C. Install insect screens on operable windows.

3.3 ADJUSTING

A. Adjust operating sashes and ventilators, screens, hardware, and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.

3.4 PROTECTION AND CLEANING

A. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.

B. Clean surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION 08530
SECTION 08712 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Commercial door hardware for the following:
   a. Swinging doors.

B. Products furnished, but not installed, under this Section include the following. Coordinating, purchasing, delivering, and scheduling remain requirements of this Section.

1. Cylinders for locks on aluminum and glass entrance doors.
2. Final replacement cores and keys to be installed by Owner.

1.3 SUBMITTALS

A. Product Data: Include installation details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening.
   a. Organize door hardware sets in same order as in the Door Hardware Schedule as shown on the drawings.
3. Content: Include the following information:
   a. Type, style, function, size, label, hand, and finish of each door hardware item.
   b. Manufacturer of each item.
c. Fastenings and other pertinent information.
d. Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
e. Explanation of abbreviations, symbols, and codes contained in schedule.
f. Mounting locations for door hardware.
g. Door and frame sizes and materials.

C. Keying Schedule: Prepared by or under the supervision of supplier, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations.

D. Maintenance Data: For each type of door hardware to include in maintenance manuals specified in Division 1.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Supplier Qualifications: Door hardware supplier with warehousing facilities in Project's vicinity and who is or employs a qualified Architectural Hardware Consultant, available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.

C. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.

D. Regulatory Requirements: Comply with provisions of the following:

1. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," and ANSI A117.1 as follows:
   a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
   b. Thresholds: Not more than 1/2 inch high. Bevel raised thresholds with a slope of not more than 1:2.

2. NFPA 101: Comply with the following for means of egress doors:
   a. Latches, Locks, and Exit Devices: Not more than 15 lbf to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.
   b. Door Closers: Not more than 30 lbf to set door in motion and not more than 15 lbf to open door to minimum required width.
   c. Thresholds: Not more than 1/2 inch high.
E. Fire-Rated Door Assemblies: Provide door hardware for assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.

F. Keying Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings." Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver keys to Owner by registered mail or overnight package service.

1.6 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner’s continued adjustment, maintenance, and removal and replacement of door hardware.

B. Maintenance Service: Beginning at Substantial Completion, provide six months’ full maintenance by skilled employees of door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door hardware operation. Provide parts and supplies as used in the manufacture and installation of original products.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in this Section and the Door Hardware Schedule.

1. Door Hardware Sets: Requirements for quantity, item, design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Schedule. Products are identified by descriptive titles corresponding to requirements specified.

2.2 HINGES
A. Standards: Comply with the following:

B. Hinge Applications: Unless otherwise indicated, provide the following:
   1. Heavy-weight hinges.

C. Hinge Options: Comply with the following:
   1. Nonremovable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the following applications:
      a. Outswinging exterior doors.

D. Fasteners: Comply with the following:
   2. Screws: Phillips flat-head screws; machine screws (drilled and tapped holes) for metal doors. Finish screw heads to match surface of hinges.

E. Antifriction-Bearing, Full-Mortise (Butt) Hinges: Heavy weight; BHMA Grade 1, with 4 ball bearings; button tips; nonrising removable pins; and base metal as follows:
   1. Base Metal: Cast, forged, or extruded brass or bronze.

2.3 LOCKS AND LATCHES

A. Standards: Comply with the following:

B. Mortise Locks: Stamped steel case with steel or brass parts; BHMA Grade 1 Series 1000.

C. Lock Trim: Comply with the following:
   1. Lever: Wrought, forged, or cast.
   2. Escutcheon (Rose): Wrought, forged, or cast.
   3. Dummy Trim: Match lever lock trim and escutcheons.

D. Lock Functions: Function and descriptions indicated in the Door Hardware Schedule.

2.4 CYLINDERS AND KEYING

A. Standards: Comply with the following:
   1. Cylinders: BHMA A156.5.

B. Cylinder Grade: BHMA Grade 1.
C. Cylinders: Manufacturer's standard tumbler type, constructed from brass or bronze, stainless steel, or nickel silver, and complying with the following:
   1. Number of Pins: Six.
   2. Mortise Type: Threaded cylinders with rings and straight- or clover-type cam.

D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
   1. Interchangeable Cores: Core insert, removable by use of a special key, and usable with other manufacturers' cylinders.

E. Construction Keying: Comply with the following:
   1. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.
      a. Furnish permanent cores to Owner for installation.

F. Keying System: Unless otherwise indicated, provide a factory-registered keying system complying with the following requirements:
   1. Existing System: Master key or grand master key locks to Owner's existing system.

G. Keys: Provide nickel-silver keys complying with the following:
   1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
      a. Notation: "DO NOT DUPLICATE."
   2. Quantity: In addition to one extra blank key for each lock, provide the following:
      b. Master Keys: Five.

2.5 Stops and Holders

A. Standards: Comply with the following:
   1. Stops and Bumpers: BHMA A156.16.
   2. Door Silencers: BHMA A156.16.

B. Stops and Bumpers: BHMA Grade 1.

C. Floor Stops: For doors, unless wall or other type stops are scheduled or indicated. Do not mount floor stops where they will impede traffic.
   1. Where floor or wall stops are not appropriate, provide overhead holders.
D. Silencers for Metal Door Frames: BHMA Grade 1; neoprene or rubber, minimum diameter 1/2 inch; fabricated for drilled-in application to frame.

E. Rigid Wall Stops: Polished aluminum; 3-1/2 inches long, with rubber bumper; surface-screw application.

F. Rigid Floor Stop: Polished aluminum, with rubber bumper; surface-screw application.

2.6 DOOR GASKETING

A. Standard: Comply with BHMA A156.22.

B. General: Provide continuous weather-strip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

C. Air Leakage: Not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283.

D. Fire-Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL 10B or NFPA 252.


F. Adhesive-Backed Perimeter Gasketing: Gasket material applied to frame rabbet with self-adhesive.


G. Overlapping Astragals for Meeting Stiles: Gasket material held in place by metal housing and overlapping when doors are closed; mounted to face of meeting stile with screws.

2. Housing Material: Aluminum.
3. Mounting: Surface mounted to one door.

H. Door Sweeps: Gasket material held in place by flat metal housing or flange; surface mounted to face of door with screws.

2. Housing Material: Aluminum.

2.7 THRESHOLDS

A. Standard: Comply with BHMA A156.21.

B. addle Thresholds: Type and base metal as follows:
1. Type: Thermal break and fluted top.
2. Base Metal: Aluminum.

2.8 FABRICATION

A. Manufacturer's Nameplate: Do not provide manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise approved by Architect.

1. Manufacturer's identification will be permitted on rim of lock cylinders only.

B. Base Metals: Produce door hardware units of base metal, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18 for finishes. Do not furnish manufacturer's standard materials or forming methods if different from specified standard.

C. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to commercially recognized industry standards for application intended. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.

1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.

2.9 FINISHES

A. Standard: Comply with BHMA A156.18.

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

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

PART 3 - EXECUTION

3.1 EXAMINATION
A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance of door hardware.

B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Steel Doors and Frames: Comply with DHI A115 series.

1. Surface-Applied Door Hardware: Drill and tap doors and frames according to SDI 107.

3.3 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

2. Custom Steel Doors and Frames: DHI's "Recommended Locations for Builders' Hardware for Custom Steel Doors and Frames."

B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

C. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

3.4 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final
operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Door Closers: Adjust sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.

3.5 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

END OF SECTION 08712
SECTION 08800 - GLAZING

PART 1 - GENERAL

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

1.2 SUMMARY
   A. This Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
      1. Windows.
      2. Doors.

1.3 PERFORMANCE REQUIREMENTS
   A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

   B. Glass Design: Glass thicknesses indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites for various size openings in nominal thicknesses indicated, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
      1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300.

   C. Thermal Movements: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

   D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:
      1. For insulating-glass units, properties are based on units with lites 1/4" thick and a nominal 1/2-inch- wide interspace.
1.4 SUBMITTALS

A. Product Data: For each glass product and glazing material indicated.

B. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for Project and whose work has resulted in construction with a record of successful in-service performance.

B. Source Limitations for Glass: Obtain glass from one primary-glass manufacturer.


1. Subject to compliance with requirements, permanently mark safety glass with certification label of Safety Glazing Certification Council or another certification agency acceptable to authorities having jurisdiction.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

B. For insulating-glass units that will be exposed to substantial altitude changes, comply with insulating-glass manufacturer's written recommendations for venting and sealing to avoid hermetic seal ruptures.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1.8 WARRANTY

A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
B. Manufacturer's Special Warranty on Coated-Glass Products: Written warranty, made out to Owner and signed by coated-glass manufacturer agreeing to furnish replacements for those coated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

1. Warranty Period: 10 years from date of Substantial Completion.

C. Manufacturer's Special Warranty on Insulating Glass: Written warranty, made out to Owner and signed by insulating-glass manufacturer agreeing to furnish replacements for insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PRIMARY FLOAT GLASS

A. Float Glass: ASTM C 1036, Type I (transparent glass, flat), Quality q3 (glazing select).

2.2 HEAT-TREATED FLOAT GLASS

A. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.

B. Fabrication Process: By vertical (tong-held) or horizontal (roller-hearth) process, at manufacturer's option, except provide horizontal process where indicated as tongless or free of tong marks.

C. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent glass, flat); Quality q3 (glazing select).

2.3 COATED FLOAT GLASS

A. General: Provide coated glass complying with requirements indicated in this Article.

1. Provide Kind HS (heat-strengthened) coated float glass in place of coated annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where safety glass is indicated.

2. Provide Kind HS (heat-strengthened) coated float glass, except provide Kind FT (fully tempered) products where coated safety glass is indicated.

2.4 INSULATING GLASS
A. Insulating-Glass Units: Preassembled units consisting of sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units and with requirements specified in this Article.

   1. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where safety glass is indicated.

B. Sealing System: Dual seal, with primary and secondary sealants as follows:

   1. Manufacturer's standard sealants.

C. Spacer Specifications: Manufacturer's standard spacer material and construction.

2.5 ELASTOMERIC GLAZING SEALANTS

A. General: Provide products of type indicated, complying with the following requirements:

   1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

   2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.

   3. Colors of Exposed Glazing Sealants: As indicated by manufacturer's designations.

2.6 GLAZING GASKETS

A. Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames with molded corner units and zipper lock strips, complying with ASTM C 542, black.

B. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal.

C. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned gaskets of material indicated below; complying with ASTM C 509, Type II, black; and of profile and hardness required to maintain watertight seal.

2.7 MISCELLANEOUS GLAZING MATERIALS
A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

2.8 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine framing glazing, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep system.
3. Minimum required face or edge clearances.
4. Effective sealing between joints of glass-framing members.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

3.3 GLAZING, GENERAL
A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.

C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.

E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

G. Provide spacers for glass lites where the length plus width is larger than 50 inches as follows:
   1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
   2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

H. Provide edge blocking where needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

3.4 TAPE GLAZING

A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
C. Where framing joints are vertical, cover these joints by applying tapes to heads and sills first and then to jambs. Where framing joints are horizontal, cover these joints by applying tapes to jambs and then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until just before each glazing unit is installed.

F. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

3.5 GASKET GLAZING (DRY)

A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with stretch allowance during installation.

B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.

C. Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

D. Install gaskets so they protrude past face of glazing stops.

3.6 SEALANT GLAZING (WET)

A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.

C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.7 LOCK-STRIP GASKET GLAZING

A. Comply with ASTM C 716 and gasket manufacturer's written instructions. Provide supplementary wet seal and weep system, unless otherwise indicated.
3.8 PROTECTION AND CLEANING

A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.

C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scum, alkaline deposits, or stains; remove as recommended by glass manufacturer.

D. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents, and vandalism, during construction period.

E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

END OF SECTION 08800
SECTION 09260 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Interior gypsum wallboard

1.3 SUBMITTALS

A. Product data. Unless otherwise indicated, submit the following for each type of product provided under work of this Section:

1. Recycled Content:
   a. Indicate recycled content; indicate percentage of pre-consumer and post-consumer recycled content per unit of product.
   b. Indicate relative dollar value of recycled content product to total dollar value of product included in project.
   c. If recycled content product is part of an assembly, indicate the percentage of recycled content product in the assembly by weight.
   d. If recycled content product is part of an assembly, indicate relative dollar value of recycled content product to total dollar value of assembly.

2. Local/Regional Materials:
   a. Sourcing location(s): Indicate location of extraction, harvesting, and recovery; indicate distance between extraction, harvesting, and recovery and the project site.
   b. Manufacturing location(s): Indicate location of manufacturing facility; indicate distance between manufacturing facility and the project site.
   c. Product Value: Indicate dollar value of product containing local/regional materials; include materials cost only.
   d. Product Component(s) Value: Where product components are sourced or manufactured in separate locations, provide location information for each component. Indicate the percentage by weight of each component per unit of product.

3. VOC data: Submit manufacturer's product data for joint compounds. Indicate VOC limits of the product. Submit MSDS highlighting VOC limits.

B. Submit environmental data in accordance with Table 1 of ASTM E2129 for products provided under work of this Section.
1.4 DEFINITIONS
A. Gypsum Board Terminology: Refer to ASTM C 11 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

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

1.6 DELIVERY, STORAGE, AND HANDLING
A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.

1.7 PROJECT CONDITIONS
A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

PART 2 - PRODUCTS

2.1 MATERIALS
A. Gypsum Board
   1. Recycled Content: Minimum 5 percent post-consumer recycled content, or minimum 20 percent pre-consumer recycled content at contractor's option.

2.2 ACCESSORIES
A. Reinforcing Tape:
   1. Toxicity/IEQ: Sheetrock Joint Tape. Paper; fiberglass joint tape not permitted.
B. Joint-Treatment Materials:
   1. Toxicity/IEQ: Lime compound. All-purpose joint and texturing compound containing inert fillers and natural binders. Pre-mixed compounds shall be free of antifreeze, vinyl adhesives, preservatives, biocides and other slow releasing compounds.
2.2 INTERIOR GYPSUM WALLBOARD

A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.

   1. Regular Type:
      a. Thickness: 5/8".
   2. Type X:
      a. Thickness: 5/8".

2.3 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.
   1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
   2. Shapes:
      a. Cornerbead: Use at outside corners.
      b. LC-Bead: J-shaped; exposed long flange receives joint compound; use at exposed panel edges.

2.4 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475.

B. Joint Tape:
   1. Interior Gypsum Wallboard: Paper.
   2. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
   3. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
   1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
   2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges.
      a. Use setting-type compound for installing paper-faced metal trim accessories.
   3. Fill Coat: For second coat, use setting-type, sandable topping compound.
   4. Finish Coat: For third coat, use setting-type, sandable topping compound.

2.5 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
   1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
   2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Gypsum Board Application and Finishing Standards: ASTM C 840 and GA-216.

B. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install gypsum panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

F. Attach gypsum panels to framing provided at openings and cutouts.

G. Form control and expansion joints with space between edges of adjoining gypsum panels.

H. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's written recommendations.

I. Space fasteners in panels that are tile substrates a maximum of 8 inches o.c.

3.3 PANEL APPLICATION METHODS
A. Single-Layer Application:
   1. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
      a. Stagger abutting end joints not less than one framing member in alternate courses of board.

B. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.

C. Ceilings: Apply gypsum ceiling panels perpendicular to supports, with end joints staggered and located over supports.
   1. Fasten with corrosion-resistant screws.

3.4 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer’s written instructions.

B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

3.5 FINISHING GYPSUM BOARD ASSEMBLIES

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints and damaged surface areas.

C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:
   1. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view.

3.6 SITE ENVIRONMENTAL PROCEDURES

A. Indoor Air Quality:
   1. Temporary ventilation: Provide temporary ventilation for work of this Section.
B. Waste Management: As specified in Section 01351 – Construction Waste Management and as follows:
   1. Select panel sizes and layout panels to minimize waste; reuse cutoffs to the greatest extent possible.

END OF SECTION 09260
SECTION 09651 - RESILIENT FLOOR TILE

PART 1 - GENERAL

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

1.2 SUMMARY
   A. This Section includes the following:
      1. Sheet Vinyl Flooring

1.3 SUBMITTALS
   A. Product Data: For each type of product indicated.
   B. Samples for Initial Selection: For each type of product indicated.
      1. Manufacturer's standard-size Samples, of each resilient product color and pattern required.
   C. Maintenance Data: For resilient products to include in maintenance manuals.

1.4 QUALITY ASSURANCE

1.5 DELIVERY, STORAGE, AND HANDLING
   A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F. Store tiles on flat surfaces.

1.6 PROJECT CONDITIONS
   A. Maintain temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive floor tile during the following time periods:
      1. 48 hours before installation.
      2. During installation.
      3. 48 hours after installation.
B. After postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Close spaces to traffic during floor covering installation.

D. Close spaces to traffic for 48 hours after floor covering installation.

E. Install resilient products after other finishing operations, including painting, have been completed.

1.7 EXTRA MATERIALS

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products listed in other Part 2 articles.

B. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 COLORS AND PATTERNS

A. Colors and Patterns: As selected by Architect from manufacturer's full range.

2.3 SHEET VINYL FLOORING

A. Manufacturer: Mannington

1. Type: Mannington Relay RE
2. Color: To be selected from Manufacturer's standard colors.

2.4 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement based formulation provided or approved by resilient product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
C. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edges of tiles, and in maximum available lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content, and other conditions affecting performance.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.

B. Concrete Substrates: Prepare according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.


3. Proceed with installation only after substrates pass testing.

3. Test for moisture; be sure that slabs on sub-flooring are dry before starting work, relative humidity not to exceed 75%. Remove grease, oil, dirt, and other foreign substances.

C. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

D. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.

E. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

1. Do not install resilient products until they are same temperature as space where they are to be installed.

F. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts,
carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 SHEET VINYL INSTALLATION

A. APPLICATION OF ADHESIVE

1. Cover surfaces evenly in accordance with the manufacturer's directions. Do not exceed maximum working area recommended. If adhesive dries or films over, remove and re-coat.

B. INSTALLATION OF RESILIENT FLOORING

1. Place flooring so that fields or patterns center on area. Lay flooring true, level, and even with tight, aligned joints. Cut to and round all permanent cabinets and fixtures.

3.4 CLEANING AND PROTECTION

A. Perform the following operations immediately after completing resilient product installation:

1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum surfaces thoroughly.
3. Damp-mop surfaces to remove marks and soil.

   a. Do not wash surfaces until after time period recommended by manufacturer.

B. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.

1. Apply protective floor polish to horizontal surfaces that are free from soil, visible adhesive, and surface blemishes if recommended in writing by manufacturer.

   a. Use commercially available product acceptable to manufacturer.
   b. Coordinate selection of floor polish with Owner's maintenance service.

2. Cover products installed on horizontal surfaces with undyed, untreated building paper until Substantial Completion.
3. Do not move heavy and sharp objects directly over surfaces. Place hardboard or plywood panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.

END OF SECTION 09651
SECTION 09680 - CARPET

PART 1 - GENERAL

A. This section pertains to furnishing and installing carpet.

1.1 AREAS TO BE COVERED

A. Cover floors of closets and alcoves, areas under wall hung cabinets and openings off scheduled spaces with same material, unless otherwise noted.

1.3 PROTECTION

A. Do not permit traffic on carpeting until protective measures have been taken. Remove temporary coverings on completion of project.

1.4 GUARANTEE

A. Supplier shall provide standard 5 year limited replacement wear warranty, and 5 year limited replacement anti-static warranty. Warranty shall be written on manufacturer's standard form and submitted to Owner prior to final completion and acceptance of project.

1.5 PROVIDE CARPET OVERAGE

A. Quantity includes an estimated 5% overage for maintenance excluding scraps created from installation.

PART 2 - PRODUCTS

2.1 CARPET

Manufacturer: Mannington Commercial
Type/Style: Color Canvas – Ultrabac RE
Gauge: 1/10
Tufted yarn weight: 32 oz. per sq. yd.
Primary Backing: 100% Synthetic
Secondary backing: UltraBac RE with Minimum 10% recycled Content and Lifetime Warranty
Color: To be selected by Architect from Manufacturer's standard colors.

2.3 CARPET EDGE GUARDS

Manufacturer: Mannington
Type: Extruded solid rubber
Color: To be selected by Architect from Manufacturer's standard colors.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Carpet installer must give references of at least three or more installations he has completed within the previous two years using the same type and style carpet specified herein.
B. Carpet may not be installed until major construction, i.e., ceiling, gypsum board, painting, is completed.

C. Must be by skilled craftsmen and in accordance with best trade practices. Recommended procedures of the carpet manufacturer must be closely followed. Carpet to be bonded at the seams and stretched.

D. Use rubber transitions abutting vinyl flooring and at all door openings, where floor material changes.

E. Manufacturer’s specifications and reports of tests for inhalation toxicity and flammability are required.

F. Unsatisfactory installation resulting from work performed not in accordance with the manufacturer’s recommendations or specifications may result in removal and relaying of carpet. Leave work clean and free from defects at time of final acceptance.

END OF SECTION 09680
SECTION 09900 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.

1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

B. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.

1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.

C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

1. Prefinished items include the following factory-finished components:
   a. Architectural woodwork.
   b. Acoustical wall panels.
   c. Metal toilet enclosures.
   d. Elevator entrance doors and frames.
   e. Elevator equipment.
   f. Finished mechanical and electrical equipment.
   g. Light fixtures.

2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
   a. Foundation spaces.
   b. Furred areas.
   c. Ceiling plenums.
   d. Duct shafts.
3. Finished metal surfaces include the following:
   a. Anodized aluminum.
   b. Stainless steel.
   c. Bronze and brass.

4. Operating parts include moving parts of operating equipment and the following:
   a. Valve and damper operators.
   b. Linkages.
   c. Sensing devices.
   d. Motor and fan shafts.

5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

D. Related Sections include the following:
   1. Division 5 Section "Structural Steel" for shop priming structural steel.
   2. Division 8 Section "Steel Doors and Frames" for factory priming steel doors and frames.

1.3 DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
   1. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
   2. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.

1.4 SUBMITTALS

A. Product Data: For each paint system indicated.
   1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
   2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.

B. Samples for Initial Selection: For each type of finish-coat material indicated.
   1. After color selection, Architect will furnish color chips for surfaces to be coated.

C. Qualification Data: For Applicator.
1.5 QUALITY ASSURANCE

A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

B. Source Limitations: Obtain primers for each coating system from the same manufacturer as the finish coats.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:

1. Product name or title of material.
2. Product description (generic classification or binder type).
3. Manufacturer's stock number and date of manufacture.
4. Contents by volume, for pigment and vehicle constituents.
5. Thinning instructions.
6. Application instructions.
7. Color name and number.
8. VOC content.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.

1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.7 PROJECT CONDITIONS

A. Apply paints only when temperatures of surfaces to be painted and surrounding air are within the tolerances allowed by the manufacturer.

B. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.8 EXTRA MATERIALS

A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.
1. Quantity: Furnish Owner with an additional 3 percent, but not less than 1 gal. or 1 case, as appropriate, of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

B. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. Columbia Paints and Coatings (Columbia)
2. Benjamin Moore & Co. (Benjamin Moore).

2.2 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

C. Colors: As selected by Architect from manufacturer's full range.

2.3 EXTERIOR PRIMERS AND FINISH COATS

1. Exterior Metal Primer - Columbia 07-450 Universal Metal Primer
2. Exterior Metal Enamel - Columbia 07-588 Silicone Alkyd DTM Enamel
3. Exterior cement board – as recommended by cement board manufacturer.

2.4 INTERIOR PRIMERS AND FINISH COATS
1. Interior Gypsum Wallboard Primer Sealer - Columbia 02-734 PP Base-coat Wallboard primer/sealer
2. Interior Gypsum Wallboard Latex Enamel - Columbia 02-255 Acry-Plus Interior Latex Eggshell
3. Interior Metal Primer - Columbia 07-450 Universal Metal Primer
4. Interior Metal Enamel - Columbia 04-402 S.G. Polyurethane Enamel
5. Interior Wood Sealer - Pro Mar Varnish Sanding Sealer B26V3
6. Interior Wood Stain - Sherwin Williams Oil Stain A48 series

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application. Comply with procedures specified in PDCA P4.

1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.

1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible primers or remove and reprime.
2. Cementitious Materials: Prepare concrete, concrete unit masonry, surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
   a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
   b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces if moisture content exceeds that permitted in manufacturer's written instructions.

3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
   a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
   b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
   c. If transparent finish is required, backprime with spar varnish.
   d. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.

4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.
   a. Blast steel surfaces clean as recommended by paint system manufacturer.
   b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
   c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.

5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
3. Use only thinners approved by paint manufacturer and only within recommended limits.

3.3 APPLICATION

A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

1. Paint colors, surface treatments, and finishes are indicated in the finish schedules.
2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
3. Provide finish coats that are compatible with primers used.
4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
8. Sand lightly between each succeeding enamel or varnish coat.

B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
2. Omit primer over metal surfaces that have been shop primed and touchup painted.
3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.

C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.

D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.

E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.

F. Mechanical items to be painted include, but are not limited to, the following:

1. Uninsulated metal piping.
2. Uninsulated plastic piping.
3. Pipe hangers and supports.
4. Tanks that do not have factory-applied final finishes.
5. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
6. Duct, equipment, and pipe insulation having "all-service jacket" or other paintable jacket material.
7. Mechanical equipment that is indicated to have a factory-primed finish for field painting.

G. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

H. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.

1. Provide satin finish for final coats.

I. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.
3.4 FIELD QUALITY CONTROL

A. Owner reserves the right to invoke the following test procedure at any time and as often as Owner deems necessary during the period when paint is being applied:

1. Owner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.

1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.

1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.7 PAINT SCHEDULE

A. Gypsum Wallboard
   3 coat taping system
   One coat primer sealer
   Two coats enamel

B. Hardwood Doors
   One coat interior stain, wiped
   One coat transparent sealer
   One coat varnish, velvet
C. Hardwood Millwork
   One coat interior stain, wiped
   One coat transparent sealer
   One coat varnish

D. Softwood Millwork Windows, Misc. Interior Trim
   One coat interior stain, wiped or brushed
   One coat varnish, velvet

E. Interior Exposed Metal
   One coat metal primer
   Two coats enamel

F. Exterior Exposed Metal
   One coat metal primer
   Two coats enamel

G. Exterior Cement Fiber Siding and Trim
   One coat primer sealer
   Two coats enamel

H. Exterior Doors
   One coat metal primer
   Two coats enamel

END OF SECTION 09900
SECTION 10520 - FIRE-PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Portable fire extinguishers.
2. Fire-protection cabinets for the following:
   a. Portable fire extinguishers.

1.3 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire-protection specialties.

1.  Fire Extinguishers: Include rating and classification.
2.  Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain fire extinguishers and cabinets through one source from a single manufacturer.

B. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Standard for Portable Fire Extinguishers."

C. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cold-Rolled Steel Sheet: Carbon steel, complying with ASTM A 366/A 366M, commercial quality, stretcher leveled, temper rolled.
2.2 PORTABLE FIRE EXTINGUISHERS

A. General: Provide fire extinguishers of type, size, and capacity for each cabinet and other locations indicated.

B. Multipurpose Dry-Chemical Type: UL-rated 2-A:10:B:C, 5-lb nominal capacity, in enameled-steel container.

2.3 FIRE-PROTECTION CABINETS

A. Cabinet Construction: Provide manufacturer's standard box (tub), with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth. Miter and weld perimeter door frames.

B. Cabinet Type: Suitable for the following:

1. Fire extinguisher.

C. Cabinet Mounting: Suitable for the following mounting conditions:

1. Recessed Mounted: Cabinet box fully recessed within wall.

D. Door Material: Manufacturer's standard, as follows:

1. Steel sheet.

E. Door Glazing: Manufacturer's standard, as follows:

1. Tempered Float Glass: ASTM C 1048, Kind FT, Condition A, Type I, Quality q3, as follows:
   a. Class 1 (clear).

F. Door Style: Manufacturer's standard design, as follows:

1. Fully glazed panel with frame.

G. Door Construction: Fabricate doors according to manufacturer's standards, of materials indicated, and coordinated with cabinet types and trim styles selected.

1. Provide minimum 1/2-inch-thick door frames, fabricated with tubular stiles and rails, and hollow-metal design.
2. Provide inside latch and lock for break-glass panels.

H. Door Hardware: Provide manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide either lever handle with cam-action latch, or exposed or concealed door pull and friction latch. Provide concealed or continuous-type hinge permitting door to open 180 degrees.

2.4 ACCESSORIES
A. Mounting Brackets: Manufacturer’s standard steel, designed to secure extinguisher, of sizes required for types and capacities of extinguishers indicated, with plated or baked-enamel finish.

1. Provide brackets for extinguishers located in cabinets.

B. Door Locks: Provide cylinder lock, with all cabinets keyed alike.

C. Identification: Provide lettering to comply with authorities having jurisdiction for letter style, color, size, spacing, and location. Locate as indicated by Architect.

1. Identify fire extinguisher in cabinet with the words "FIRE EXTINGUISHER" applied to door.

2.5 COLORS AND TEXTURES

A. Colors and Textures: As selected by Architect from manufacturer’s full range for these characteristics.

2.6 FINISHES, GENERAL

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

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

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

D. Cabinet and Door Finishes: Provide manufacturer’s standard baked-enamel paint for the following:

1. Interior and Exterior of cabinets and doors.

2.7 STEEL FINISHES

A. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer’s standard two-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer’s written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils.

1. Color and Gloss: As indicated by manufacturer’s designations.

PART 3 - EXECUTION
3.1 INSTALLATION

A. Comply with manufacturer's written instructions for installing fire-protection specialties.

B. Install in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.

3.2 ADJUSTING, CLEANING, AND PROTECTION

A. Adjust cabinet doors that do not swing or operate freely.

B. Refinish or replace cabinets and doors damaged during installation.

C. Provide final protection and maintain conditions that ensure that cabinets and doors are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 10520
SECTION 10801 - TOILET ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUBMITTALS

A. Product Data: Include construction details, material descriptions and thicknesses, dimensions, profiles, fastening and mounting methods, specified options, and finishes for each type of accessory specified.

B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required. Use designations indicated in the Toilet and Bath Accessory Schedule and room designations indicated on Drawings in product schedule.

C. Maintenance Data: For accessories to include in maintenance manuals specified in Division 1. Provide lists of replacement parts and service recommendations.

1.3 QUALITY ASSURANCE

A. Source Limitations: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise approved by Architect.

B. Product Options: Accessory requirements, including those for materials, finishes, dimensions, capacities, and performance, are established by specific products indicated in the Toilet and Bath Accessory Schedule.

1.4 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing of accessories.

B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

PART 2 - PRODUCTS
2.1 MATERIALS

A. Stainless Steel: ASTM A 666, Type 304, with No. 4 finish (satin), in 0.0312-inch minimum nominal thickness, unless otherwise indicated.

B. Sheet Steel: ASTM A 366/A 366M, cold rolled, commercial quality, 0.0359-inch minimum nominal thickness; surface preparation and metal pretreatment as required for applied finish.

C. Galvanized Steel Sheet: ASTM A 653/A 653M, G60.


F. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.

2.2 FABRICATION

A. General: One, maximum 1-1/2-inch-diameter, unobtrusive stamped manufacturer logo, as approved by Architect, is permitted on exposed face of accessories. On interior surface not exposed to view or back surface of each accessory, provide printed, waterproof label or stamped nameplate indicating manufacturer's name and product model number.

B. Surface-Mounted Toilet Accessories: Unless otherwise indicated, fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with continuous stainless-steel hinge. Provide concealed anchorage where possible.

C. Recessed Toilet Accessories: Unless otherwise indicated, fabricate units of all-welded construction, without mitered corners. Hang doors and access panels with full-length, stainless-steel hinge. Provide anchorage that is fully concealed when unit is closed.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

3.2 ADJUSTING AND CLEANING

A. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items.
B. Remove temporary labels and protective coatings.

C. Clean and polish exposed surfaces according to manufacturer’s written recommendations.

3.3 TOILET AND BATH ACCESSORY SCHEDULE

A. Mirrors: Provide mirrors as shown on the drawings complying with the following:
   1. Products: Bobrick B165-4836

B. Toilet Paper Dispenser: Provide toilet paper dispenser at each toilet complying with the following:
   1. Products: Bobrick B-2716

END OF SECTION 10801