HAIL DAMAGE – BILLINGS COMMUNITY CENTER

360 North 23rd Street
Billings, Montana

OWNER: City of Billings

OWNER'S REPRESENTATIVE: QuEst Corporation

ARCHITECT: Bauer Group Architects PLLC

DATE: May 2021

PROJ. NO: P361-102

HAIL DAMAGE – BILLINGS COMMUNITY CENTER
360 NORTH 23RD STREET, BILLINGS, MT
MAY, 2021

TABLE OF CONTENTS

GENERAL PROVISIONS - IFB

Billings Community Center – Parks Dept., 360 North 23rd St. Billings

INVITATION FOR BID (IFB)

Name of Good or Service Requested: General Contractor Bids for Hail Damage Repair

Contents:

A. Summary of Invitation for Bid

This bid is for the purpose of entering into a contract for General Contracting Services for Hail Damage Repair for the City of Billings. The successful bidder agrees to provide the City of Billings with an acceptable quality of equipment/service, performance and workmanship as determined by the City of Billings.

It is the purpose of this bid to obtain the best quality of equipment/service at the most favorable price to the City of Billings. Consideration will be given for the level of service offered and ability to meet stated specifications as outlined in the contract documents.

The lowest bid need not be accepted if it is documented that a specific supplier in the past has been a poor performer or has provided poor goods.

B. Instructions to Bidders

Sealed bids entitled General Contracting Services for Hail Damage Repair for the City of Billings Parks Department, Billings, Montana, will be received by the City Clerk up until 2:00 PM (MST) on Tuesday May 25th, 2021.

ATTENTION Notice regarding bid submittals, public bid openings and bid security maintenance. The process in which bids may be submitted, accepted and opened, has changed due to the COVID-19 response. All bids may be submitted to Billings City Clerk via email at bids@billingsmt.gov, or by mail to P.O. Box 1178, Billings, MT 59103 or 210 North 27th Street, Billings, MT 59101. Bid openings will be held live on the City's Facebook page: https://www.facebook.com/Billings-MT-City-Government-74352842013/. No hand-delivered bids will be accepted in order to prohibit the transmission of COVID-19. Bid tabulations will be posted for public viewing after the bids have been opened.

More specific additional information regarding this PROJECT may be obtained by contacting Mark Qualman via telephone at 406-850-9357, or via email at mark@costgurus.com.

Each bid must be accompanied by a Certified Check, Cashier's Check, **or Bid Bond payable to the City of Billings, Montana, in the amount not less than ten percent (10%) of the total amount of the bid.** The bid security will be retained by the City Clerk until the successful bidder enters into a contract with the City of Billings. If no contract is entered into, by the successful bidder, within sixty (60) days the security may be forfeited to the City of Billings.

Successful bidders will be required to furnish an approved Performance Bond, Labor and Materials Bond, or Payment Bond in the amount of one hundred percent (100%) of the

contract amount.

No bids may be withdrawn after the scheduled time for the public opening of bids, which is 2:00 PM (MST) on Tuesday, May 25, 2021.

The right is reserved to reject any or all bids received, to waive irregularities, to postpone the award of the contract for a period of not to exceed sixty (60) days, and to accept that bid which is in the best interests of the City of Billings, Montana.

The City of Billings is an Equal Opportunity Employer. The Contractor and subcontractor shall abide by the requirements of 41 CFR 60-300.5(a) and 41 CFR 60-741.5(a), which prohibit discrimination against qualified protected veterans and/or qualified individuals on the basis of disability and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified protected veterans and individuals with disabilities.

EXAMINATION OF DOCUMENTS

Before submitting a bid, the bidder shall:

a. Carefully examine the Standards and Specifications as well as all other attached documents.
b. Fully inform themselves of the existing conditions and limitations.
c. Include with the bid sufficient information to cover all items required in the specifications.

BID COMPLIANCE

It shall be the responsibility of the bidder to see that all bids are submitted to the office of the City Clerk before 2:00 PM (MST) on Tuesday, May 25th, 2021.

BID MODIFICATIONS

Bids shall be made on the forms provided herein; they shall not contain any recapitulation of the work to be done, except as allowed for in this offering. Modifications, additions or changes to the terms and conditions of this Invitation for Bid may be cause for rejection of the bid. Bids submitted on other forms may be rejected.

INTERPRETATION PRIORITY

Should a bidder find discrepancies in, or omissions from, the specifications, or be in doubt as to their meaning, bidder shall notify Mark Qualman, Owner's Representative at 406-850-9357, who will send written instructions or addenda to all bidders. The City will not be responsible for oral interpretation. All addenda issued prior to bid opening shall be

incorporated into and become a portion and part of the contract/agreement upon award. Questions received less than ninety-six (96) hours before the bid opening cannot be answered.

WITHDRAWAL OF BIDS

Bidders may withdraw their bid either personally or by written request at any time prior to the time set for bid opening. No bid may be withdrawn or modified after the time set for opening, unless and until the award of the contract is delayed for a period exceeding sixty (60) days.

BID PRICE VALID

Bidders must honor their bid price for sixty (60) days from the date of sealed bid opening.

CERTIFICATION

The bidder certifies that the bid has been arrived at by the bidder independently and has been submitted without any collusion designed to limit independent bidding or competition. The bidder further certifies that the materials, products, services and/or goods offered herein meet all requirements of the stated specifications and are equal in quality, value and performance with highest quality, nationally advertised brand and/or trade names.

Manufacturer's trade names, if used in specifications, are for the express purpose of establishing a standard of quality and coordination of design, not for the purpose of limiting competition.

INSURANCE

The bidder certifies that it/they shall maintain in good standing the insurance outlined below"

1. Workers' compensation and employer's liability coverage as required by Montana law.
2. Commercial general liability, including contractual and personal injury coverage's -- $750,000 per claim and $1,500,000 per occurrence.
3. Automobile liability -- $1,500,000 per accident.

Each policy of insurance required by this Section shall provide for no less than 30 days' advance written notice to the CITY prior to cancellation.

The CITY shall be listed as an additional insured on all policies except Professional Liability and Worker's Compensation Policies.

In addition, all policies except Professional Liability and Worker's Compensation shall

contain a waiver of subrogation against the CITY.

BIDDER shall comply with the applicable requirements of the Workers' Compensation Act, Title 39, Chapter 71, MCA, and the Occupational Disease Act of Montana, Title 39, Chapter 71, MCA. Bidder shall maintain workers' compensation insurance coverage for all members and employees of Bidder's business, except for those members who are exempted as independent contractors under the provisions of §39-71-401, MCA.

The certificate will be provided to the City prior to contract execution.

ELIGIBILITY

The successful bidder will be required to provide copies of the following, or the ability to obtain the following within 15 days of notification of contract award:

- Completed and signed the new vendor forms, if necessary (to be eligible for payment): http://mtbillings3.civicplus.com/DocumentCenter/View/26004
- City of Billings Business License: http://ci.billings.mt.us/981/Business-Licenses
- Montana Contractor's License: http://erd.dli.mt.gov/work-comp-regulations/montana-contractor/construction-contractor-registration
- Certificate of Workman's Compensation or Certificate of Exemption from Workman's Compensation: http://erd.dli.mt.gov/work-comp-regulations
- The successful bidder will be required to purchase a City business license and complete the new vendor forms in order to be eligible for payment.

EVIDENCE OF QUALIFICATION

Upon request of the City of Billings, a bidder whose bid is under consideration for award may be required to manifest satisfactory evidence of his financial resources, experience, the organization and equipment as well as service provisions bidder has available or will make available. In determining the lowest responsible bidder, in addition to price, the following considerations may be addressed:

a) The ability, capacity and skill of the bidder to perform the contract or provide the service required.

b) The character, integrity, reputation, judgment, experience and efficiency of the bidder.

c) Whether the bidder can perform the contract within time specified.

d) The quality of performance of previous contracts, agreements and/or performance.

e) Previous and/or existing compliance by the bidder with laws relating to the contract or services.

f) Such other information which may be secured having a bearing on the decision to award the contract.

CONTRACTORS' GROSS RECEIPTS TAX AND PREVAILING WAGE RATES

The bidder understands that, if applicable, all contractors or subcontractors working on a publicly funded construction project are required to pay or have withheld from earnings one percent (1%) of the gross contract price if the gross contract price is Five Thousand Dollars ($5,000) or more.

The bidder also understands that, if applicable and unless superseded by federal law, Montana law requires that contractors and subcontractors give preference to the employment of Montana residents for any public works contract in excess of $25,000 for construction or nonconstruction services in accordance with sections 18-2-401 through 18-2-432, MCA, and all administrative rules adopted pursuant thereto. Unless superseded by federal law, each contractor shall ensure that at least 50% of the contractor's workers performing labor on a construction project are bona fide Montana residents. The Commissioner of the Montana Department of Labor and Industry has established the resident requirements in accordance with sections 18-2-403 and 18-2-409, MCA. Any and all questions concerning prevailing wage and Montana resident issues should be directed to the Montana Department of Labor and Industry.

C. Contract Requirements and Specifications

Bidders shall examine:

Bidders to examine Project Specifications, Drawings & Photographic Images included in the Contract Bidding Documents. Also, there will be a MANDATORY PRE-BID WALK-THROUGH for all BIDDERS conducted onsite by QuEst Services Corp & Bauer Group Architects. BIDDERS to examine current existing conditions, laydown restrictions, hours of operation and building access.

Bidders to make note of Bidding Requirement to complete form entitled, "EXHIBIT A Quantity Sheet" attached at the end of this document that will need to be included with the Bidding Contractor Requirements at the time of bid.

MANDATORY PROJECT PRE-BID CONFERENCE: There will be a Mandatory, On-site Pre-Bid Conference, Tuesday, May 18th, 2021 at 2:00 p.m. MDT. Meeting will take place at 360 N. 23rd Street, Billings, Montana. The purpose of this meeting is to give bidders the opportunity to visually inspect the Project for Scope, Logistics, and Means & Methods determination. Bidders to acknowledge such on Bid Form where indicated.

D. Pricing and Addendum

Please bid net prices at which you will agree to furnish required goods or services.

TOTAL BASE BID PRICE - _____ dollars
(words)
and _____ cents ($_____)
(words) (figures)

TOTAL BID PRICE ALTERNATE #1a – Replace Exterior Siding with James Hardi product as specified in lieu of Steel Siding Material included in the Base Bid. Amount should be an additive or subtractive amount summed to the Base Bid Amount for that system.

PRICE -_____ dollars and
(words)
_____cents ($_____)
(words) (figures)

TOTAL BID PRICE ALTERNATE #1b – Replace Membrane Roofing with a Single Ply Roofing System as specified in lieu of differing ply roofing systems (not including the asphalt shingle roofing) included in the Base Bid. Amount should be an additive or subtractive amount summed to the Base Bid Amount for that system.

PRICE -_____ dollars and
(words)
_____cents ($_____)
(words) (figures)

Bidders to review and complete included Quantity Scope Survey Sheet, Appendix "A", for *QUANTITIES ONLY.* Listed quantities were generated by Insurance Company for purposes of Property Loss Valuation. Quantities will not be used to award contract to Low Bidder. Quantities generated by Bidding Contractor will be used to evaluate Insurance Companies initial valuation of Property Loss and to determine if Scopes of Work for this project are in line with actual damages observed by Bidders.

I/We acknowledge _____ addendum. Attended Pre-Bid? Yes / No (circle)
(#)

Company Name _____ Date _____

Contact Name (please print) _____ Title _____

Signature of Contact Position _____

By signing the above, I certify that I am authorized by the Company named above to respond to this request.

E. Standard Terms and Conditions

In case of default by the successful bidder or failure to deliver the goods or services within the time specified, the City Purchasing Agent, after written notice, may procure them from other sources and hold contractor responsible for excess costs occasioned thereby.

The specifications attached to the instructions to bidders establish a standard of quality desired by the City of Billings. Any bidder may submit quotations on any article which substantially complies with these specifications as to quality, workmanship and service. The City of Billings reserves the right to make its selections of materials or services purchased, based on its best judgment as to which articles substantially comply with the requirements of the specifications.

No alteration in any of the terms, conditions, delivery, quality, or specifications will be effective without prior written consent of the City of Billings.

No exception to delivery or service dates shall be allowed unless prior written approval is first obtained from the City of Billings.

The contractor warrants all articles supplied under this contract to conform to specifications, herein. The contractor will deliver a warranty stating that all articles supplied under the contract are fit and sufficient for the purpose manufactured, merchantable, and free from defects.

In the event the City is entitled to a prompt payment or cash discount, the period of computation shall commence on the date of delivery, or receipt of correctly completed invoices, whichever is later. If an adjustment of payment is necessary, the discount period shall commence on the date final approval for payment is authorized.

The contractor agrees not to discriminate against any client, employee or applicant for employment or for services, because of race, creed, color, national origin, sex or age with regard to, but not limited to, the following: employment upgrading; demotion or transfer; recruitment or recruitment advertising; layoffs and termination; rates of pay or other forms of compensation; selection for training; rendition of services. It is further understood that any contractor who is in violation of this shall be barred forthwith from receiving awards of any purchase order for the City unless a satisfactory showing is made that discriminatory practices have terminated and that a reoccurrence of such acts are unlikely.

The City reserves the right to cancel and terminate this contract forthwith upon giving 30 days written notice to the contractor. (This provision does not apply to the purchase of materials and equipment. A purchase order for materials and equipment is a binding contract.)

Should either party employ an attorney or attorneys or utilize the services of in-house attorneys to enforce any of the provisions hereof or to protect its interest in any manner arising under this contract, the non-prevailing party in any action pursued in a court of competent jurisdiction agrees to pay to the prevailing party all reasonable costs, damages, expenses, and attorneys' fees, including fees for in-house attorneys, expended or incurred in connection therewith.

Where applicable, possible or required, bidder is required to submit descriptive literature, sample material, design sketches and detailed shop drawings. Failure to submit required items may result in rejection of the bid or termination of contract.

The successful bidder may not make any advertising or sale use of the fact that contract items are being used by purchaser and other approved agencies, under penalty of contract termination.

This Agreement shall be construed and enforced in accordance with the laws of the State of Montana. Venue for any suit between the parties arising out of this Agreement shall be the State of Montana Thirteenth Judicial District Court, Yellowstone County.

The contractor may not assign or subcontract the agreement, or the right to receive reasonable performance of any act called for by the contract, shall be deemed waived by a waiver by City of a breach thereof as to any particular transaction or occurrence.

Regardless of FOB point, contractor agrees to bear all risks of loss, injury, or destruction of goods and materials ordered herein and such loss, injury, or destruction shall not release contractor from any obligation hereunder.

All materials submitted in response to this IFB become public records under Article II, Section 9 of the Montana Constitution and §§ 2-6-102 and 7-1-4144, MCA and may be distributed by written request pursuant to Montana's Constitutional Right to Know or Public Records Acts.

Information provided in response to this IFB will be held in confidence and will not be revealed or discussed with competitors prior to award of Contract by Council. However, one copy of each bid submitted shall be retained for the official files of the Department and will become public record after award of the Contract.

Records and materials that are constitutionally protected from disclosure are not subject to the provisions of this section.

F. Conditions and Non-Collusion Agreement

To receive consideration, this form must be signed in full by a responsible, authorized agent, officer, employee or representative of your firm.

CONDITIONS AND NON-COLLUSION AGREEMENT

We have read and agree to the conditions and stipulations contained herein and to the Standard Terms and Conditions contained on the attached.

We further agree to furnish the product/services specified at the prices stated herein. We additionally agree to deliver the products/services to the location and by the date set forth herein, if applicable.

In signing this bid, you also certify that you have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a bid; that this bid has been independently arrived at without collusion with any other bidder, competitor or potential competitor; that this bid has not been knowingly disclosed prior to the opening of bids to any other bidder or competitor; that the above statement is accurate under penalty of perjury.

Legal Name of Firm/Corporation	Authorized Signature
Address	Printed Name
City/State/Zip	Title
Date	Telephone Number

G. Intent to Respond Form

Fax or email the following Intent to Respond form to _____ within two (2) days of the Bid Opening date of _____, 20_ even if your company chooses NOT to participate.

To: City of Billings – Department
Attn: _____
Phone: _____
Fax: _____
Email: _____

From: _____ Contact Name

_____ Company Name

_____ Company Address

_____

_____ Email Address

_____ Phone Number

_____ Fax Number

Please indicate whether or not you intend to submit a bid on: _____ by checking Yes or No.

We intend to respond by the specified due date:

Yes _____ No _____

_____ _____
Company Name Date

_____ _____
Contact Name (please print) Title

_____
Signature of Contact Position

By signing the above, I certify that I am authorized by the Company named above to respond to this request.

DIVISION 1 – GENERAL REQUIREMENTS

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

The Project consists of: Hail Damage – Billings Community Center – Parks & Recreation

Project Location: 360 North 23rd Street

Owner: City of Billings, Billings, MT

Contract Documents dated: May, 2021

Prepared by: Bauer Group Architects PLLC
P O Box 20939
Billings, Montana 59104

The Work consists of:

The work includes: That work as described or indicated in the project documents.

B. The Work specified herein will be performed under a single prime contract for General Construction.

C. The Drawings and Specifications are divided into separate divisions and sections of work for convenience. However, the Contractor shall be responsible for information contained in ALL subdivisions and may establish any subcontractual relationship which he may choose.

D. The general character and scope of the work is shown by the drawings. Where a portion of the work is delineated/drawn and the remainder is indicated, the portion delineated/drawn shall apply to all similar portions of the work.

E. Dimensions shall be followed in preference to scale measurements. Dimensions on the drawings are subject to field verification to accommodate installations.

F. Where a number is listed in the specifications (such as for gauges, weights, temperatures, amounts of time, etc.), the number shall be interpreted as that or better.

G. The work delineated by the contract documents, including construction details, construction means, methods, procedures and techniques necessary to perform the work, use of materials, selection of equipment and requirements of product manufacturers are consistent with: (1) Good and sound practices within the construction industry; (2) Generally prevailing and accepted industry standards acceptable for the work; (3) Requirements of any warranties applicable to the work; and (4) Applicable laws, ordinances, regulations, rules, codes and orders which apply to the contractor's performance of the work.

H. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

I. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

J. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

K. Field engineering provided by the Contractor is to include:

1. Locate and protect survey control and reference points.
2. Control datum for survey is that established by survey.
3. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.
4. Submit the above information to the Architect 10 days prior to initiating related activities noting inconsistencies or compliance with information.

1.03 WORK SEQUENCE

A. The Work will be conducted in one phase.

1. Phase 1: Execute the work described in the drawings, specifications and addendums. Work of this phase shall be substantially complete, ready for occupancy within 90 calendar days of the Notice to Proceed.

2. Work Sequence: The drawings indicate a work sequence to accommodate the Owner's use of the facility during construction.

1.04 CONTRACTOR USE OF PREMISES

A. General: During the construction period the Contractor shall have full use of the designated premises for construction operations, including use of the site as indicated. The Contractor's use of the premises is limited only by the Owner's right to perform work or to retain other contractors on portions of the project.

B. Use of Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.

1. Owner Occupancy: Allow for Owner occupancy and use by the public.

2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

3. Use of Existing Building: Maintain the existing building in a weathertight condition throughout the construction period. Repair damage caused by construction operations.

Take all precautions necessary to protect the building and its occupants during the construction period.

4. Parking:

    a. All Contractor and Contractor employees shall comply with Owner's parking limitations. Unless otherwise indicated on the drawings, all Contractor and Contractor employee vehicles shall be parked in designated parking lots.

    b. If allowed only the maximum number of vehicles indicated may be parked in the project site areas designated and shall only be Contractor vehicles with company signs clearly visible.

    c. Access to project site shall be only by the route designated on the drawings. In cases where a different route must be used for a specific purpose, permission must be obtained from the Owner.

    d. Site staging areas for materials and equipment will be designated on the drawings if allowed. If not designated, staging is intended to be in the project site building. Staged materials and equipment may be secured on the ground surface or in trailers. Site staging areas shall be fenced. Vehicles not included among those allowed to be parked may not be used for staging of equipment, tools or materials.

1.05 OCCUPANCY REQUIREMENTS

A. Full Owner Occupancy of Project Spaces: The Owner will occupy the site and existing building during the entire construction period. Cooperate with the Owner during construction operations to minimize conflicts and facilitate owner usage. Perform the Work so as not to interfere with the Owner's operations.

1.06 MISCELLANEOUS PROVISIONS

A. These documents do not include provisions for asbestos-related work. Contractor is to notify Architect immediately if asbestos encountered on this project. Bauer Group Architects PLLC expressly states that it does not provide design services for environmental/asbestos-related issues. Use of asbestos on this project is prohibited.

B. SAFETY REQUIREMENTS: GENERAL – THE SAFETY MEASURES REQUIRED BY THE CONTRACT DOCUMENTS ARE NOT MEANT TO BE INCLUSIVE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY ON A 24-HOURS-PER-DAY, 7 DAYS-PER-WEEK BASIS AND SHALL TAKE WHATEVER ADDITIONAL MEASURES ARE NECESSARY TO INSURE THE HEALTH AND SAFETY OF THE BUILDINGS' OCCUPANTS, OR PEDESTRIANS AT OR NEAR THE CONSTRUCTION SITE AND ACCESS ROUTES AND OF ALL OTHER PERSONS IN ALL AREAS AFFECTED BY THE CONTRACTOR'S ACTIVITIES. Prior to the start of construction, the Contractor is to submit to the Architect, a detailed written plan specifying the safety procedures that will be followed. Include (but not by way of limitation) the following: Verbiage, size and locations of warning signs; construction sequence as related to safety; delivery of materials as related to safety. Revise the safety plan as required during construction and resubmit to the Owner's Representative.

C. Underground Utilities:

    1. Buried utilities, including but not limited to, electricity, gas, steam, air, water, telephone, sewer, irrigation, broadband coaxial computer cable, and fiber optic cables are very vulnerable and damage could result in loss of service.

2. Each utility must be contacted to assist in verifying utility and cable locations in the field. The locations of existing utilities and cables shown on the plans, as well as assistance provided, do not guarantee these locations. Utilities are not guaranteed to be shown on plans provided by the Architect and Owner. The Contractor is responsible to determine the location of each utility.

PART 2 - PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

3.01 SCHEDULE OF PRODUCTS ORDERED IN ADVANCE

END OF SECTION 01010

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01026 - UNIT PRICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

1.03 DEFINITIONS

A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if the estimated quantities of Work required by the Contract Documents are increased or decreased. This price is for items unforeseen after the project begins. ALL items indicated in the Contract Documents are to be provided in the BASE BID.

B. Unit prices apply to each Base Bid.

1.04 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, profit, and applicable taxes.

B. Measurement and Payment: Submit invoices or delivery slips to show the actual quantities of materials delivered to the site and time cards for related costs of unit price.

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

D. Schedule: A "Unit Price Schedule" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 UNIT PRICE SCHEDULE

A. Unit Price No. 1: Rigid insulation for roof and wall application.
Description: Rigid insulation per Section 07530 Paragraph 2.03.
Unit of Measurement: Per square foot.

END OF SECTION 01026

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01028 – PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY

A. This section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
B. Review and coordinate sections associated to allowances, unit prices, contract modification procedures and construction progress documentation as they may be related to this activity.

1.03 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 Form
        b. Application for Payment Continuation Sheet(s)
        b. Submittals Schedule.
    2. Submit the Schedule of Values to Architect no later than 15 days after Notice of Award.
    3. Format and Content of Schedule of Values: Per AIA G703 Continuation Sheet, provide at least one line item for each specification division.

1.04 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by the Owner.
    1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
    2. Retainage will be held the full term of the project without reduction.
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 Forms: Use AIA Document G702 and Continuation Sheets G 703, samples included herein, as the form for Application for Payment and include the following:
    1. Item 7a. Net Payment after (Line 6 from Prior Certificate) and
    2. Item 7b. Less 1% Gross Receipts Tax
    (Note: 7b. deducted from 7a. Net Payment equals Current Payment Due.)
D. 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.
E. Transmittal: Submit four (4) signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 48 hours. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

F. Waivers of Mechanic's Lien: With each partial Application for Payment, submit partial waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
   1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
   2. When an application shows completion of an item, submit final or full waivers.
   3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
   4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to the Owner.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
   1. Products list.
   2. Schedule of unit prices.
   3. Submittals Schedule (preliminary if not final).
   4. List of Contractor's staff assignments.
   5. Copies of building permits.
   6. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
   7. Initial progress report.
   8. Report of preconstruction conference.
   9. Data needed to acquire Owner's insurance.

H. Application for Payment at Substantial Completion per criteria of section 01700 Project Closeout: After issuance of the Certificate of Substantial Completion, submit Application for Payment showing percent of 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 portion of the Work.
   3. Administrative actions and submittals that precede or coincide with this application shall include:
      a. Occupancy permits for the entire project or portion to be occupied from the agency having authority.
      b. Warranties (guarantees) and maintenance agreements.
      c. Test/adjust/balance records.
      d. Changeover information related to Owner's occupancy, use, operation and maintenance.
      e. Final cleaning.
      f. Written assurance that retainage is sufficient for all remaining claims.
      g. Application for reduction of retainage and consent of surety.
      h. Shifting insurance coverages.
      i. List of incomplete work, recognized as exceptions to Architect's Certificate of Substantial Completion with associated itemized cost of listed incomplete work.

I. Final Payment Application per criteria of Section 01700 Project Closeout: 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."
   5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."

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.
9. Final, liquidated damages settlement statement.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

END OF SECTION 01028

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01030 - ALTERNATES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements governing alternates.

1.03 DEFINITIONS

A. Definition: An alternate is an amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if the Owner decides to accept a corresponding change in either amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

   1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.

1.04 PROCEDURES

A. Coordination: Modify or adjust affected adjacent Work as necessary to completely and fully integrate that Work into the project.

   1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.

B. Notification: Immediately following the award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate whether alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other Work of this Contract.

D. Schedule: A "Schedule of Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials necessary to achieve the Work described under each alternate.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 SCHEDULE OF ALTERNATES

A. Alternate Proposals will be required for the following items of work, as described in the specifications and/or noted on the plans. Coordination of related work is required to ensure that work affected by each selected alternate is complete and properly interfaced with work of alternates.

Deductive Alternates: (Refer also to Instructions to Bidders)

Alternate No. 1A: Provide concrete fiber exterior siding per Section 07530 in lieu of the base bid metal siding.

Add _____Dollars

Alternate No. 1B: Provide a single ply membrane roof per Section 07530 in lieu of the built up roof in the base bid.

Add _____Dollars

END OF SECTION 01030

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01035 - MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for handling and processing contract modifications.

1. Proposals made per this section must comply with the Supplementary General Conditions to be considered.

2. All modification matters must be submitted in writing within seven (7) days of request from the Owner of identified unforeseen condition.

1.03 CHANGES IN THE WORK

A. Per Paragraph 7.4 of the General Conditions the Architect may issue supplemental instructions authorizing changes in the Work, not involving adjustment to the Contract Sum or Contract Time as appropriate.

1.04 CHANGE ORDER PROPOSAL REQUESTS

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

1. Proposal requests issued by the Architect are for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.

2. Within 7 days of receipt of a proposal request, submit an estimate of cost per the General and Supplementary General Conditions necessary to execute the change to the Architect for the Owner's review. Claims not provided within 10 days of request are subject to rejection or the item implemented by other resources.

a. Include a list of quantities of products required and unit costs, with the total amount of purchase to be made or deducted. Where requested, furnish survey data to substantiate quantities. Show differential of the bid conditions and proposed modification.

b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.

B. Contractor-Initiated Proposals: When latent and/or unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a written request for a change to the Architect.

1. Within ten (10) days include a statement outlining the 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 Contract Time per the General and Supplementary General Conditions.

2. Include a list of quantities of products required and per the General and Supplementary General Conditions, unit costs with the total amount of purchases to be made or deducted. Where requested, furnish survey data to substantiate quantities. Document differential of the bid condition and the proposed modification.

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts per the General Conditions.

4. Comply with requirements in section "Product Substitutions" if the proposed change requires substitution of one product or system for a product or system specified.

5. Pricing shall be similar to u nit prices derived from the Schedule of Values submitted for the project.

C. Proposal Request Form: Use forms provided by the Contractor for Change Order Proposals.

D. Do not include the contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in Contract Documents.

E. No change to the Contractor's indirect expense is permitted for selection of higher or lower-priced materials or systems of the same scope and nature as originally indicated.

1.05 RESPONSE TIME

A. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or the Contractor's handling, labor, installation, overhead, and profit. Submit claims within 7 days of receipt of the Architect's Supplemental Instruction (ASI), Change Order or Construction Change Directive authorizing work to proceed. The Owner will reject claims submitted later than 7 days.

1.06 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: When the Owner and the Contractor disagree on the terms of a Proposal Request, the Architect may issue a Construction Change Directive on AIA Form G714. The Construction Change Directive instructs the Contractor to proceed immediately with a change in the Work, for subsequent inclusion in a Change Order.

1. The Construction Change Directive contains a complete description of the change in the Work. It also designates the method to be followed to determine change in the Contract Sum or Contract Time.

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

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

1.07 CHANGE ORDER PROCEDURES

A. Upon the Owner's approval of a Proposal Request, the Architect will issue a Change Order for signatures of the Owner and the Contractor on AIA Form G701.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01035

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01060 - DEFINITIONS AND STANDARDS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract. Add the following definitions: Remove, Remove & Salvage; Remove & Salvage for Reuse and Remove and Return to Owner.
B. "Approved": The term "approved," when used in conjunction with Architect's action on Contractor's submittals, applications, and requests, is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
C. "Directed": Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean directed by Architect, requested by Architect, and similar phrases.
D. "Indicated": The term "indicated" refers to graphic representations, notes, or schedules on Drawings; or to other paragraphs or schedules in Specifications and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the user locate the reference.
E. "Regulations": The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
F. "Furnish": The term "furnish" means to supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
G. "Install": The term "install" describes operations at Project site including unloading, temporary storage, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
H. "Provide": The term "provide" means to furnish and install, complete and ready for the intended use.
I. "Installer": An installer is Contractor or another entity engaged by Contractor, as an employee, subcontractor, or contractor of lower tier, to perform a particular construction operations, including installation, erection, application and similar operations.
J. The term "experienced," when used with the term "installer," means having successfully completed a minimum of five (5) pervious projects similar in size and scope t this Project; being familiar with the special requirements indicated; and having complied with requirements of authorities having jurisdiction.
    1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
K. "Project site" is the space available for performing construction activities, either exclusively or in conjunction with others performing other work as part of Project. The extent of Project site is shown on the Drawings and may or may not be identical with the description of the land on which Project is to be built.
L. Owner's Representative: To mean the person/firm to whom the owner has designated per the General Provisions of the construction documents.

M. Testing Laboratory: An independent entity engaged to perform specific inspections or tests of the work either at project site or elsewhere; and to report and (if required) interpret results of those inspections or tests.
N. Unit Prices: Unit prices apply only to those items uncovered during construction or defined to be paid based on quantity. Items indicated to be affected on the drawings are to be included in the base bid.

1.03 DRAWING SYMBOLS

A. General: Except as otherwise indicated, graphic symbols used on drawings are those symbols recognized in the construction industry for purposes indicated. Where not otherwise noted, symbols are defined by "Architectural Graphic Standards", published by John Wiley & Sons, Inc., latest edition.

1.04 INDUSTRY STANDARDS

A. General Applicability of Standards: Applicable standards of construction industry have same force and effect (and are made a part of contract documents by reference) as if copied directly into contract documents, or as if published copies were bound herewith.

B. Reference standards (referenced directly in contract documents or by governing regulations) have precedence over non-referenced standards which are recognized in industry for applicability to work.

C. Publication Dates: Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect as of date of contract documents.

D. Copies of Standards: Provide where needed for proper performance of the work; obtain directly from publication sources.

E. Abbreviations and Names: Abbreviations and acronyms are frequently used in the Specifications and other Contract Documents to represent the name of a trade association, standards-developing organization, authority(s) having jurisdiction, or other entity in the context of referencing a standard or publication. The following abbreviations and acronyms, as referenced in the Contract Documents, mean the associated names. Names and addresses are subject to change and are believed, but are not assured, to be accurate and up-to-date as of the date of the Contract Documents. Where abbreviations and acronyms are used in the Specifications or other contract Documents, they mean the recognized name of these entities. Refer to Gale Research's "Encyclopedia of Associations" or Columbia Books' "National Trade & Professional Associations of the U.S.," which are available in most libraries.

AA	Aluminum Association 900 19th Street, NW, Suite 300 Washington, DC 20006 www.aluminum.org	(202) 862-5100
AAMA	American Architectural Manufacturers Assoc. 1827 Walden Office Square, Suite 104 Schaumburg, IL 60173-4268 www.aamanet.org	(847) 303-5664

AFPA	American Forest and Paper Association (Formerly: National Forest Products Assoc.) 1111 19th Street, NW, Suite 800 Washington, DC 20036 www.afandpa.org	(800) 879-8878 (202) 463-2700
AIA	American Insurance Association 1130 Connecticut Avenue,NW, Suite 1000 Washington, DC 20036	(202) 828-7100
AISC	American Institute of Steel Construction One East Wacker Drive, Suite 3100 Chicago, IL 60601-2001 www.aisc.web.com	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute 1101 17th Street, NW, Suite 1300 Washington, DC 20036-4700 www.steel.org	(202) 452-7100
APA	APA-The Engineered Wood Association (Formerly: American Plywood Association) P O Box 11700 Tacoma, WA 98411-0700 www.apawood.org	(253) 565-6600
ARMA	Asphalt Roofing Manufacturers Association Center Park 4041 Powder Mill Rd., Suite 404 Calverton, MD 20705 www.asphaltroofing.org	(301) 348-2002
AWPA	American Wood Preservers' Association P O Box 5690 Granbury, TX 76049 www.awpa.com	(817) 326-6300
BHMA	Builders Hardware Manufacturers Association 355 Lexington Avenue, 17th Floor New York, NY 10017-6603	(212) 661-4261
FM	Factory Mutual System 1151 Boston-Providence Tnpk. P O Box 9102 Norwood, MA 02062-9102 www.factorymutual.com	(781) 762-4300
GA	Gypsum Association 810 First Street, NE, Suite 510 Washington, DC 20002 www.usg.com	(202) 289-5440

ICC	International Code Council 5203 Leesburg Pike #708 Falls Church, VA 22041 www.intlcode.org	(703) 931-4533
NAAMM	National Association of Architectural Metal Manufacturers 8 South Michigan Avenue, Suite 1000 Chicago, IL 60603 www.gss.net/naamm	(312) 322-0405
NEMA	National Electrical Manufacturers Assoc. 1300 N 17th Street, Suite 1847 Rosslyn, VA 22209 www.nema.org	(703) 841-3200
NRCA	National Roofing Contractors Association O'Hare International Center 10255 W.Higgins Road, Suite 600 Rosemont, IL 60018-5607 www.roofonline.org	(800) 323-9545 (847) 299-9070
SIGMA	Sealed Insulating Glass Manufacturers Assoc. 401 N. Michigan Avenue Chicago, IL 60611-4267 www.sigmaonline.org/sigma	(312) 644-6610 X - 3279
SMACNA	Sheet Metal and Air Conditioning Contractor's National Association 4201 Lafayette Center Drive P O Box 221230 Chantilly, VA 20151-1209 www.smacna.org	(703) 803-2980
SPRI	SPRI (Formerly: Single Ply Roofing Institute) 200 Reservoir St., Suite 309A Needham, MA 02494-3034 www.spri.org	(781) 444-0242
UL	Underwriters Laboratories, Inc. 333 Pfingsten Road. Northbrook, IL 60062 www.ul.com	(800) 704-4050 (847) 272-8800
WWPA	Western Wood Products Association Yeon Building, 522 SW 5th Avenue Portland, OR 97204-2122 www.wwpa.org	(503) 224-3930

A. Federal Government Agencies: Names and Titles of Federal Government standards or specification-developing agencies are often abbreviated. The following abbreviations and acronyms referenced in the Contract Documents indicate names of standards or specification-developing agencies of the Federal Government. Names and addresses are subject to change and are believed but are not assured, to be accurate and up-to-date of the date of the Contract Documents.

CFR	Code of Federal Regulations (Available from the Government Printing Office) Washington, DC 20401 (Material is usually published first in the "Federal Register") www.access.gpo.gov	(202) 512-1800
EPA	Environmental Protection Agency 401 M Street, SW Washington, DC 20460 www.epa.gov	(202) 260-2090
FS	Federal Specification Unit (Available from GSA) 470 East L'Enfant Plaza, SW, Suite 8100 Washington, DC 20407 www.gsa.gov	(202) 619-8925
GSA	General Services Administration F Street and 18th Street, NW Washington, DC 20405 www.gsa.gov	(202) 708-5082
NIST	National Institute of Standards and Technology (U.S. Dept. of Commerce) Building 101, #A1134 Rte. I-270 and Quince Orchard Rd. Gaithersburg, MD 20899 www.nist.gov	(301) 975-2000
USPS	U.S. Postal Service 475 L'Enfant Plaza, SW Washington, DC 20260-0010 www.usps.gov	(202) 268-2000

B. State Government Agencies: The following state government agencies develop standards referenced in the Contract Documents:

Montana Public Works Association Standards
Montana Department of Transportation
Montana Building Codes Division
Montana Department of Labor
Montana Dept. of Fire Prevention & Electrical Safety

1.05 SUBMITTALS

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

PART 2 - PRODUCTS STANDARDS

2.01 REFERENCES

A. Associations:

AIA	American Institute of Architects, 1735 New York Avenue N.W., Washington, D.C. 20006
ANSI	American National Standard Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036-8002
ASA	American Standards Association, 10 E. 40th Street, New York, New York 10016
ASTM	American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103
CS	Commercial Standard of U.S. Department of Commerce, Washington, D.C. 20025
CSI	Construction Specification Institute, Dupont Circle Building, Washington, D.C. 20036
EPA	Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460
IBC	International Building Code of International Code Council, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795
ICC	International Code Council, 5203 Leesburg Pike #708, Falls Church, VA 22041
IEEE	Institute of Electrical and Electronics Engineers, 345 E. 47th Street, New York, NY 10017-2394
IRI	HSB Industrial Risk Insurers, P O Box 5010, 85 Woodland Street, Hartford, CT 06102-5010
ISA	International Society for Measurement & Control, P O Box 12277, 67 Alexander Drive, Research Triangle Park, NC 27709
NEC	National Electric Code - National Fire Protection Association, Batterymarch Park, Quincey, MA 02269
NFPA	National Fire Protection Association, One Batterymarch Park, P O Box 9101, Quincy, MA 02269-9101
OSHA	Occupational Safety & Health Administration, (US Dept. of Labor) 200 Constitution Avenue NW, Washington, DC 20210
PS	Product Standard of NBS (US Dept of Commerce) Government Printing Office, Washington, DC 20402. For Product Standards Contact: CS & PS Specialist c/o NIST, Gaithersburg, MD 20899
UPC	Uniform Plumbing Code and Uniform Mechanical Code - International Association of Plumbing and Mechanical Officials, 5032 Alhambra Avenue, Los Angeles, CA 90032
UL	Underwriters Laboratories, 207 East Olive Street, Chicago, Illinois 60611
USDA	US Dept. of Agriculture, 14th Street & Independence Avenue SW, Washington, DC 20250

B. Names and addresses of other organizations appear in the technical specifications where their products are specified or are listed in Sweet's Architectural File.

C. Except where a specific date of issue is mentioned hereinafter, reference to specifications issued by the above named and other organizations shall mean the edition current on the date of the Advertisement for Bid.

END OF SECTION 01060

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01210 - PROCEDURES AND PERFORMANCES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY:

The types of minimum requirements for procedural and performance work of a general nature include but are not necessarily limited to the following categories:

Pre-construction Conference
Pre-installation Conference
Coordination Meetings
Progress Meetings
Coordination and meetings.
Limitations for use of site.
Tradesmen and workmanship standards.
Inspections, tests and reports.
General installation provisions.
Protection

1.03 COORDINATION AND MEETINGS:

A. Pre-construction Conference:

1. Contact Architect to schedule a pre-construction conference and organizational meeting at the Project site or other convenient location prior to commencement of construction activities, including the moving of equipment onto the site, to review responsibilities and personnel assignments.

2. Attendees: The Owner, Architect and their consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work. **THE CONTRACTOR AND THE CONTRACTOR'S JOB SUPERINTENDENT SHALL ATTEND THE MEETING, ALONG WITH APPROPRIATE SUBCONTRACTORS. ALL COMMUNICATION SHALL BE WITH THE CONTRACTOR. SIDE DISCUSSIONS WITH THOSE OTHER THAN POINTS OF CONTACT DESIGNATED ARE NOT VALID.**

3. Agenda: Discuss items of significance that could affect progress including such topics as:

    a. Tentative construction schedule
    b. Critical Work sequencing
    c. Designation of responsible personnel
    d. Procedures for processing field decisions and Change Orders
    e. Procedures for procession Applications for Payment
    f. Distribution of Contract Documents

g. Submittal of Shop Drawings, Product Data and Samples
h. Preparation of record documents
i. Use of the premises
j. Office, Work and storage areas
k. Equipment deliveries and priorities
l. Safety procedures
m. First Aid
n. Security
o. Housekeeping
p. Working hours
q. Other outlined items

B. Progress Meetings:

1. There are to be regularly scheduled progress meetings at the Project site as determined by the Architect.

2. Attendees: In addition to representatives of the Owner, Architect, Contractor and appropriate subcontractor, supplier or other entity integral with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

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

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

    b. Review the present and future needs of each entity present, including such items as:

        1. Interface requirements
        2. Time
        3. Sequences
        4. Deliveries
        5. Off-site fabrication problems
        6. Access
        7. Site utilization
        8. Temporary facilities and services
        9. Hours of Work
        10. Hazards and risks
        11. Housekeeping
        12. Quality and Work standards
        13. Valid Change Orders
        14. Documentation of information for payment requests

4. Reporting: The Architect shall distribute copies of minutes of the meeting within five calendar days to the Owner and Contractor and include a brief summary, in narrative form, of progress since the previous meeting and report comments or revisions to the meeting notes must be submitted in writing to the Architect within five calendar days of receipt.

5. Schedule Updating: The Contractor shall revise the construction schedule after each month's progress meeting whenever revisions to the schedule have been made or are recognized. Contractor is to issue the revised schedule at the next progress meeting.

E. General: The Contractor shall prepare and distribute to each entity performing work at project site, written instructions on required coordination activities, including required notices, reports and attendance at meetings.

F. The Contractor shall schedule, maintain performance, coordinate and observe on site activities of all subcontractors, suppliers, trades, etc., involved with the project.

G. Coordination Drawings: Where work by separate entities requires off-site fabrication of products and materials which must be accurately interfaced and closely intermeshed to produce required results, the Contractor shall prepare coordination drawings to indicate how the work shown by separate shop drawings will be interfaced, intermeshed, and sequenced for installation. Comply with submittal requirements of "Submittals" section.

H. Pre-Installation Conferences:

1. The Contractor shall conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting.

2. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:
    a. Contract Document Requirements
    b. Deliveries
    c. Shop Drawings, product Data and quality control samples
    d. Possible conflicts and proposed solutions.
    e. Compatibility solutions for the manufacturers selected by the Contractor.
    f. Time schedules
    g. Weather limitations
    h. Manufacturer's recommendations
    i. Compatibility of materials selected by the Contractor.
    j. Acceptability of substrate materials.
    k. Temporary facilities required to complete the work.
    l. Space and access needs to complete the work.
    m. Governing regulations
    n. Safety criteria.
    o. Inspection and testing requirements
    p. Required performance results of the subcontractors/suppliers.
    q. Recording requirements for record documents.
    r. Protection of installations.

3. The Contractor, if present, will record and distribute to the Owner and Architect significant discussions and agreements and disagreements of each conference, along with the approved schedule. The Contractor shall promptly distribute the record of the meeting to everyone concerned, after receiving concurrence with conference activities.

4. Do not proceed if the conference cannot be successfully concluded. The Contractor is to initiate whatever actions are necessary to resolve impediments to performance of Work.

I. Coordination Meetings – Contractor and Appropriate Subcontractor(s) or Supplier(s):

1. The Contractor shall conduct project coordination meetings at regularly scheduled times convenient for the parties involved with the current stage of construction. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.

2. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

3. The Contractor will record meeting results and distribute copies to the Owner and Architect and to others affected by decisions or actions resulting from each meeting. No activities are to proceed which are contrary to the contract document requirements without written confirmation of the Architect.

1.04LIMITATIONS FOR USE OF SITE:

General: In addition to site utilization limitations and requirements shown on drawings, and indicated by other contract documents, administer allocation of available space equitably among entities needing access and space, so as to produce best overall efficiency in performance of total work of project.

The Contractor shall schedule deliveries so as to minimize space and time requirements for storage of materials and equipment on site. Make arrangements with Owner to utilize site for storage of materials. Provide reasonable measures to protect completed portions and existing building from weather damage during the course of the project.

1.05TRADESMEN AND WORKMANSHIP STANDARDS:

GENERAL: UNDER DIRECTION OF A COMPETENT SUPERINTENDENT WHO IS PRESENT AT ALL TIMES WHILE WORK IS IN PROGRESS. Instigate and maintain procedures to ensure that tradesmen performing at site are skilled and knowledgeable in methods and craftsmanship needed to produce required quality-levels for workmanship in completed work. Remove and replace work which does not comply with workmanship standards as specified and as recognized in the construction industry for applications indicated. Remove and replace other work damaged or deteriorated by faulty workmanship or its replacement.

1.06INSPECTIONS, TESTS AND REPORTS

A. General: Required inspection and testing services are intended to assist in determination of probable compliances of the work with requirements, but do not relieve Contractor of responsibility for those compliances, or for general fulfillment of requirements of contract documents. Specified inspections and tests are not intended to limit Contractor's quality control program. Afford reasonable access to agencies performing tests and inspections.

B. Tests: All testing not denoted as by Owner is to be Contractor's responsibility. Copies of all results to be per paragraph "C" below. Note requirements in concrete work for contractor to obtain test samples and deliver them to testing agency.

C. Reports: Submit test/inspection reports, including agency's analysis of results and recommendations where applicable, in duplicate to Architect/Engineer except as otherwise indicated, and submit copies directly to governing authorities where required or requested.

D. All observations of tests called for in these documents shall have 48 hours prior notice to the Architect. The Architect may defer the request to the appropriate consultant for execution.

PART 2 - PRODUCTS (not applicable.)

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION PROVISIONS

A. Installer's Inspection of Conditions: Require installer of each major unit of work to inspect substrate to receive the work, and conditions under which the work will be performed, and to report (in writing to Contractor) unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to installer by the contractor.

B. Manufacturer's Instructions: Where installation include manufactured products, comply with manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in contract documents.

C. Inspect each item of materials or equipment immediately prior to installation, and reject damaged and defective items.

D. Provide shims, fillers, attachment and connection devices and methods for securing work properly as it is installed; true to line and level, and within recognized industry tolerances if not otherwise indicated. Allow for expansions and building movements. Provide uniform joint widths in exposed work, organized for best possible visual effect. Refer questionable visual-effect choices to Architect for final decision.

E. RECHECK measurements, elevations and dimensions of the work, and adjust discrepancies as an integral step of starting each installation. Notify Architect in writing with adequate descriptions of any critical discrepancies prior to beginning work.

F. Install work during conditions of temperature, humidity, exposure, forecasted weather, and status of project completion which will ensure best possible results for each unit of work from non-compatible work, as required to prevent deterioration.

G. Coordinate enclosure (closing-in) of work with required inspections and tests, so as to avoid necessity of uncovering work for that purpose.

H. Mounting Heights: Except as otherwise indicated mount individual units of work at industry-recognized standard mounting heights, for applications indicated. Refer questionable mounting height choices to Architect/Engineer for final decision.

3.02 PROTECTION

A. Limiting Exposures of Work: To extent possible through reasonable control and protection methods, supervise performance of work in a manner and by means which will ensure that none of the work whether completed or in progress, will be subjected to damaging, or otherwise deleterious exposures during construction period.

END OF SECTION 01210

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 01330 – SUBMITTAL PROCEDURES

PART 1 – PROCEDURES

1.01RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02SUMMARY

A. This section includes mandatory requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
B. General: Electronic copies of CAD Drawings of the Contract Drawings may be provided by Architect for Contractor's use in preparing submittals. The contractor will request in writing and sign a waiver of responsibility regarding the use of electronic media and shall not reuse the media for any other use per the General Conditions.

1.03DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's review.
B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

1.04SUBMITTAL ACTION REQUIRED OF THE CONTRACTOR:

A. 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 requires 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.
B. Submittals Schedule: Refer to submittal schedule at end of this section and each specification section for submittal information. Provide product data and color samples within 15 days of Notice of Award. Shop drawings are to be submitted within 7 days of field verification by the contractor..
C. **Use by the Contractor of Shop Drawings not first reviewed by the Contractor and the Architect, are solely the contractor's responsibility and possible liability for non-compliance with the contract documents. .The Architect will return submittals from sources other than the Contractor to the Contractor for his review and resubmittal**.
D. The contractor shall review each submittal and check for compliance with the Contract Documents. Note corrections, verify quantities, coordinate approved substitutions and confirm field dimensions. Mark with approval stamp before submitting to Architect.
E. Approval Stamp: The contractor shall 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.
F. Any work that is done, or material ordered prior to the review or approval of such submittal(s), shall be at the contractor's sole risk.

G. Contractor shall check and verify all field conditions and is responsible for shop drawing errors and omissions. Contractor shall be responsible for deviations from contract documents delineated in the shop drawings.
H. Contractor to coordinate the implementation of change order construction change directives and field orders in shop drawings/submittals as they apply.
I. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal.
    1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals.
    2. Concurrent Review: Where concurrent review of submittals by Architect's consultants, Owner, or other parties is required, allow 21 days for initial review of each submittal.
    3. If intermediate submittal is necessary, process it in same manner s initial submittal.
    4. Allow 15 days for processing each resubmittal. Resubmittal time by the A/E after the first resubmittal will be billed to the Owner and will be deducted from the contractor's contract sum.
    5. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
J. Identification: Place a permanent label or title block on each submittal for identification.
    1. Indicate name of firm or entity that prepared each submittal on label or title block.
    2. Provide a space approximately 4 x 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
    3. Include the following information on label for processing and recording action taken:
        a. Project name
        b. Date
        c. Name and address of Architect
        d. Name and address of Contractor
        e. Name and address of subcontractor
        f. Name and address of supplier
        g. Name of manufacturer
        h. Unique identifier, including revision number
        i. Number and title of appropriate specification section
        j. Drawing number and detail references, as appropriate
        k. Other necessary identification
K. Deviations: The Contractor shall highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
L. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
    1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
    2. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.
M. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form.
    1. Submittal **must not deviate** from contract documents.
    2. Provide Contractor's certification based upon submittal review stating that information submitted **complies with requirements of the Contract Documents**.
    3. Transmittal Form: Use contractor's standard form.
    4. Transmittal Form: Provide locations on form for the following information:
        a. Project name
        b. Date
        c. Destination (To:)
        d. Source (From:)

e. Names of subcontractor, manufacturer, and supplier.
f. Category and type of submittal
g. Submittal purpose and description
h. Submittal and transmittal distribution record
i. Remarks
j. Signature of transmitter

N. Distribution: Furnish copies of final submittals to those entities as necessary for performance of construction activities. Show distribution on transmittal forms.
O. Use for Construction: Use only final submittals with mark indicating action taken by Architect and/or consultants.

PART 2 – PRODUCTS

2.01ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.
   1. Number of Copies: Submit eight copies of each submittal. Architect will return four copies. Mark up and retain one returned copy as a Project Record Document.
   2. Additional Submittal : Submit seven copies where copies are required for operation and maintenance manuals. Architect will retain two copies, remainder will be returned. Mark up and retain one returned copy as a Project Record Document.
   3. Refer to submittal schedule at the end of this section.
B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. Mark each copy of each submittal to show which products and options are applicable to the project.
   2. 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.
3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but not larger than 30 by 40 inches.
4. Number of Copies: Submit copies of each submittal, as follows:
   a. Submittal: Submit seven prints where prints are required for operation and maintenance manuals. Architect will retain two prints; remainder will be returned. (Mark up and retain one returned print as a Project Record Drawing.)

D. Samples: Prepare physical units of materials or products, including the following:
1. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material 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.
2. 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
   d. Compliance with recognized standards
   e. Submit only available items.
   f. Delivery time
   g. Refer to individual Specification Sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
   h. Submit two samples.
3. Disposition: Maintain approved Samples at Project site for quality-control comparisons.
   a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
   b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor and removed from the site.

E. Product Schedule or List: See submittal schedule at end of this section.
F. Delegated-Design Submittal: Comply with requirements in respective specification section.

2.02 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit two copies of each submittal.
2. Certificates and Certifications: Provide a notarized statement that includes signature of Contractor, testing agency, or design professional responsible for preparing certification.

B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person.
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.

F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements and 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 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 interpreting results of field tests performed for compliance with requirements.
L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements.
M. Research/Evaluation Reports: Prepare written evidence, form 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 manufacturer's name.
    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 criteria for installing or operating a product or equipment. Include the following, as applicable:
    1. Preparation of substrates.
    2. Required substrate tolerances.
    3. Sequent 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.
    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. Construction Photographs : Comply with requirements in Division 1 Section – Temporary Facilities.

T. Material Safety Data Sheets: This is solely the contractor's responsibility.

PART 3 – ARCHITECT'S ACTION

A. General: Submittals that do not bear Contractor's review comments and approval stamp may be returned by the Architect to the Contractor without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
1. Return for Contractor Review & Stamp
2. Reviewed.
3. Reviewed and revise as noted.
4. Correct as noted and resubmit
5. Rejected

Note: Items 3, 4 and 5 above must be addressed prior to fabrication or installation.

C. 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.

D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

(CONTINUED ON NEXT PAGE)

A. The following list is for convenience only. Any item listed here and not mentioned in a Technical Section of the Specifications, or vice versa, shall be submitted for approval. Refer to Mechanical and Electrical - Divisions 15 and 16 - for additional information.

SECTION/ ITEM	SHOP DRAWINGS	TESTS	PRODUCT SAMPLES	DATA	PROJECT SCHEDULES	INSTALL & OPER. BOOK	WARRANTY(S)	CLOSEOUT DOCUMENTS
DIVISION 1								
01210					10 days after Notice of Award			
01400		X			X			X
01700								20 days following substantial completion date
01740								20 days following substantial completion date
DIVISION 2								
02070				Photographs	X			
DIVISION 3								
N/A								
DIVISION 4								
N/A								
DIVISION 5								
05110	X							
DIVISION 6								
06100	X		X	X				
06401			X	X				
DIVISION 7								
07311			X					
07460	X		X	X				
07510				X				
07530	X	X	X	X			X	

SECTION/ ITEM	SHOP DRAWINGS	TESTS	PRODUCT SAMPLES	DATA	PROJECT SCHEDULES	INSTALL & OPER. BOOK	WARRANTY(S)	CLOSEOUT DOCUMENTS
DIVISION 7								
07620	X		X	X				
07720	X			X				
07900				X				
DIVISION 8								
N/A								
DIVISION 9								
N/A								
DIVISION 10								
N/A								
DIVISION 11								
N/A								
DIVISION 12								
N/A								
DIVISION 13								
N/A								
DIVISION 14								
N/A								
DIVISION 15								
N/A								
DIVISION 16								
N/A								

B. All schedules to be provided within 10 working days of Notice of Award.

C. Record drawings. A "Brochure of Equipment" will be provided for the Owner at the completion of construction to aid in the operation and maintenance of ALL equipment. The Contractor shall maintain a "Field Marked" set of drawings showing exact locations of all concealed items. At the completion of the project, the marked prints shall be delivered to the Architect.

D. All warranties, guarantees, replacement stock to be provided within twenty (20) working days of substantial completion without exception.

END OF SECTION 01330

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01500 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract apply to this Section.

1.02 SUMMARY

A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.

B. Temporary utilities required include but are not limited to:

1. Water – BY OWNER
2. Water Distribution
3. Power – BY OWNER
4. Lighting & Power Distribution
5. Telephone

C. Temporary construction and support facilities required include but are not limited to:

1. Temporary heat
2. Field offices and storage sheds – if needed.
3. Sanitary facilities, including drinking water
4. Dewatering facilities and drains
5. Temporary enclosures
6. Temporary Project identification signs and bulletin boards – personnel information.
7. Waste Disposal services
8. Construction aids and miscellaneous services and facilities

D. Security and protection facilities required include but are not limited to:

1. Temporary fire protection
2. Barricades, warning signs, lights
3. Sidewalk bridge or enclosure fence for the site
4. Environmental protection
5. Non-smoking policy
6. Registered offender information – provide list for Owner to consider
7. Courteous language required.
8. Traffic management/control for the project.
9. Weapon limitation on site regarding firearms and knives.

E. Facility criteria:
1. No smoking, drugs or alcohol on premises.
2. No firearms or weapons on premises.
3. Personnel listed on a registered offender list are to be conveyed to the Owner for review prior to accessing site.
4. Attire is to be proper for the project.

1.03 SUBMITTALS

A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.

B. Implementation and Termination Schedule: Submit a schedule indicating implementation and termination of each temporary utility within 15 days of the date established for commencement of the Work.

1.04 QUALITY ASSURANCE

A. Regulations: Comply with industry standards, applicable laws, ordinances and regulations if authorities having jurisdiction, including but not limited to:

1. Building Code requirements
2. Health and safety regulations
3. Utility company regulations
4. Police, Fire Department and Rescue Squad rules
5. Environmental protection regulations
6. Conformance with curfew limitations, if any

B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities."

1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.

2. Electrical Service: Comply with NEA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).

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

1.05 PROJECT CONDITIONS

A. Temporary Utilities: Define as part of the construction schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.

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

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Provide materials as needed, undamaged new or previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.

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

1. For job-built temporary offices, shops and sheds within the construction area, provide UL labeled, fire rated lumber and plywood for framing, sheathing and siding.

2. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.

3. For safety barriers, sidewalk bridges & covers, and similar uses, provide minimum 5/8" thick exterior plywood.

C. Gypsum Wallboard: Provide gypsum wallboard complying with requirements of ASTM C 36 on interior walls of temporary offices.

D. Roofing Materials: Provide UL Class "A" standard weight asphalt shingles complying with ASTM D 3018, or UL Class "C" mineral surfaced roll roofing complying with ASTM D 249 on roofs of job-built temporary offices, shops and sheds.

E. Tarpaulins: Provide waterproof, fire-resistant, tarpaulins with flame-spread rating of 25 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

F. Water: Provide potable water approved by local health authorities.

G. Open-Mesh Fencing: Provide plastic orange fence barrier.

H. Traffic Control Devices: Traffic cones, barriers, speed limit signs and warning equipment.

2.02 EQUIPMENT

A. General: Provide well maintained equipment. Undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.

B. Water Hoses: Provide as required with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.

C. Electrical Outlets: Provide properly configured NEA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.

D. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

E. Lamps and Light Fixtures: Provide general service lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.

F. Heating Units: Provide temporary heating units that have been tested and label by UL, FM or another recognized trade association related to the type of fuel being consumed.

G. Temporary Offices: At Contractor's Option, provide with lockable entrances, insulated operable windows and serviceable finishes. Provide heated and conditioned units adequate for normal use.

H. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.

1. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
2. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
3. Safety Showers: Provide eye-wash fountains and similar facilities for convenience, safety and sanitation of personnel.
4. Toiletries: Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.

I. Temporary Toilet Units: Comply with health regulations. Provide self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.

J. First Aid Supplies: Comply with governing regulations.

K. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

1. Comply with NFPA for classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the 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.

3.02 TEMPORARY UTILITY INSTALLATION

A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.

1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.

2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.

3. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.

4. Use Charges: Cost of use charges for temporary facilities are not chargeable to the Owner or Architect, and will not be accepted as a basis of claims for a Change Order.

B. Water Service: Install water distribution hoses of size and pressures adequate for construction.

C. Temporary Electric Power Service: The Owner shall provide electrical power for construction operations at no cost to the Contractor. Coordinate electrical usage required with Owner for installation of the temporary service.

1. Provide weather tight, grounded temporary electrical service-entrance and distribution system, with ground-fault circuit interrupters and ground-fault interrupter features of proper types, sizes, electrical ratings and characteristics to fulfill project requirements. Comply with applicable requirements of IEEE, NEMA and UL standards and governing regulations.

2. Service: Comply with IEEE pertaining to installation of temporary wiring service and grounding. Provide meters, transformers, and overcurrent protective devices at main distribution panel for power and light circuitry. Provide disconnects for equipment circuits.

3. Power Distribution System: Provide circuits of proper sizes, characteristics, and ratings for each use indicated. System to comply with IEEE and OSHA requirements for specific uses. Provide as required to protect wiring on grade, roofs, decks or other areas exposed to possible damage. Provide 20 amp, 4-gang receptacle outlets, equipped with ground-fault circuit interrupters, reset button and pilot light, spaced so interrupters, reset button and pilot light, spaced so that a 100 foot extension cord can reach each area of work. Use only grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide warning signs at power outlets that are other than 110/120 volt. Provide outlets of proper configuration to prevent insertion of 110/120 volt plugs into higher voltage outlets.

4. Provide adequate capacity at each stage of construction. Prior to availability at the site, provide trucked-in services for start up of construction operations.

5. Exercise control over power usage to conserve energy. Turn off or de-energize all service to the site during non-use periods.

6. Electrical Outlets: Provide properly configured NEA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.

7. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

D. Temporary Lighting: Provide temporary lighting with local switching.

1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

E. Temporary Telephones: Provide temporary telephone service for personnel engaged in construction activities, throughout the construction period. Provide cellular telephone, operational and on site at all times.

F. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off the site in a lawful manner.

1. Filter out excessive amounts of soil, construction debris, chemicals, oils and similar contaminants that might clog sewers or pollute waterways before discharge.

2. Connect temporary sewers to the municipal system as directed by the sewer department officials.

3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. Following heavy use, restore normal conditions promptly.

G. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

3.03 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

A. Locate temporary construction and support facilities for easy access.

1. Maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

B. If needed, provide noncombustible construction for offices, shops and sheds located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.

C. Temporary Heat: Provide temporary heat required by construction activities, for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.

1. Heating Facilities: Except where use of the permanent system is authorized, provide vented self-contained LP gas or fuel oil heaters with individual space thermostatic control.

a. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited.

2. Heating Units: Provide temporary heating units that have been tested and label by UL, FM or another recognized trade association related to the type of fuel being consumed.

D. Storage and Fabrication Sheds: As required install storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on the site.

E. Drinking Water: Provide drinking water where needed, including paper supply.

F. Temporary Enclosures: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.

1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

2. Install tarpaulins securely, with incombustible wood framing and other materials. Close building openings of 25 square feet or less with plywood or similar materials.

3. Close openings through roof decks and horizontal surfaces with load-bearing wood-framed construction.

4. Where temporary wood or plywood enclosure exceeds 100 square feet in area, use UL-labeled fire-retardant treated material for framing and main sheathing.

G. Temporary Lifts and Hoists: Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

H. Project Identification and Temporary Signs: Prepare project identification and other signs of the size indicated; install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative treated wood or steel. Do not permit installation of unauthorized signs.

1. Project Identification Signs: Engage an experienced sign painter to apply graphics. Comply with details indicated.

2. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.

I. Temporary Exterior Lighting: Install exterior yard lights so that signs are visible when Work is being performed.

J. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg. F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner. Do not use Owner's trash containers for any reason.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

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

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

1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than on extinguisher on each floor at or near each usable stairwell.

2. Store combustible materials in containers in fire-safe locations.

3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.

4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.

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

D. Enclosure Fence: When work begins install an enclosure fence. Locate where indicated, the portion determined sufficient to accommodate construction operations. Install in a manner that will prevent from easily entering the site, except by the entrance gates.

1. Provide open-mesh fencing with posts set in a compacted mixture of gravel and earth.

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

1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

F. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other

undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

G. Traffic Control: Arrange traffic control apparatus per the jurisdiction having authority.

3.05 OPERATION, TERMINATION AND REMOVAL

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

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

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.

2. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

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

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

2. Remove temporary paving that is not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances which might impair growth of plant materials or lawns. Repair or replace street paving, curbs and sidewalks at the temporary entrances, as required by the governing authority.

3. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:

a. Replace air filters and clean inside of ductwork and housings.

b. Replace significantly worn parts and parts that have been subject to unusual operating conditions.

c. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

END OF SECTION 01500

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01600 - PRODUCTS AND SUBSTITUTIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 DESCRIPTION OF REQUIREMENTS

A. Definitions: "Products" is defined to include items for incorporation into the work. "Materials" is defined as products which make a substantially cut, shaped, worked, mixed, finished, refined or otherwise fabricated, processed, installed or applied to form units or work. "Equipment" is defined as products with operational parts, including products with service connections (wiring, piping, etc.). Definitions in this paragraph are not intended to negate the meaning of other terms used in contract documents.

B. Substitutions: The requirements for substitutions do not apply to specified Contractor options on products and construction methods. Requested prior approval substitutions during bidding period, approved by Addendum prior to Contract Date, are included in contract documents and subject to requirements for substitutions. Contractor's determination with governing regulations and orders by governing authorities **do not constitute "substitutions"** and **do not constitute a basis for change orders**.

C. Revisions or adjustments to contract documents, requested in writing by Owner, Architect, or Engineer, are "modifications" not "substitutions".

D. Contractor's requests after the award of the project for changes in products, materials and methods of construction required by the contract documents are considered requests for "substitutions" and are subject to requirements hereof. Only requests that benefit the Owner in time or cost will be considered otherwise the project is to be implemented as bid.

1.03 QUALITY ASSURANCE

A. Source Limitations: To the greatest extent possible, provide products, materials and equipment singular generic kind and from a single source.

B. Compatibility of Options: Where more than one choice is available as options for Contractor's selection of a product or materials, select an option which is compatible with other products and materials already selected. Compatibility is a basic general requirement of product/material selections and must be provided by Contractor.

1.04 SUBMITTALS

A. Requests for Substitutions: The Contractor is to submit 3 copies, fully identified for product or method being replaced by substitution, and fully documented to show compliance with intended performance. Include: data/drawings, description of methods, samples where applicable. Provide statement that substitutions will result in overall work equal-to-or-better than work originally indicated and provides a reduction in cost or time to be considered.

1.05 PRODUCT DELIVERY-STORAGE-HANDLING

A. General: Deliver, handle and store products in accordance with manufacturer's recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. In particular, provide delivery/installation coordination to ensure minimum holding or storage times.

PART 2 - PRODUCTS

2.01 GENERAL PRODUCTS COMPLIANCES

A. General: Required procedures include, but are not necessarily limited to, the following for various indicated methods of specifying:

1. Single Product/Manufacturer Name: Provide product indicated, except where known that named product is no longer produced.

2. "Or Equal": Where named products in specifications test are accompanied by the term "or equal", comply with these contract document provisions concerning "substitutions".

3. Standards, Codes and Regulations: Where compliance with an imposed standard, code or regulation is required, selection from among products which comply with requirements including those standards, codes and regulations, is required of the Contractor.

4. Visual Matching: Where matching of an established sample is required, final judgement of whether a product proposed by Contractor matches sample satisfactorily is Architect's judgement.

5. Visual Selection: Except as otherwise indicated, where specified product requirements indicate "...as selected from manufacturer's standard colors, patterns, textures..." or words of similar effect, the selection (complying with requirements) of color, pattern and texture is the Architect's selection.

2.02 SUBSTITUTIONS

A. Conditions: Contractor's request for substitution will be received and considered when extensive revisions to contract documents are not required and changes are in keeping with general intent of contract documents and properly submitted. The proposal must be of benefit to the Owner in time and cost to be considered.

B. Work-Related Submittals: Contractor's submittal of shop drawings, product data or samples which indicate work **not** complying with requirements of contract documents will not be accepted.

2.03 GENERAL PRODUCT REQUIREMENTS

A. General: Provide new products which comply with requirements, complete with accessories, trim, finish, safety guards, other devices and details needed for a complete installation.

1. Provide continually available products.

END OF SECTION 01600

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01700 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY

Definitions: Closeout is hereby defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal completion of contract requirements, occupancy by Owner and similar actions evidencing completion of the work.

1.03 PREREQUISITES TO SUBSTANTIAL COMPLETION

A. General: Request in writing Architect's inspection for certification of substantial completion (for either entire work or portions thereof), complete the following and list known exceptions in request: Provide in writing notification of facility being ready for substantial completion.

1. In progress payment request coincident with or first following date claimed, show compliance with 9.8 of the General Conditions, completion for portion of work claimed as "substantially complete". Provide a list in writing of incomplete items, value of incompletion, and reasons for being incomplete.

2. Include supporting documentation for completion as indicated in these contract documents.

3. Submit statement showing accounting of changes to the Contract Sum.

4. Advise Owner of pending insurance change-over requirements.

5. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents within twenty (20) working days of substantial completion.

6. Obtain and submit release enabling Owner's full and unrestricted use of the work and access to services and utilities, including (where required) occupancy permits, operating certificates, and similar releases.

7. Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, and similar final record information.

8. Deliver tools, spare parts, extra stocks of materials, and similar physical items to Owner.

9. Make final change-over of locks and transmit keys to Owner, and advise Owner's personnel of change-over in security provisions.

10. Complete start-up testing of systems, and instructions of Owner's operating/maintenance personnel. Discontinue (or change over) and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups, and similar elements.

11. Complete final clean up requirements.

B. Inspection Procedures: Upon receipt of Contractor's written request, Architect/Engineer will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Architect will either prepare certificate of substantial completion, or advise Contractor of work which must be performed prior to issuance of certificate; and repeat inspection when requested and assured that work has been substantially completed. Results of completed inspection will form "punchlist" for final acceptance. An additional inspection will be billed to the Owner and deducted from the Contractor's application for payment.

1.04 PREREQUISITES TO FINAL ACCEPTANCE

A. General: Request in writing Architect's final inspection for certification of final acceptance and final payment, as required by General Provisions, complete the following and list known exceptions (if any) in request: Provide in writing notification of day that work is complete and ready for final inspection.

1. Submit final payment request with final releases (including lien releases) and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

2. Submit updated final statement, accounting for final changes to contract sum.

3. Submit initialled copy of Architect's final punch list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.

4. Revise and submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Reinspection Procedure: Upon receipt of Contractor's written notice that work has been completed, including punch list items resulting from earlier substantial completion inspection and excepting incomplete items delayed because of acceptable circumstances, Architect will reinspect work. Upon completion of final inspection, Architect will confirm final acceptance or advise Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, procedure will be repeated at contractor's expense after first reinspection.

1.05 RECORD DOCUMENT SUBMITTALS

A. General: General submittal requirements are indicated in "Submittals" sections. Do not use record documents for construction purposes; provide access to record documents for Architect's reference during normal working hours. Electronic or CADD record documents must be in the same size and format as the contract documents.

B. Record Drawings: Maintain a white-print set (blue-line or black-line) of contract drawings and shop drawings in clean, undamaged condition, with mark-up of actual installations. Mark with red erasable pencil and, where feasible, use other colors to distinguish between variations in separate categories of work. Mark up new information which is recognized to be of importance to Owner. Give particular attention to concealed work, which would be difficult to measure and record at a later date.

C. Record Specifications: Maintain one copy of specifications, including addenda, change orders and similar modifications issued in printed form during construction, and mark up variations (of

substance) in actual work. Give particular attention to substitutions, selection of options, and similar information on work where it is concealed.

D. Miscellaneous Record Submittals: Immediately prior to date(s) of substantial completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to Architect for Owner's records.

E. Maintenance Manuals: Organize maintenance-and-operating manual information, and bind into individual 3" three ring binders properly identified and indexed (thumb-tabbed) per each specification section. Include emergency instructions, spare parts listing, warranties, wiring diagrams, recommended "turn-around" cycles, inspection procedures, shop drawings, product data, and similar applicable information.

PART 2 - PRODUCTS (Not Applicable.)

PART 3 - EXECUTION

3.01 CLOSEOUT PROCEDURES

General Operating/Maintenance Instructions: Arrange for each installer of work requiring continuing maintenance or operation, to meet with Owner's personnel, at project site, to provide basic instructions needed for proper operation and maintenance of entire work. Include instructions by manufacturer's representatives where installers are not expert in the required procedures.

3.02 FINAL CLEANING

A. General: General cleaning during progress of work is specified in General Conditions and as temporary services in "Temporary Facilities" section of this Division. Provide final cleaning of the work for a first-class building cleaning and maintenance program. Comply with manufacturer's instructions for cleaning operations.

B. See General Checklist at end of this section.

C. Removal of Protection: Except as otherwise indicated or requested by Architect, remove temporary protection devices and facilities which were installed during course of the work.

D. Compliances: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at site, or bury debris or excess materials on Owner's property, or discharge volatile or other harmful or dangerous materials into drainage systems; remove waste materials from site and dispose of in a lawful manner.

Where extra materials of value remaining after completion of associated work have become Owner's property, dispose of these to Owner's best advantage as directed.

This is a general checklist of closeout items for this project. It is not all inclusive but a guide for reference.

PROJECT: Hail Damage – Billings Community Center

LOCATION: 360 North 23rd Street, Billings, MT

DATE:

GENERAL:

MECHANICAL:

ELECTRICAL:

OTHER:

THOSE PRESENT:

Make sure work is done according to contract documents:

Contractor shall do the following special cleaning for all trades at completion of work:

(1) Remove stains from new glass; wash, polish same, inside and outside. Exercise care not to scratch glass.
(2) Remove marks, stains, fingerprints, and other soil or dirt from painted, decorated, stained work.
(3) Clean and polish hardware for all trades, including removal of stains, dust, dirt, paint and the like.
(4) Remove spots, soil, and paint from all work.
(5) Clean fixtures, equipment; remove stains, paint, dirt and dust.
(6) Clean exterior, interior metal surfaces, including doors, windows, required to have polished finish, of oil stains, dust, dirt, paint and the like; polish, and leave without fingermarks and other blemishes.

GENERAL:

(As applicable, verify compliance and correct the following)

____ 1. Removal of all construction materials.
____ 2. Check paint runs, holidays, chips, smears, excess on other materials, no nail heads to show.
____ 3. Check joints of materials - neat and clean, no smudges.
____ 4. Remove labels which are not required as permanent labels.
____ 5. Remove debris and surface dust from limited-access spaces including roofs, plenums, shafts, attics and similar spaces.
____ 6. Clean up: No rust/no chalk marks/no debris/no evidence of refuse, no equipment oil or grease.
____ 7. Clean all equipment.
____ 8. O & M Manuals.

EXTERIOR:

____ 1. Proper grading.
____ 2. No debris left on site.
____ 3. Sidewalks not chipped - new and existing.
____ 4. Everything sealed - joints of dissimilar materials.
____ 5. Make sure all gutters, downspouts and splash blocks are in place.
____ 6. Check roof flashing and curb flashing.
____ 7. Secure all roof equipment.
____ 8. Remove all stains, foreign material from exterior of building.
____ 9. All pipes and conduit plumb, secure and painted.
____10. Look for other problems that might occur and correct.
____11. Clean project site (yard and grounds), including landscape development areas, of litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, petrochemical spills and other foreign deposits.
____12. O & M Manuals and meeting.

END OF SECTION 01700

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01740 - WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to this section.

1.02 SUMMARY

This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

Refer to the General Conditions for terms of the Contractor's warranty of workmanship and materials. General closeout requirements are included in Section "Project Closeout."

Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Divisions 2 through 16.

Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

1.03 DISCLAIMERS AND LIMITATIONS

Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.04 WARRANTY REQUIREMENTS

Related Damages and Losses: When correcting warranted Work that has failed, within three (3) days provide schedule to remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

Categories of Specific Warranties: Warranties on the work are in several categories, including those in the General Conditions and including but not necessarily limited to the following specific categories related to individual units of work:

1. Special Project Warranty (Guarantee): A warranty specifically written and signed by Contractor for a defined portion of the work; and, where required, countersigned by subcontractor, installer, manufacturer and other entity engaged by Contractor.

2. Specified Product Warranty: A warranty which is required by contract documents.

3. General Limitations: It is recognized that specific warranties are intended primarily to protect Owner against failure of the work to perform as required. Specific warranties do not cover failures in the work which result from: 1) Unusual and abnormal phenomena of the elements, 2) The Owner's misuse, maltreatment or improper maintenance of the work, 3) Vandalism after time of substantial completion, or 4) Insurrection or acts of aggression including war.

4. Related Damages and Losses: In connection with Contractor's correction of warranted work which has failed, remove and replace other work of project which has been damaged as a result of such failure.

5. Reinstatement of Warranty Period: Except as otherwise indicated, when work covered by a special project warranty or product warranty has failed, and been corrected, reinstate warranty by written endorsement.

    a. For a period of time equal to original warranty period of time.

6. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to a condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

7. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

8. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

9. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until entities required to countersign such commitments to do so.

1.05 SUBMITTALS

Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.

When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen days of substantial completion of that designated portion of the Work.

When a special warranty is required to be executed by the Contractor or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.

Refer to individual Sections of Divisions 2 through 16 for specific content requirements, and particular requirements for submittal of special warranties.

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

Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the 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 the installer.

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

When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

END OF SECTION 01740

DIVISION 2 – SITE CONSTRUCTION

DIVISION 2 - SITE CONSTRUCTION
SECTION 02070 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to this section.

1.02 SUMMARY

A. This Section includes selective removal and subsequent offsite disposal.

B. Repair and replacement construction work and patching are included within the respective sections of specifications, including removal of materials for reuse and incorporation into remodeling or new construction.

1.03 SUBMITTALS

A. General: Submit the following in accordance with Provisions of Contract and Division 1 Specification Sections.

A schedule indicating the proposed sequence of operations for selective demolition work provided to Owner's Representative for review prior to the start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.

Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.

Coordinate with Owner's continuing occupation of portions of existing building and with Owner's partial occupancy of completed new work.

B. Photographs of existing condition of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Owner's Representative and Architect prior to start of work.

C. Permits & Bonds: Obtain permits and bonds (fiscal security) required by the agency having jurisdiction prior to mobilizing.

1.04 QUALITY CONTROL

A. Demolition Contractor Requirements:

1. Contractor to have five (5) years experience in similar work.
2. Contractor to provide three (3) references for work similar ($100,000 value minimum) to project scope.
3. Contractor is bonded as identified in the General Provisions.

1.05 JOB CONDITIONS

A. Occupancy: Owner will occupy portions of the building immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for

disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities that will affect Owner's normal operations.

B. Conditions of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.

1. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.

C. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.

1. Storage or sale of removed items on site will not be permitted.

D. Protections: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work.

1. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied portions of building.
2. Erect temporary covered passageways as required by authorities having jurisdiction.
3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse or structure or element to be demolished and adjacent facilities or work to remain.
4. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
5. Protect entrances and floors with suitable coverings when necessary.
6. Construct temporary insulated coverings when necessary.
7. Construct temporary insulated dustproof partitions where required to separate areas where noisy extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks.
8. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occur to structure or interior areas of existing building.
9. Remove protections at completion of work.

E. Damages: Promptly repair damages caused to adjacent facilities by demolition work.

F. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with road, streets, walks, and other adjacent occupied or used facilities.

1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

G. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.

H. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.

1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.
2. Maintain fire protection services during selective demolition operations.

I. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulation pertaining to environmental protection.

1. Do not use water when it may create hazardous or objectionable conditions such as ice, operational disruption, mold, flooding and pollution.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 PREPARATION

A. General: Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of areas to be demolished and adjacent facilities to remain.

1. Cease operations and notify Architect immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.
2. Cover and protect furniture, equipment, and fixtures from soilage or damage when demolition work is performed in areas where such items have not been removed.
3. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.
    a. Where selective demolition occurs immediately adjacent to occupied portions of the building, install temporary vapor barrier enclosures or construct dust-proof partitions of minimum 4-inch studs, 5/8-inch drywall (joints taped) on occupied side, 1/2-inch fire-retardant plywood on demolition side. Fill partition cavity with sound-deadening insulation.
    b. Provide weather proof closure for exterior openings resulting from demolition work.
4. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.
    a. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shutdown of service is necessary during changeover.

3.02 DEMOLITION

A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.

1. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.
2. Provide services complying to E.P.A. standards, and air and water pollution controls, as required by local authorities having jurisdiction.

B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict.

Submit report to Owner's Representative in written, accurate detail. Pending receipt of directive from Owner's Representative, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.02 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off site.

1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.
2. Burning of removed materials is not permitted on project site.

3.03 CLEANUP AND REPAIR

A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave areas broom clean.

1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION 02070

DIVISION 5 - METALS

DIVISION 5 - METALS
SECTION 05110 - MISCELLANEOUS METALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY

A. Work includes:

1. Complete miscellaneous steel work including angles, plates, bracing, as noted on drawings.
2. Structural bolts, anchor bolts and miscellaneous fasteners.
3. Shop and field fabrication.

1.03 QUALITY STANDARDS

The following documents are cited in this section of these specifications for reference.

ASTM A36-75; ASTM A-325-74; ASTM A-307-74; ASTM A-501-74.

AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings 6th Edition (hereinafter referred to as the AISC Specifications).

"Specifications for Structural Joints Using ASTM A-325 Bolts" as approved by Research Council on Riveted and Bolted Structural Joints.

AWS "Standard Code for Welding in Building Construction", American Welding Society.

1.04 SUBMITTALS

A. Shop Drawings:

1. Furnish required sets of shop drawings showing connections, bending and anchorage details.
2. Furnish required sets of shop drawings showing ladder installation.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Structural steel ASTM A-36

B. Anchor bolts or unfinished bolts ASTM A-307

C. High strength bolts ASTM A-325

D. Arc welding electrodes AWS A5.1 or A5.5

E. Unfinished Threaded Fasteners: ASTM A-325, Type 1, High strength threaded rod, steel bolts, nuts, washers.
    1. Provide hexagonal heads and nuts for all connections.

F. Shrinkage Resistant Grout: Premixed non-staining, non-metallic, complying with CE-CRD-G621. Similar to: Crystex by L&M Const. Chemicals, Five Star Grout, U.S. Grout.

2.02 FINISHING

A. Apply shop coat of approved primer to steel.

B. Paint exposed metals in accordance with Division 9 Section – Painting.

PART 3 - PROCEDURE

3.01 DESIGN

The design of members and/or connections not indicated on the drawings shall be completed by the fabricator. Design shall conform to the AISC Specifications.

3.02 FABRICATION

A. Conform to AISC Specifications as per the following sections:

1. Welds - Section 1.17
2. Bolting - Section 1.16 (exclude threads from shear panels)
3. Fabrication - Section 1.23
4. Shop paint - Section 1.24
5. Inspection - Section 1.26

3.03 ERECTION

A. Conform to AISC Specifications as per the following section Erection - Section 1.25. Field painting to be done by general contractor.

B. Make all welded connections in shop except as approved by Architect. Do not burn holes with torch.

C. Set anchor bolts by template to close tolerances so that base plates and connections fit without undue forcing.

3.04 MISCELLANEOUS ITEMS

A. Provide all other metal items as shown or required by drawings.

B. Fabricate accurately and install as detailed or required for rigidity and permanence.

END OF SECTION 05110

DIVISION 6 – WOODS & PLASTICS

DIVISION 6 - WOOD AND PLASTICS
SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to this section.

1.02 SUMMARY

A. This section includes the following:

Treated Lumber, Joists, Sheathing, and Exposed Boards (Redwood)

1. Framing with dimension lumber.
   2X4
   2X6
   2X8
   2X10
   2X12
   Light Framing
   Treated Lumber

2. Wood grounds, nailers, and blocking.
   Blocking

3. Structural Use Panels
   Structural Use Panels

1.03 DEFINITIONS

A. Rough carpentry includes carpentry work not specified as part of other Sections and generally not exposed, unless otherwise specified.

1.04 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product Data for the following products:

1. Metal framing anchors.

C. Material certificates for dimensional lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use as well as design values approved by the Board of Review of American Lumber Standards Committee.

1. For fire-retardant-treated wood products include certification by treating plant that treated material complies with specified standard and other requirements.
2. Warranty of chemical treatment manufacturer for each type of treatment.

D. Research reports or evaluation reports of the model code organization acceptable to authorities having jurisdiction evidencing compliance of the following wood projects with specified requirements and building code in effect for Project.

1. Fire-retardant-treated wood.

1.05 QUALITY ASSURANCE

A. Obtain each type of product from one source or single manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather. Stack lumber, plywood and other panels; provide for air circulation within, around and under temporary coverings.

PART 2 - PRODUCTS

2.01 LUMBER, GENERAL

A. Lumber Standards: Furnish lumber manufactured to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.

B. Inspection Agencies: Inspection agencies and the abbreviations used to reference them with lumber grades and species include the following:

RIS - Redwood Inspection Service
WWPA - Western Wood Products Association

C. Grade Stamps: Provide lumber with each piece factory-marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.

D. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.

1. Provide dressed lumber, S4S, unless otherwise indicated.
2. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.

2.02 DIMENSION LUMBER

A. For light framing (2 to 4 inches thick, 4 to 8 inches wide) provide the following grade and species:

1. "Construction" grade.
2. Any species graded under WWPA rules.

B. For structural light framing (2 to 4 inches thick, 4 to 12 inches wide), provide the following grade and species:

1. "No. 2" grade or better to fit conditions.

2. Same species as indicated for structural framing grade below.

C. For structural framing (2 to 4 inches thick, 5 inches and wider), provide the following grade and species:

1. "No. 2" grade and better to fit conditions.
2. Douglas Fir-Larch graded under WWPA rules.
3. Hem-Fir graded under WWPA rules.
4. Redwood graded under RIS rules.
5. Or equal to fit conditions.

2.03 BOARDS

A. Concealed Boards: Where boards will be concealed by other work, provide lumber of 19 percent maximum moisture content (S-DRY or KD-19) and of following species and grade:

1. Redwood "Construction Common" per RIS rules, Southern Pine "No. 2 Boards" per SPIB rules, or any species graded "Construction Boards" or "No. 3 Common" per WCLIB or WWPA rules.

B. Board Sizes: Provide sizes indicated or, if not indicated (for sheathing, subflooring and similar uses), provide 1-inch thick by width required to fit conditions.

2.04 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.

B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.

C. Moisture content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.

2.05 CONCEALED PERFORMANCE-RATED CONSTRUCTION PANELS

A. General: Where construction panels are indicated for the following concealed types of applications, provide APA Performance-Rated Panels complying with requirements designated under each application for grade designation, span rating, exposure durability classification, edge detail (where applicable), and thickness.

B. Roof Sheathing: APA RATED SHEATHING.

Exposure Durability Classification: Exterior

Span Rating: As required to suit rafter spacing indicated.

Span Rating: 40/20

Thickness: 5/8" @ 24" joist/rafter spacing

2.06 CONSTRUCTION PANELS FOR BACKING

A. Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire-retardant-treated plywood panels with grade designation, APA C-D PLUGGED EXPOSURE 1, in thickness indicated, or, if not otherwise indicated, not less than 15/32 inch.

2.07 FASTENERS

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

Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel.

B. Nails, Wire, Brads, and Staples: FS FF-N-105.

C. Power Driven Fasteners: National Evaluation Report NER-272.

D. Wood Screws: ANSI B18.6.1

E. Lag Bolts: ANSI 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.

2.08 METAL FRAMING ANCHORS

A. General: Provide metal framing anchors of type, size, metal, and finish indicated that comply with requirements specified including the following:

1. Current Evaluation/Research Reports: Provide meeting model code evaluation/research reports acceptable to authorities having jurisdiction and complying with the building code in effect for this Project.
2. Allowable Design Loads: Provide products for which manufacturer publishes allowable design loads that are determined from empirical data or by rational engineering analysis and that are demonstrated by comprehensive testing performed by a qualified independent testing laboratory.

B. Galvanized Steel Sheet: Steel sheet zinc-coated by hot-dip process on continuous lines prior to fabrication to comply with ASTM A 525 for Coating Designation G60 and with ASTM A 446, Grade A (structural quality); ASTM A 526 (commercial quality); or ASTM A 527 (lock-forming quality); as standard with manufacturer for type of anchor indicated.

C. Manufacturer or Equal: Simpson Strong Tie Company, Inc. – Pleasanton, CA.

2.09 MISCELLANEOUS MATERIALS

A. Adhesives for Field Gluing Panels to Framing: Formulation complying with APA AFG-01 that is approved for use with type of construction panel indicated by both adhesive and panel manufacturer.

B. Water Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbonate (IPBC) as its active ingredient.

2.10 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS

A. General: Where lumber or plywood is indicated as preservative-treated wood or is specified herein to be treated, comply with applicable requirements of AWPA Standards C2 (Lumber) and C9 (Plywood). Mark each treated item with AWPB or SPIB Quality Mark Requirements.

B. Pressure-treat above-ground items with water-borne preservatives to a minimum retention of 0.25 pcf. For interior uses, after treatment, kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19 percent and 15 percent. Treat indicated items 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 framing members less than 18 inches above grade.
4. Wood floor plates installed over concrete slabs directly in contact with earth.

C. Pressure-treat wood members in contact with the ground or fresh water with water-borne preservatives to a minimum retention of 0.40 pcf.

D. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces to comply with AWPA M4. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

2.11 FIRE-RETARDANT TREATMENT BY PRESSURE PROCESS

A. General: Where fire-retardant-treated wood is indicated, pressure impregnate lumber and plywood with fire-retardant chemicals to comply with AWPA C20 and C27, respectively, for treatment type indicated; identify "fire-retardant-treated wood" with appropriate classification marking of Underwriters Laboratories, Inc., U.S. Testing, Timber Products Inspection, Inc., or other testing and inspecting agency acceptable to authorities having jurisdiction.

1. Current Evaluation/Research Reports: Provide fire-retardant-treated wood per model code evaluation/research report acceptable to authorities having jurisdiction and complies with application indicated.

B. Exterior Type: Use for exterior locations and where indicated.

C. Inspect each piece of treated lumber or plywood after drying and discard damaged or defective pieces.

D. Products: Subject to compliance with requirements, provide one of the following:

1. Interior Type A Fire-Retardant-Treated Wood:
   "Dricon," Hickson Corporation.
   "Pyro-Guard," Hoover Treated Wood Products.
   "Flameproof LHC-HTT," Osmose Wood Preserving Co., Inc.
2. Exterior Type Fire-Retardant-Treated Wood:
   "Exterior Fire-X," Hoover Treated Wood Products.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.

B. Set rough carpentry to required levels and lines, with members plumb and true to line and cut and fitted. Maintain 1/4" accuracy in 20'-0" minimum.

C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow attachment of other construction.

D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.

E. Countersink nail heads on exposed carpentry work and fill holes.

F. Use common wire nails, unless otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required.

3.02 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.

B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.

3.03 WOOD FRAMING, GENERAL

A. Framing Standard: Comply with N.F.P.A. "Manual for House Framing," unless otherwise indicated.

B. Framing with Engineered Wood Products: Install framing composed of engineered wood products to comply with manufacturer's directions.

C. Install framing members of size and spacing indicated.

D. Anchor and nail as shown, and to comply with the following:

National Evaluation Report No. NER-272 for pneumatic or mechanical driven staples, P-Nails, and allied fasteners.

Published requirements of manufacturer of metal framing anchors.

"Recommended Nailing Schedule" of referenced framing standard and with N.F.P.A. "National Design Specifications for Wood Construction."

"Table No. II - Recommended Nailing Schedule" of the Uniform Building Code.

"Table 1705.1 - Fastening Schedule," of the Standard Building Code.

E. Do not splice structural members between supports.

F. Firestop concealed spaces of wood framed walls and partitions at each floor level and at the ceiling line of the top story. Where firestops are not automatically provided by the framing system used, use closely fitted wood blocks of nominal 2- inch-thick lumber of the same width as framing members.

3.04 RAFTER AND CEILING JOIST FRAMING

A. Rafters: Notch to fit exterior wall plates and toe nail or use special metal framing anchors. Double rafters to form headers and trimmers at openings in roof framing (if any), and support with metal hangers. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.

B. Install collar beams (ties) as shown, or if not shown, install 1-inch by 6-inch boards between every third pair of rafters. Locate below ridge member, one third of distance to ceiling joists. Cut ends to fit slope and nail to rafters.

C. Install special framing as shown for eaves, overhangs, dormers and similar conditions, if any.

3.05 INSTALLATION OF CONSTRUCTION PANELS

A. General: Comply with applicable recommendations contained in Form No. E30, "APA Design/Construction Guide-Residential & Commercial," for types of construction panels and applications indicated.

B. Fastening Methods: (Fasten panels as indicated below)

1. Combination Subflooring Underlayment: Glue and nail to framing throughout.
2. Sheathing: Nail or staple to framing with cement coated fasteners.
3. Underlayment: Nail or staple to subflooring.
   Fill and sand edge joints of underlayment receiving resilient flooring.
4. Plywood Backing Panels: Nail to supports.

END OF SECTION 06100

DIVISION 6 - WOOD AND PLASTICS
SECTION 06401 - EXTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to this section.

1.02 SUMMARY

This section includes the following:

Exterior Trim

1.03 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Fire-retardant-treatment-data for material impregnated by pressure process to reduce combustibility. Include certification by treating plant that treated materials comply with requirements.

C. Samples for verification purposes of the following:

1. Lumber and panel products for factory-applied opaque finish, 8-1/2 inches by 11 inches for panels and 50 square inches for lumber, for each finish system and color, with one half of exposed surface finished with coating specified in Division 9 Section "Painting".

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firm experienced in successfully producing architectural woodwork similar to that indicated for this Project, with sufficient production capacity to produce required units without causing delay in the Work.

B. Single-Source Fabrication and Installation Responsibility: Engage a qualified Manufacturer to assume undivided responsibility for woodwork specified in this section, including fabrication and installation.

C. AWI Quality Standard: Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI), except as otherwise indicated.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect woodwork during transit, delivery, storage, and handling to prevent damage, soilage and deterioration.

1.06 PROJECT CONDITIONS

A. Environmental Conditions: Obtain and comply with woodwork manufacturer's and Installer's coordinated advice for optimum temperature and humidity conditions for woodwork during its storage.

B. Field Measurements: Where woodwork is indicated to be fitted to other construction, check actual dimensions of other construction by accurate field measurements before manufacturing woodwork; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delay of work.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Provide materials that comply with requirements of the AWI woodworking standard for each type of woodwork and quality grade indicated and, where the following products are part of woodwork, with requirements of the referenced product standards, that apply to product characteristics indicated:

1. Softwood Plywood: PS 1.

2.02 FABRICATION, GENERAL

A. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of lumber in relation to relative humidity conditions existing during time of fabrication and installation areas.

B. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:

1. Edges of solid wood (lumber) members less than 1 inch in nominal thickness: 1/16 inch.
2. Edges of rails and similar members 1 inch or more in nominal thickness: 1/8 inch.

C. Complete fabrication, including assembly, finishing, and hardware application, before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

D. Factory-cut openings, to maximum extent possible, to receive hardware, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Smooth edges of cutouts and seal edges with a water-resistant coating suitable for exterior applications.

2.03 FIRE-RETARDANT-TREATED LUMBER

A. General: Where indicated, pressure impregnate lumber with fire-retardant chemical of formulation indicated to produce materials with fire-performance characteristics specified.

B. Fire-Retardant Chemical: Use exterior type per AWPA C20 consisting of an organic resin solution, relatively insoluble in water, thermally set in wood by kiln drying, that does not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated lumber from untreated lumber.

C. Fire-Performance Characteristics: Provide materials identical to those tested for the following fire-performance characteristics, per ASTM test methods indicated, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify treated lumber with classification marking of inspecting and testing organization in the form of separable paper label or, where required by authorities having jurisdiction of imprint on lumber surfaces that will be concealed from view after installation.

1. Surface Burning Characteristics: Not exceeding values indicated below, tested per ASTM E 84 for 30 minutes with no evidence of significant progressive combustion and subjected to standard rain test ASTM D 2898-Method A.
   Flame Spread: 25.
   Smoke Developed: 50
2. Mill lumber before treatment and institute special procedures during treatment and drying processes to prevent warping, discoloration from drying sticks or other causes, marring, or other defects in appearance of treated woodwork.
3. Kiln-dry woodwork after treatment to levels required for non-treated woodwork. Maintain moisture content required by kiln drying before and after treatment.
4. Discard treated lumber that does not comply with requirements of referenced woodworking standard. Do not used twisted, warped, bowed, discolored, or otherwise damaged or defective lumber.

D. Products: Subject to compliance with requirements, provide one of the following:

1. Organic Resin-Based Formulation (Exterior Type):
   "NCX"; Koppers Co., Inc.
   "Exterior Fire-X"; Hoover Universal Wood Preserving Division.

2.04 EXTERIOR STANDING & RUNNING TRIM & RAILS FOR OPAQUE FINISH

A. Quality Standard: Comply with AWI Section 300.

B. Backout or groove backs of flat trim members, kerf backs of other wide flat members, except for members with ends exposed in finished work.

C. Assemble casings in plant except where limitations of access to place of installation require field assembly.

Grade: Custom
Lumber Species: Eastern white pine, sugar pine, Idaho white pine.

2.05 FASTENERS AND ANCHORS

A. Screws: Select material, type, size, and finish required for each use. Comply with FS FF-S-111 for applicable requirements.

1. For metal framing supports, provide screws as recommended by metal framing manufacturer.

B. Nails: Provide the following of type and size required for each use. Comply with FS FF-N-105 for applicable requirements.

1. Stainless steel nails.
2. Aluminum nails.

3. Hot-dipped galvanized nails.
4. Any material indicated above.

C. Anchors: Select material, type, size, and finish required by each substrate for secure anchorage. Provide nonferrous metal or hot-dip galvanized anchors and inserts as required for corrosion resistance. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts and anchors, as required, to be set into concrete or masonry work for subsequent woodwork anchorage.

PART 3 - EXECUTION

3.01 PREPARATION

A. Condition woodwork to average prevailing humidity conditions in installation areas before installation.

B. Before installation of architectural woodwork, examine shop-fabricated work for completion and complete work as required, including back priming and removal of packing.

3.02 INSTALLATION

A. Quality Standard: Install exterior woodwork to comply with requirements of AWI Section 1700 "Installation of Woodwork (Interior)" that refer to types of woodwork specified in this section and that apply to the same grade specified in Part 2 of this section.

B. Install woodwork plumb, level, true, and straight with no distortions. Shim as required with concealed shims. Install to a tolerance of 1/8 inch in 8'0" for plumb and level and with no variations in flushness of adjoining surfaces.

C. Scribe and cut woodwork to fit adjoining work.

D. Fire-Retardant-Treated Wood: Handle, store, install and fire-retardant-treated wood in compliance with recommendations of chemical treatment manufacturer including those for adhesives where required for installation.

E. Preservative-Treated Lumber: Where cut or drilled in field, treat cut ends with preservative solution used in original treatment by brushing, spraying, dipping, or soaking.

F. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork.

3.03 ADJUSTMENT AND CLEANING

A. Repair damaged and defective woodwork where possible to eliminate defects functionally and visually, where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean woodwork on exposed and semi-exposed surfaces.

3.04 PROTECTION

A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer that ensures woodwork is without damage or deterioration at time of Substantial Completion.

END OF SECTION 06401

DIVISION 7 – THERMAL & MOISTURE PROTECTION

DIVISION 7 - THERMAL & MOISTURE PROTECTION
SECTION 07311 - SHINGLES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY

A. Extent of shingles is shown on drawings.

B. Types of shingle applications specified in this section include the following:

Asphalt Shingles
Shingle Roof Class "A"
Ice / Water Shield

1.03 SUBMITTALS

A. Samples: Full range of samples for color and texture selection.

B. Maintenance Stock: 2% of color/style/texture shingle used in the work.

C. Product Handling: Deliver materials in manufacturer's unopened, labeled containers. Store materials to avoid water damage.

1.04 JOB CONDITIONS

A. Substrate: Proceed with shingle work only after substrate construction and penetrating work have been completed.

B. Weather Conditions: Proceed with shingle work only when weather conditions are in compliance with manufacturer's recommendations and when substrate is completely dry.

1.05 SPECIFIED PRODUCT WARRANTY

A. Provide shingle manufacturer's warranty on installed work, agreeing to pay for repair or replacement of defective shingles as necessary to eliminate leaks. Period of warranty is 15 years after date of substantial completion.

B. Special Project Warranty: Submit two executed copies of standard 2-year "Roofing Guarantee" on form included at end of this section, covering work of this section signed and countersigned by Installer (Roofer) and Contractor.

C. Manufacturer’s standard warranty but not less than 30 years after date of substantial completion.

D. Manufacturers: Subject to compliance with requirements, provide asphalt shingles provided by one of the following:

(The) Celotex Corporation

CertainTeed Corporation
Elk Corporation of America
GAF Building Materials Corporation
Georgia-Pacific Corp.
Owens-Corning Fiberglass Corp.
Tamko Asphalt Products, Inc.
Or Equal

Waterproof Underlayment (and Similar But Reinforced) Products:
WinterGuard; CertainTeed Corporation
Bituthene Ice and Water Shield; Grace: W.R. Grace & Co.
Polyguard Deck Guard; Polyguard Products, Inc.
Weather Watch; GAF Building Materials Corporation
Eaveguard Self-Adhered Shingle Underlayment; Henry Company
Or Equal

PART 2 - PRODUCTS

2.01 ASPHALT SHINGLES

A. Colors, Blends, and Patterns: Where manufacturer's standard products are indicated, provide asphalt shingles with the following requirements:

1. Match colors, textures, and patterns indicated by referencing manufacturer's standard designations for these characteristics.

B. Three-Dimensional, Fiberglass, Laminated Strip Shingles: Mineral-surfaced, self-sealing, laminated, multi-ply overlay construction, strip asphalt shingles, complying with both ASTM D 3018, Type I, and ASTM D 3462. Provide shingles with a Class A fire-test-response classification that pass the wind-resistance-test requirements of ASTM D 3161.

C. Hip and Ridge Shingles: Furnish the following sheet metal materials:

1. Metal Drip Edge: Brake-formed sheet metal with at least a 2-inch roof deck flange and a 1-1/2-inch fascia flange with a 3/8-inch drip at lower edge. Furnish the following material in lengths of 8 or 10 feet:
   Material: Galvanized-steel sheets
2. Metal Flashing: Job-cut to sizes and configurations required:
   Material: Galvanized-steel sheets
3. Vent Pipe Flashing: Lead conforming to ASTM B 749, Type L51121, at least 1/16 inch thick, unless otherwise indicated. 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.

D. Accessories:

1. Felt Underlayment: Type II, 36-inch wide, asphalt-saturated organic felt, complying with ASTM D 226 (No. 15) or ASTM D 4869.
2. Waterproof Underlayment: Minimum 40-mil-thick, self-adhering, polymer-modified, bituminous sheet membrane, complying with ASTM D 1970. Provide primer when recommended by underlayment manufacturer.

3. Nails: Aluminum or hot-dip galvanized steel, 0.120-inch-diameter barbed shank, sharp-pointed, conventional roofing nails with a minimum 3/8-inch-diameter head and of sufficient length to penetrate 3/4 inch into solid decking or at least 1/8 inch through plywood sheathing.
   Where nails are in contact with flashing, prevent galvanic action by providing nails made from the same material as that of the flashing.
4. Staples: Minimum 0.0625-inch-thick, zinc-coated, steel roofing staples with minimum crown width of 15/16 inch, and of sufficient length to penetrate 3/4 inch into deck lumber or through plywood deck.

PART 3 - EXECUTION

3.01 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.

B. Preparation:

1. 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.
2. Coordinate installation with flashing 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.

3.02 INSTALLATION

A. General: Comply with manufacturer's instructions and recommendations but not less than those recommended by ARMA or The NRCA Steep Roofing Manual.

1. Fasten asphalt shingles to roof sheathing with either roofing staples, applied pneumatically, or nails.

B. Felt Underlayment: Apply 1 layer of felt underlayment horizontally over entire surface to receive asphalt shingles, lapping succeeding courses a minimum of 2 inches, end laps a minimum of 4 inches, and hips and valleys a minimum of 6 inches. Fasten felt with sufficient number of roofing nails or noncorrosive staples to hold underlayment in place until asphalt shingle installation.

1. Apply an additional layer of felt underlayment on roof decks with a slope of 2 to 4 inches per foot.
2. Omit felt underlayment at areas of waterproof underlayment. Lap felt underlayment over waterproof underlayment as recommended by manufacturer but not less than 2 inches.

C. Waterproof Underlayment: Apply waterproof underlayment at eaves. Cover deck from eaves to at least 24 inches inside exterior wall line.

In addition to eaves, apply waterproof underlayment in place of felt underlayment at valleys.

D. Underlayment at Closed Gutter: Center a 36-inch-wide felt underlayment in valley and secure with only enough nails to hold in place until asphalt shingles are installed. Lap roof underlayment over valley underlayment at least 6 inches.

   1. Metal Open Gutter: Comply with ARMA and NRCA recommendations. Install a second felt underlayment shingle lapped at least 12 inches and sealed with plastic cement. Install a metal valley shingle lapped at least 9 inches and sealed with plastic asphalt cement.

E. Flashing: Install metal flashing and trim as indicated and according to details and recommendations of the "Asphalt Roofing" section of The NRCA Steep Roofing Manual and ARMA.

F. 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 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. Pattern: 1/2 shingle spacing offset at succeeding courses.

G. Adjusting:

   Replace any damaged materials installed under this Section with new materials that meet specified requirements.

3.03 GUARANTEE

A. Contractor warrant work against defective manufactured shingles and underlayment and installation for a period of five years following installation. Warrantee shall include protection against leaking, bow-off, and deterioration.

The following Certificate of Guarantee must be signed at the completion of the project.

CERTIFICATE OF GUARANTEE

We, (Name of Applicator Company), agree to maintain the roofing and flashing on the below mentioned building for the period indicated. This Agreement is to render the roof and flashing waterproof, subject to the conditions outline below.

Owner of Building

Location

Location of Building_____(Address)

City _____ State

Number of square feet in roof

This Guarantee is effective this _____ day of _____, 19_____, for the term of two years from this date, provided any defects result from defective material or workmanship and are not cause by other mechanics, fire, accidents, or by acts of providence over which we have no control. It is understood and agreed that we will not be responsible for leaks in the roofing or flashing due to excessive winds, distortion of the foundation on which the roofing or flashing rests, excessive hail storms, or any other conditions over which we have no control.

Signed

_____(Name of Applicator Company)

By
_____(Signature and Title)_____

END OF SECTION 07311

DIVISION 7 - THERMAL AND MOISTURE PROTECTION
SECTION 07411 - PREFORMED ROOFING AND SIDING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY:

A. The extent of each type of preformed roofing and siding is indicated on the drawings and by provisions of this section. Preformed roofing/siding is hereby defined to include panels which are structurally capable of spanning between supports spaced as indicated.

B. The types of panels required include the following:

Accessories
Self Adhered Roof Underlayment

C. Flashing to be job formed from flat stock to match panel.

1.03 QUALITY ASSURANCE:

A. Manufacturer: Provide products by one of the following manufacturers or fabricators:

Edco Products, Hopkins, MN
Fabral, Jackson, GA
Firestone Building Products, Indianapolis, IND
Architectural Engineering Products Co.; San Diego, CA
Metal Sales Product; Spokane, WA
VicWest Steel, Spokane, WA
Armco Roofing Systems, Gustine, CA
Integris Metals (Formerly Vincent Metals), Minneapolis, MN
Or Approved Equal

B. Performance Test Standards: Provide preformed panel systems which have been pretested and certified by manufacturer under installed conditions as indicated for resistance as indicated to air and water infiltration and structural deflection and failure; NAAMM Standard Test TM-1; static and dynamic methods. Manufacturer to provide final design of system to meet conditions shown.

1. Panel Test Data:

TEST	PROCEDURE	REQUIREMENT
Thermal Resistance	ASTM C 236 Guarded hot box method	Excellent R values for the panel system with joints included. See published values for panel type and thickness.

Air Infiltration	ASTM E 283 Chamber method	No air leakage at pressure differential of 20 PSF.
Water Penetration	ASTM E 331	No water penetration at pressure differential of 20 PSF.
Strength	ASTM E 72	Load capacities up to 40 PSF.
Wind Uplift	Factory Mutual Standard	Meets I-90 Windstorm classification with purlin spacing up to 6'8" / UL- I 90.
Ignition Properties	ASTM D 1929	Self-ignition temperature 846 degrees F Pilot-ignition temperature 752 degrees F
Potential Heat	NFPA 259	Heat of combustion was 9,910 BTU per pound. (Approximately 4,100 BTU per sq.ft. for 2 1/2" thick panel).
Surface Burning	ASTM E 84	The rate of flame spread 20 to 25. The smoke density rating 285 to 325.
Building Corner Fullscale	Factory Mutual	Roof and wall panels Factory Mutual approved for metal-faced Class I fire rated construction.

C. Field Measurements: Where possible, prior to fabrication of prefabricated panels, take field measurements of structure or substrates to receive panel system. Allow for trimming panel units where final dimensions cannot be established prior to fabrication.

D. Manufacturer's Handbook of Construction Details

1.04 SUBMITTALS:

A. Product Data: Submit manufacturer's product specifications, standard details, certified product test results, installation instructions and general recommendations, as applicable to material and finishes for each component and for total system of preformed panels.

B. Samples: Submit 2 samples 12" square, of each exposed finish material.

C. Shop Drawings: Submit small-scale layouts of panels on walls and roofs, and large-scale details of edge conditions, joints, corners, custom profiles, supports, anchorages, trim, flashings, closures, and special details. Distinguish between factory and field assembly work.

1.05 DELIVERY, STORAGE, AND HANDLING:

A. Unload panels by hand to prevent damage. Do not use forklifts.

B. Inspect delivered materials; file freight claim for panels damaged during shipment, and order replacement panels without delay. Do not install damaged panels.

C. Store materials on pallets and protect from damage. Prevent interference to/by other trades, and any other adverse job conditions.

D. Division 7 "Roof Accessories" required submittals to be submitted with Preformed Roofing and Siding submittals.

1.06 WARRANTY:

A. Submit manufacturer's written 20 year standard finish warranty, providing for nonprorated material and replacement cost. Panels shall be warranted by the manufacturer for 20 years against rupture and perforation.

B. Provide manufacturer's written warranty for twenty years from the date of final completion and acceptance, guaranteeing materials and workmanship for watertightness, weathertightness, and against all leaks. During the two year period, the installer shall fix all leaks without any cost to the Owner.

PART 2 - PRODUCTS

2.01 SHEET METALS:

A. General: Contractor may use either metal indicated below:

1. Steel for Painting/Coating: Hot-dip zinc coated steel sheet, ASTM A-446, Grade A except where higher strength required for performance, G90 zinc coating, surface treated for maximum coating performance .

B. Style and Type (Similar to the following):

	WALL LINER (INTERIOR)	WALL (EXTERIOR)	ROOF (EXTERIOR)
Manufacturer:		Edco Products	
Series:		Lap Siding	
Type:		Lap Siding	
Color:		Select from Manuf. Standard	
Gage:		24	
Panel Width:		Standard or 10"	
Seam Height:		Manuf. Standard	

2.02 METAL FINISHES:

A. General: Apply coatings either before or after forming and fabricating panels, as required by coating process and as required for maximum coating performance capability. Protect coating promptly after application and cure, by application of strippable film or removable adhesive cover, and retain until installation has been completed. Provide colors or color matches as indicated or, if not otherwise indicated, as selected by architect from manufacturer's standard colors.

B. Fluorocarbon Coating: Full-strength 70% "Kynar 500" coating baked-on for 15 minutes at 450 degrees F. (232 degrees C.), in a dry film thickness of 1.0 mils, 30% reflective gloss (ASTM D-523), over 0.3 mil baked-on epoxy primer. 20 year warranty.

1. Durability: Provide coating which has been field tested under normal range of weathering conditions for minimum of 20 years without significant peel, blister, flake, chip, crack or check in finish, and without chalking in excess of 8 (ASTM D-659), and without facing in excess of 5 NBS units.

2.03 MISCELLANEOUS MATERIALS:

A. Fasteners: Manufacturer's standard noncorrosive types, with exterior heads gasketted.

B. Accessories: Except as indicated as work of another specification section, provide components required for a complete roofing/siding system, including trim, copings, fascias, gravel stops, mullions, sills, corner units, ridge closures, clips, seam covers, battens, flashings, gutters, louvers, sealants, gaskets, fillers, closure strips and similar items. Match materials/ finishes or preformed panels.

C. Bituminous Coating: Cold-applied asphalt mastic, SSPC Paint 12, compounded for 15-mil dry film thickness per coat.

D. Flashing: Provide primed galvanized "Z"-shaped flashing at horizontal joints in panel siding.

E. Sealants: Comply with requirements of Division 7 – Section on caulking and sealants for materials required for siding work. Use only materials approved by siding manufacturers for compatibility with siding panels and installation.

2.04 PANEL FABRICATION; PERFORMANCE:

A. General: Fabricate and finish panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, and as required to fulfill performance requirements, which have been demonstrated by factory testing. Comply with indicated profiles and dimensional requirements, and with structural requirements.

B. Apply bituminous coating or other permanent separation materials on concealed panel surfaces where panels would otherwise be in direct contact with substrate materials which are non-compatible or could result in corrosion or deterioration of either material or finishes.

C. Condensation: Fabricate panels for control of condensation, including proper inclusion of seals and provisions for breathing, venting, weeping and draining.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. General: Comply with panel fabricator's and material manufacturer's instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the work securely in place, with provisions for thermal/structural movement.

Install panels with concealed fasteners where possible.

Panels installed with exposed exterior and interior fasteners, prefinished to match panel finishes only when concealed fasteners cannot be used.

B. The metal panel system shall be installed plumb, level, and straight over a layer of base sheet per manufacturer with a minimum 6" for horizontal lap and 12" for end lap.

C. Installation shall be made in accordance with manufacturer's recommended procedures and layout drawings. Manufacturer's Handbook of Construction Details, SMACNA Architectural Sheet Metal Manual, and NRCA Roofing and Waterproofing Manual and Handbook of Roofing Knowledge shall be used as guides and for details wherever applicable.

D. No face penetrations or perforations shall be made in metal panels by fasteners without manufacturer's prior approval.

E. End-lap all flashings and trim at least 12"; all gutters must be mitered, soldered and caulked to be watertight. All butt joints must be caulked. Soldered areas shall be counter-flashed or painted to match.

F. Exercise proper care during installation to avoid damage or scratching of the panels. Avoid walking over the metal roof after installation is completed. Remove marks immediately after installation.

G. Installation Tolerances: Shim and align panel units within installed tolerance of 1/4" in 20'-0" on level/plumb/slope and location/line as indicated, and within 1/8" offset of adjoining faces and of alignment of matching profiles. Center ribs between edge conditions for neat appearance.

H. Joint Sealers: Install gaskets, joint fillers and sealants where indicated and where required for weatherproof performance of panel systems. Provide types of gaskets and sealants/fillers indicated or, if not otherwise indicated, types recommended by panel manufacturer.

Refer to other sections of these specifications for product and installation requirements applicable to indicated joint sealers.

I. Joint Sealers: Refer to other sections of these specifications for post-installation requirements on joint sealers; not work of this section.

J. Caulking: Caulk joints as necessary for weather-tight, vermin-proof installation. Caulking: match finish.

3.02 CLEANING AND PROTECTION:

A. Damaged Units: Replace panels and other components of the work which have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.

B. Cleaning: Remove protective coverings and strippable films (if any) at time in project construction sequence which will afford greatest protection of work. Clean finished surfaces as recommended by panel manufacturer, and maintain in a clean condition during construction.

C. Protection: Installer shall advise contractor of protection and surveillance procedures, as required to ensure that work of this section will be without damage or deterioration at time of substantial completion.

3.03 SELF ADHERED ROOF UNDERLAYMENT

A. Install over deck over entire roof insulation.

END OF SECTION 07411

DIVISION 7 - THERMAL AND MOISTURE PROTECTION
SECTION 07460 - SIDING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract, apply to work of this section.

1.02 SUMMARY:

A. Extent of siding is indicated on drawings.

B. Types of siding specified in this section include the following:

Metal Trim
Prefinish Metal Trim

1.03 QUALITY ASSURANCE

A. Single-Source Responsibility for Siding and Accessories: Obtain each color, grade, finish, type, and variety of siding and related accessories from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

1.04 SUBMITTALS

A. Product Data: Submit specifications, installation instructions, and general recommendations from siding manufacturer, including data that materials comply with requirements.

B. Samples: Full range of manufacturer's samples for color and texture selection, color/style/texture offered.

C. Final design is to be by manufacturer/supplier to conform to the project requirements and details.

1.05 PRODUCT HANDLING

A. Store siding materials at site to prevent warping and weather damage, elevating above ground on level blocking and covering to prevent water damage and to permit adequate ventilation within bundles.

1.06 JOB CONDITIONS

A. Substrate: Proceed with siding work only after substrate construction and penetrating work have been completed.

B. Weather Conditions: Proceed with siding work only when substrate is completely dry.

1.07 SPECIFIED PRODUCT WARRANTY

A. Provide siding manufacturer's warranty on installed work, agreeing to pay for repair or replacement of defective siding which fails through corrosion or damage to finish caused by manufacturing defects. Period of warranty is 10 years after date of substantial completion.

PART 2 - PRODUCTS

2.01 FIBER CEMENT SIDING

A. Comply with AAMA 1402, size and profile as specified, prefinished as selected by Architect from manufacturer's standard colors. Provide matching accessories and concealed fastening systems.

B. Fiber/Cement Siding – ALTERNATE #1A

1. Material: Portland cement, ground sand, cellulose fiber, additives, water.
2. Thickness: 5/16"
3. Weight: 2.3 lbs./sq. ft.
4. Sheet Size: 4'x8'; 4'x9'; 4'x10'; as required.
5. Texture: Smooth.
6. Approvals: NES: No. NER-405; ICBO; SBCO; BOCA
7. Durability: Fiber cement product, autoclaved, rot resistant, no permanent damage from water or salt spray.
8. Flex Strength: ASTM-C1185
   Parallel to sheet: 1850 psi
   Perpendicular to sheet: 2500 psi
9. Non-Combustibility: ASTM E-136
10. Flame Spread: ASTM E-84
    Flame Spread: 0
    Fuel Contribution: 0
    Smoke Developed: 5
11. Thermal Resistance: R=0.15
12. Product: Similar to: "Hardiepanel"
    Manufacturer: James Hardie
13. Style/Color: Color Plus
    Color: As selected by Architect from standard colors.
14. Siding: Horizontal
    Model: Similar to: HardiePlank
    Style: Smooth
    Thickness: 0.312"
    Length: 144"
    Width: 6.25"
    Exposure: 5"

2.02 SOFFITS AND FASCIA

A. Manufacturer: Alside "Deluxe", polymer P-5000 coated, 10 2/3" Soffit Fascia, per details.

1. Color: As selected by Architect from standard colors.

2.03 MISCELLANEOUS MATERIALS

A. Flashing: Provide primed galvanized “Z”, “H”, “L”-shaped flashing at horizontal and vertical joints in panel siding.

   1. Manufacturer: Tamlyn or Similar.

B. Sealants: Comply with requirements of Division-7 Section on caulking and sealants for materials required for siding work. Use only materials approved by siding manufacturers for compatibility with siding panels and installation.

C. Infiltration Barriers:

   1. Infiltration Barrier: Similar to Blueskin SA or Hydro Tex; Henry Company or equal.
   2. Perimeter Barrier Flashing: Fortiflash Butyl; Henry Company or equal.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General: Comply with instructions and recommendations of siding manufacturer, except to extent more stringent requirements are indicated.

B. Underlayment: Apply one layer infiltration barrier horizontally over entire surface, lapping succeeding courses 2" minimum and fastening with sufficient nails to hold in place until siding application.

C. Siding: Comply with instructions and recommendations of siding manufacturer. Provide adequate grounding to building water supply or other suitable means; allow for movement due to temperature fluctuations.

D. Soffits and Fascia: Install over necessary furring, clips and anchors, plumb, square, neatly joined together using concealed methods where possible. Field finish any raw or exposed cut edges.

E. Caulking: Caulk joints as necessary for weather-tight, vermin-proof installation. Match caulking to finish.

END OF SECTION 07460

DIVISION 7 - THERMAL & MOISTURE PROTECTION
SECTION 07510 - BUILT-UP ROOFING SYSTEM SMOOTH SURFACE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY

A. Extent of built-up roofing system work is indicated on drawings and by provisions of this section, and is defined to include roofing, vapor barriers (retarders) immediately under roofing, composition flashing and stripping, and roofing accessories integrally related to roof installation.

B. Types of BUR required for project include:

Asphalt/glass-fiber felt roof membrane with gravel surface.

C. Metal counter flashings are specified in section, "Flashing and Sheet Metal".

1.03 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide primary products, including each type of roofing sheet (felt), bitumen, composition flashings, and vapor barrier (if any), produced by a single manufacturer, which has produced that type product successfully for not less than 3 years. Provide secondary products only as recommended by manufacturer of primary products for use with roofing system specified.

B. Installer Qualifications: A single installer ("roofer") shall perform the work of this section; and shall be a firm with successful experience in installation of built-up roofing systems similar to those required for this project and which is acceptable to or licensed by manufacturer of primary roofing materials.

1. Installer Certification: Obtain written certification from manufacturer of system certifying that installer is approved by manufacturer for installation of specified roofing system. Provide copy of certification to architect prior to award of roofing work.

C. Pre-Application Roofing Conference: Prior to scheduled commencement of built-up roofing installation and associated work, meet at project site with installer, installer of each component of associated work, installers of roof-top units and other work in and around roofing which must precede or follow roofing work (including mechanical work, if any), roofing system manufacturer's representative, and other representatives directly concerned with performance of the work. Record (contractor) discussions of conveyance and decisions and agreements (or disagreements) reached, and furnish copy of record to each party attending. Review foreseeable methods and procedures related to roofing work, including but no necessarily limited to the following:

1. Tour representative areas of roofing substrates (decks), inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work performed by other trades.
2. Review roof system requirements (drawings, specifications and other contract documents).

3. Review required submittals, both completed and yet to be completed.
4. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions, including possibility of temporary roofing (not a mandatory requirement).

D. Insurance Certification: Assist owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.

E. UL Listing: Provide built-up roofing system and component materials which have been tested for application and slopes indicated and are listed by Underwriters Laboratories, Inc. (UL) for Class A external fire exposure. **WIND RATING TO BE I-90.**

1.04 SUBMITTALS

A. Product Data. Submit manufacturer's technical data, installation instructions and recommendations for each type of roofing product required. Include data substantiating that materials comply with requirements.

B. For asphalt bitumen, provide label on each container or certification with each load of bulk bitumen, indicating flash point, finished blowing temperature, softening point and equiviscous temperature.

1.05 JOB CONDITIONS

A. Weather Condition Limitations: Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturer's recommendations and warranty requirements.

1.06 PRODUCT HANDLING

A. Store and handle roofing sheets in a manner which will ensure that there is no possibility of significant moisture pick-up. Store in a dry, well ventilated, weather-tight place. Unless protected from weather or other moisture sources, do not leave unused felts on the roof overnight or when roofing work is not in progress. Store rolls of felt and other sheet materials on end on pallets or other raised surface. Handle and store materials or equipment in a manner to avoid significant or permanent deflection of deck. Contractor to notify Architect immediately of any areas which appear to be unacceptable for roofing support.

1.07 WARRANTIES

A. Special Project Warranty: Submit 2 executed copies of standard 1-year "Roofing Guarantee" covering work of this section including roofing membrane, composition flashing, roof insulation, vapor barrier (if any), and roofing accessories, signed and countersigned by installer (roofer) and contractor.

B. Manufacturer's Warranty: Submit executed copy of roofing manufacturer's standard Roofing System Guarantee agreement including flashing and endorsement, signed by an authorized representative of built-up roofing system manufacturer, on form which was published with product literature as of date of contract documents, for the following period of time:

20 years after date of substantial completion. Roofing contractor is to verify with the roofing manufacturer what type of underlayment, retrofit board is required to provide rated and warranted roof for this installation.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

A. Insurance and Code Requirements: Provide materials complying with governing regulations, and which can be installed to comply with the following:

Underwriters Laboratories "Fire Classified" and "Class 90" wind uplift resistance.

2.02 BUILT-UP ROOF MEMBRANE SYSTEM

A. Nailable-Deck Asphalt/Glass-Fiber/Aggregate Roofing:

1. General: Provide built-up, aggregate-surfaced roof system with asphalt bitumen and glass fiber ply mats for lay-up as indicated.

    a. Ply Felts: 4 plies of asphalt-impregnated glass-fiber mats, complying with ASTM D-2178, Type IV.
    b. Interply Bitumen: Roofing asphalt, complying with ASTM D-312, Type II.
    c. Surfacing: Prograde 559 Rubberized Aluminum Roof Coating; Henry Company.

2. Comply with NRCA Roofing and Waterproofing Manual, Specification Plate #32 - NAGA, Diagram A.

3. Products: Subject to compliance with requirements, provide one of the following BUR systems:

    Manville Building Materials Corp.; Specification #4GNG, or equal by the following:

    Henry Company
    Celotex Corp.
    Certainteed Corp.
    Flintkote Div./Genstar Corp.
    Koppers Co.
    GAF Corp.
    Owens-Corning Fiberglass Corp. (plus 1 ply)
    Tamko Asphalt Products, Inc.

2.04 BUR EDGE/PENETRATION MATERIALS

A. Roofing Cement: Asphaltic cement; comply with ASTM D-2822.

B. Composition Flashing: Fiberglass reinforced modified bitumen single sheet flashing similar to U.S. Intec Brai flashing; GAF Rubberoid MB Plus.

2.05 SHEET METAL ACCESSORY MATERIALS

A. Zinc-Coated Steel: ASTM A-526, with 0.20% copper, G90 hot dip galvanized mill phosphatized where indicated for painting; 24 gage, except as otherwise indicated.

B. Solder for Sheet Metal: For galvanized sheet metal only, except as otherwise indicated or recommended by metal manufacturer, provide 50/50 tin/lead type (ASTM B-32) for tinning and soldering joints; use rosin flux.

2.05 MISCELLANEOUS MATERIALS

A. Substrate Joint Tape: 6" or 8" wide coated glass fiber mat.

B. Mastic Sealant: Polysiobutylene (plain or bituminous modified), nonhardening, nonmigrating, nonskinning and nondrying.

C. Asphaltic Primer: Comply with ASTM D-41.

D. Fasteners: Provide corrosion resistance industry-standard types of mechanical fasteners for BUR system work, tested by manufacturer for required pull-out strength where applicable and compatible with deck type and roofing products used. Provide either 1" diameter nail heads or 1-3/8" diameter x 30-gage sheet metal caps for nails used to secure base sheets, felts, or insulation boards of roofing system.

E. Retrofit Board: (As required by roofing manufacturer for conditions).

Celotex; Celo Foam Ultra or Celo Foam Pyrox or equal
Flamespread: ASTM 84 - 25 max.
Compressive density: 16 psi min.
Product density: 2 lbs/cu.ft.
Service Temperature -100 deg. F/+250 deg F
Dimensional stability: less than 2%
Other manufacturers: Mansville, International, Permalite,
Koppers and as recommended by roofing manufacturer or Class A rating.

2.06 FABRICATION OF SHEET METAL ACCESSORIES

A. SMACNA and NRCA Details: Conform work with details shown, and with applicable fabrication requirements of "Architectural Sheet Metal Manual" by SMACNA. Comply with installation details of "Roofing and Waterproofing Manual" by NRCA.

B. Prefabricate units as indicated or provide standard manufactured units complying with requirements; fabricate from sheet metal indicated or, if not otherwise indicated, from lead-coated copper.

C. Provide 4" wide flanges for setting on BUR membrane with concealment by composition stripping.

D. Fabricate work with flat-lock soldered joints and seams; except where joint movement is necessary provide 1" deep interlocking hooked flanges, filled with mastic sealant.

PART 3 - EXECUTION

3.01 INSPECTION OF SUBSTRATE

A. Examine substrate surfaces to receive built-up roofing system and associated work and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to installer.

B. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16" out of plane.

3.02 GENERAL INSTALLATION REQUIREMENTS

A. Protect other work from spillage of BUR materials, and prevent liquid materials from entering or clogging drains and conductors. Replace/restore other work damaged by installation of BUR system work.

B. Insurance Code Compliance: Install BUR system for (and test where required to show) compliance with governing regulations and with the following insurance requirements:

1. **Underwriters Laboratories "Fire Classified" and "Class 90" wind uplift resistance.**
2. Minimum Slope: Existing or 3/8" per 1 foot general; 1/4" per 1 foot at crickets.

C. Coordinate the installation of insulation, roofing sheets, flashings, stripping, coatings and surfacings/underlayment, so that insulation/underlayment and felts are not exposed to precipitation nor exposed overnight. Provide cut-offs at end of each day's work, to cover exposed felts and insulation with a course of coated felt with joints and edges sealed with roofing cement. Remove cut-offs immediately before resuming work. Glazecoat installed ply-sheet courses at end of each day's work where final surfacing has not been installed.

D. Asphalt Bitumen Heating: Heat and apply bitumen in accordance with method as recommended by NRCA. Do not raise temperature above minimum normal fluid-holding temperature necessary more than one hour prior to time of application. Discard bitumen which has been held at temperature for a period exceeding 3 hours. Determine flash point, finished blowing temperature and bitumen, either by information from bitumen producer or by suitable tests and determine maximum fire-safe handling temperature and do not exceed that temperature in heating bitumen; but in no case heat bitumen to a temperature higher than 25 degrees F. (14 degrees C.) below flash point. Keep kettle lid closed except when adding bitumen.

E. Bitumen Mopping Weights: For interply mopping, and for other moppings except as otherwise indicated, apply bitumen at the following rate:

1. Asphalt: 25-lbs. of asphalt (+ 25% on a total-job average basis) per roof square (100 sq. ft.) between plies.

F. Substrate Joint Penetrations: Do not allow bitumen to penetrate substrate joints and enter building or damage insulation, vapor barriers (retarders) or other construction. Where mopping is applied directly to a substrate, tape joints or, in the case of steep asphalt, hold mopping back 2" from both sides of each joint.

G. Cut-Offs: At end of each day's roofing installation, protect exposed edge of incomplete work, including ply sheets and insulation. Provide temporary covering of 2 plies of No. 15 roofing felt set in full moppings of hot bitumen; remove at beginning of next day's work. Glaze-coat areas of completed organic ply sheets which cannot be flood-coated and aggregate-surfaced before end of each day's work.

3.03TEMPORARY ROOF INSTALLATION (IF REQUIRED)

A. Temporary Roofing and Nailable Decks: Apply 2 plies of No. 15 asphalt-saturated perforated roofing felt, lapping each felt 19" (+/- 1/2") over preceding one, and mopping 20-lbs. per square (+/- 25%) of Type III asphalt between felt laps. Nail each felt 9" o.c. at a line approximately 2" down from concealed edge. Glaze coat completed surface with Type III asphalt at rate of 20-lbs. per square (+/- 25%).

3.04ROOF MEMBRANE INSTALLATION

A. General: Comply with insulation/underlayment manufacturer's instructions and recommendations for the handling, installation and bonding or anchorage of insulation/underlayment to substrate.

B. Base Sheet: Install one lapped course of base sheet. Nail to nailable substrates and elsewhere as indicated. Mop to non-nailable substrate with steep asphalt, except use special adhesive where indicated.

C. Inter-Ply Sheets: Provide the number and type(s) of ply sheets (felts) indicated, lapped (shingled) amount as required to form a continuous, uniform membrane with bitumen moppings between sheets so that ply sheet does not touch ply sheet. Except as otherwise indicated, glaze-coat top of ply-sheet membrane with 10-lb. mopping of same bitumen, integrally with operation of laying up membrane.

D. Nail base of membrane to substrate, without mopping (dry).

1. Extend BUR membrane to 8" (nominal) above top edge of cant strip and terminate.
2. Provide a folded-back envelope at edges and penetrations of BUR membrane where it is not turned up on a tapered strip, so as to provide positive protection against flow of bitumen into building or off the edge. Extend base sheet to form envelope or, where no base sheet is provided, install one ply or coated felt set in steep asphalt with joints sealed. Seal corners and other interruptions of envelope with large beads of roofing cement to provide positive protection against flow of bitumen.
3. Nail edges of roofing membrane to wood blocking at perimeter edges of roof prior to installing metal gravel stops/fascias. Space nails at minimum 8" o.c.

E. Set-On Accessories: Where small roof accessories are set on BUR membrane, set metal flanges in a bed of roofing cement, and seal penetration of membrane with bead of roofing cement to prevent flow of bitumen from membrane.

F. Composition Flashing and Stripping:

1. Provide composition flashing at cant strips and other sloping and vertical surfaces, and at roof edges, and at penetrations through roof. Nail or provide other forms of mechanical anchorage of composition flashing to vertical surfaces, as recommended by manufacturer of primary roofing materials.
2. Provide composition stripping where metal flanges are set on roofing. Except where concealed by aggregate surfacing or elastic flashing, apply a heavy coating of roofing cement over composition stripping.
3. Allow for expansion of running metal flashing and edge trim which adjoins roofing. Do not seal or bond BUR membrane or composition flashing and stripping to metal flanges over 3'-0" in length.

4. Counter Flashings: Counter flashings, cap flashings, expansion joints and similar work to be coordinated with BUR work, are specified in other sections of these specifications.
5. Roof Accessories: Miscellaneous sheet metal accessory items, including insulation vents and other devices, are part of these specifications.

3.05 PROTECTION OF ROOFING

A. Installer shall repair or replace (as required) deteriorated or defective work found at time of final acceptance. Installer shall be engaged by contractor to repair damages to roofing which occurred subsequent to roofing installation and prior to final inspection. Repair or replace the roofing and associated work to a condition free of damage and deterioration at time of substantial completion.

END OF SECTION 07510

DIVISION 7 - THERMAL MOISTURE PROTECTION
SECTION 07530 - FLEXIBLE SHEET ROOFING SYSTEM

PART 1 – GENERAL AND ALTERNATE #1B

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY

A. Extent of flexible sheet roofing is indicated on drawings and is hereby defined to include non-traffic-bearing sheet membrane system intended for weather exposure as primary roofing.

B. Types of flexible sheet roofing specified in this section include the following:

1. Smooth surface membrane fully adhered to substrate. Type 'A' product. Base bid.
2. Type B Alternate 1B – Replace entire SPM roof area with this product.
3. Class A rating.

1.03 QUALITY ASSURANCE

A. Manufacturer: Obtain primary flexible sheet roofing from a single manufacturer. Provide secondary materials only as recommended by manufacturer of primary materials.

1. Manufacturer shall send qualified technical representative to project site for purposes of advising installer of procedures and precautions for use of roofing materials.

B. Applicator shall:

1. Attend manufacturer's or related training meetings. Applicator agrees not to begin any installation of Roofing Systems until:
   a. Attends at least one training meeting.
   b. Have received adequate training from manufacturer and is fully familiar with all specifications, details, installation instructions, procedures and updates.
2. (At the time a roofing contract is awarded to Applicator) provide to manufacturer a copy of all bonds on public or private work including the amount of the bond and the name and address of the surety guarantor and also complete and provide to manufacturer form entitled "Request for Warranty".
3. Follow all Roofing Systems specifications, details, installation instructions and procedures as furnished in writing by manufacturer. Applicator shall obtain any updates or revisions regarding Roofing Systems before beginning any roofing project.

C. Manufacturer shall:

1. Provide Applicator with instructional materials, instructions and training which in manufacturer's judgement are necessary to assure adequate quality and uniformity in installation of Roofing Systems.
2. Provide to Building Owner, at Applicator's expense Standard Warranty. Manufacturer must insure issuance of Standard Warranty by:

a. Its specifications, details, installation instructions and procedures are followed, and it must approve and accept the installation, prior to being paid for Roofing Systems and the Standard Warranty.

3. Furnish Applicator technical assistance and advise for the purpose of evaluating watertight integrity of the installation of Roofing Systems.

D. Notice of Award:

1. At its expense Applicator shall furnish to manufacturer:
   a. Notice of Award of the roofing contract and copies of all job specifications, shop drawings, details and other plans to be used in connection with the installation of Roofing Systems, as soon as such times become available.

E. Inspections:

1. Applicator shall:
   a. Request in writing within fourteen (14) calendar days prior to installation of Roofing Systems, manufacturer inspection and approval of the roof deck for the purpose of evaluating the watertight integrity of the installation of Roofing Systems. Corrections to be at Applicator's expense if required.
   b. Send written notice to manufacturer, indicating completion of Roofing Systems installation, within seven (7) calendar days after completion of the installation.
   c. Allow manufacturer to inspect and approve the watertight integrity of the installation of Roofing Systems. Manufacturer must direct Applicator to make such changes or repairs as necessary for proper installation. Such changes or repairs shall be at Applicator's/Manufacturer's expenses. Applicator shall provide Architect with a copy of all the manufacturer's lists and verification that all items are corrected.
   d. For a period of two (2) years beginning with the date Standard Warranty is issued to Building Owner by manufacturer or in the event a Standard Warranty is not issued then for a period of two (2) years beginning with the completion of the installation of Roofing Systems upon request of either Building Owner or Manufacturer at Applicator's expense, repair any leaks caused by faulty handling or installation of Roofing Systems including but not limited to the use of materials not approved by manufacturer. This is in addition to the Standard Warranty.
   e. Allow manufacturer at its option to inspect Roofing Systems at any time prior to the expiration of Applicator's two (2) year repair period, and at Applicator's expense follow such instructions and make such repairs deemed necessary in the judgement of manufacturer to assure watertight integrity. At the end of said two (2) year period, Applicator shall have no further obligation to make repairs at its expense under this Agreement, provided that Applicator has promptly commenced and diligently proceeded to correct and repair all leaks brought to its attention during said two (2) year period by the Building owner and has successfully corrected and repaired such leaks and conditions causing them, and further provided that Applicator has installed Roofing Systems in accordance with manufacturer's specifications, details, installation instructions and procedures. All notices of correction required shall be responded to by the Applicator within seven (7) working days of receipt of notice.
   f. Subject to the approval of Building Owner, manufacturer will request a bid from an approved Applicator who completed the installation of Roofing Systems in the event that repair work becomes necessary after the above two (2) year period.

F. Warranty to Applicator:

1. Manufacturer warrants its material to be free from defects. Manufacturer's liability and Applicator's remedies are limited to manufacturer's replacement of defective installation and material, F.O.B. site.
2. No representative of the manufacturer has authority to make any representations or promises except as stated herein.

G. Installer: A firm with successful experience in installation of roofing systems similar to those required for this project and which is acceptable to or licensed by manufacturer of primary roofing materials.

H. Pre-Roofing Conference: Prior to installation of roofing and associated work, meet at project site with installer, roofing manufacturer, installers of related work, and other entities concerned with roofing performance. Record discussions and agreements and furnish copy to each participant and Architect. Provide at least 72 hours advance notice to participants prior to convening pre-roofing conference.

I. FM I-90 or UL Listing: Provide labeled materials which have been tested and listed by UL or FM I-90 for application indicated, with the following rating for roof slopes: FM I-90 Approved and Class A.

1.04 SUBMITTALS

A. Product Data: Submit specifications, installation instructions and general recommendations from manufacturers of flexible sheet roofing system materials, for type of roofing required. Include data substantiating that materials comply with requirements.

1.05 JOB CONDITIONS

A. Weather: Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturer's recommendations and warranty requirement. All materials shall be secured during installation so as not to blow onto site area.

B. Division 7 “Roof Accessories” required submittals to be submitted with Flexible Sheet Roofing System submittals.

1.06 SPECIAL PROJECT WARRANTY

Provide written warranty, signed by manufacturer of primary roofing materials, agreeing to replace/repair defective materials and workmanship. Repairs and replacements required because of acts of God and other events beyond contractor's/installer's/manufacturer's control (and which exceed performance requirements) shall be completed by contractor/installer and paid for by owner.

A. Warranty period of 25 years or more after date of substantial completion.

PART 2 - PRODUCTS

2.01 GENERAL

A. Performance: Provide roofing materials recognized to be of generic type indicated and tested to show compliance with indicated performances, or provide other similar materials certified in writing to be equal or better than specified in every significant respect and acceptable to Architect.

B. Compatibility: Provide products which are recommended by manufacturers to be fully compatible with indicated substrates, or provide separation materials as required to eliminate contact between incompatible materials.

2.02 FULLY ADHERED SYSTEM - BASE BID EXISTING SPM AREA

A. Ethylene propylene dien monomers formed into uniform, flexible sheets, complying with ANSI/RMA IPR-1:

1. Thickness: 60 mils nominal reinforced.
2. Exposed Face Color: Manufacturer's Standard
3. Fully Attached EPDM Membrane:
4. Products: Subject to compliance with requirements, provide products of one of the following:
   Goodyear - Versigard
   Carlisle Syntec Systems
   Firestone Building Products Co.
   Gen-Flex Roofing Systems
   Manville Co.
5. Type: 60 mil EPDM Reinforced
   Model: Similar to Johns Manville 'Ultragard' or Versico 'Versigard'

ALTERNATE #1B

B. Thermoplastic Roofing Membrane: ASTM 6754-002 "Keytone Ethylene Ester (KEE) Sheet Roofing, "FiberTite SM Reinforced" membrane as manufactured by Seaman Corporation or Equal.

1. Thickness: 45 mils (1.1 mm), Minimum
2. Color: Beige

MATERIAL PROPERTY	TEST METHODS	PRODUCT DATA
Base Cloth – Type / Weight	ASTM D-751- (oz.)	Polyester – 5.0
Thickness	ASTM d-751 (inches)	.045
Breaking Strength Tensile Strength Elongation	ASTM D-751 (lbs.) ASTM D-882 (psi) ASTM D-751 (%)	375x350lbs(1.7x1.6kN) 8500 psi (598 kgf/cm-sqd) 20 warp x 30 fill
Tear Strength 8" x 10" sample	ASTM D-751 (lbs.)	100 x 100
Puncture Resistance	Fed. Std. 101B Method 2031 (lbs.)	250
Water Vapor Transmission	ASTME-96 Proc. A (gm/m^2/24 hrs)	1.3
Water Absorption (maximum) 14 days @ 70 degrees F	ASTM D-471 (%)	1
Dimensional Stability	ASTM D-1204 (%)	0.5
Low Temperature Flexibility	ASTM D-2136 (F)	-30 Degrees
Factory Seam Strength	ASTM D-751, Grab Method (% of Fabric Strength)	100
Shore "A" Hardness	ASTM D-2240	80
Accelerated Weathering	Carbon Arc with water spray	5,000 hrs. no cracking, Blistering, or crazing

Hydrostatic Resistance	ASTM D-751 Method A Proc. 1 (psi)	500
Wicking Test (Maximum)	U. S. Army Natick Test (inches)	1/8
Flame Resistance	MIL-C-20696C Type II Class 2	Pass
Oil Resistance	MIL-C-20696C	No swelling, cracking or leaking
Hydrocarbon Resistance	MIL-C-20696C	No swelling, cracking or leaking

C. Adhered Membrane Roofing System:

1. Membrane Adhered with Manufacturer's Bonding Adhesive
   a. Position the Membrane and fold the sheet to allow a workable exposure to the underside of the sheet.
   b. Apply a 100%. continuous coat of bonding adhesive to the exposed bottom side of the membrane and a mirrored area of the substrate.
   c. The amount of membrane and substrate that can be coated with adhesive will be determined by application method, ambient temperature, humidity and available manpower.
   d. Adhesive may be applied by spraying and "back" rolling or just rolling.
   e. Roller applied adhesive shall utilize a solvent resistant .375 inch nap roller, spreading the adhesive to ensure a smooth, even 100% coverage of the substrate and membrane.
   f. Spray applied adhesive must be spread out by roller to ensure a smooth 100% coverage of the substrate and membrane with no voids, skips, globs, puddles or similar irregularities. Note: A squeegee can be used to "flatten" or spread globs and puddles of adhesive.
   g. Adhesive coverage per manufacturer's recommendations or average 100 sq. ft. per gallon of applied adhesive with a 50 sq. ft. per gallon net coverage (+/-10%) for the membrane and substrate combined.
2. Allow the adhesive to dry to a point of being tacky, but not stringy to the touch on both surfaces. Do not allow adhesive to "dry out" on either surface.
3. When sufficiently dry, carefully maneuver the glued portion of the membrane onto the glued substrate surface, avoiding any wrinkles or air pockets.
4. Broom the adhered portion of the membrane to ensure full contact and complete the bonding process by firmly pressing the bonded membrane into place with a weighted, foam-covered, lawn roller.
5. Repeat the process for the remaining un-bonded portion of the membrane, lapping subsequent. Adjacent rolls of membrane a minimum of 3 inches, ensuring proper shingling of the membrane to shed water along the laps.
6. No adhesive shall be applied to the lap "seam" areas of the membrane. Areas contaminated with adhesive are difficult to clean, will impair proper welding of the seams and require a membrane patch.
7. Do not use bad or marginal adhesives. Contact manufacturer's representative if the quality of the adhesive is suspect.

D. Roof Material: TPO
Manufacturer: GAF, Firestone, or Equal
Thickness: 60 mil
Reinforcement: Scrim, manufacturer's standard
Accessories: Prefinished flashing, fascia, pipe boots, etc.

2.03INSULATING MATERIALS - (CONTRACTOR'S OPTION OF MATERIALS LISTED) UNIT PRICE

A. General: Provide insulating materials to comply with requirements indicated for materials and compliance with referenced standards; in sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths and lengths.

1. Provide system acceptable to roofing manufacturer for roofing system.
2. Manufacturers/Suppliers:
   Big Sky Insulations, Inc. - Belgrade, Montana
   Benchmark Foam, Inc. - Watertown, South Dakota
   MacArthur Company - Billings, Montana
   International Permalite, Inc. - Ontario, California
   A.K. Foss, Inc. - Fargo, North Dakota
   Minnesota Diversifoam - EPS, Rockford, Minnesota and Peru, Illinois

B. Polyisocyanurate Board Roof Insulation: Rigid, cellular thermal insulation with polyisocyanurate closed-cell foam core and manufacturer's standard facing laminated to both sides; complying with FS HH-I-1972/2, Class I, aged R-values as designated at mean temperatures indicated, after conditioning per RIC/TMA Bulletin #281-1; and as follows:

1. Surface Burning Characteristics: Maximum flame spread of 25.
2. Thermal Resistivity: R-8 at 75 deg F (23.9 deg C) per 1".

2.04AUXILIARY INSULATION MATERIALS

A. Adhesive for Bonding Insulation: Type recommended by insulation manufacturer and complying with fire resistance requirements.

B. Mastic Sealer: Type recommended by insulation manufacturer for bonding edge joints and filling voids.

C. Mechanical Anchors: Corrosion-resistant type as recommended by insulation manufacturer for deck type, and complying with fire and insurance uplift requirements.

1. Provide system tested and approved for I-90 wind uplift rating.

D. Vapor Retarders: Provide vapor retarder per roofing manufacturer requirements and when average winter temperatures are below 45 degrees F.

E. Laminated Sheet Vapor Retarder:

1. Kraft paper sheets laminated with asphalt and glass fiber reinforcing, vapor rating of 0.50 perms.
2. Polyethylene film of 8 mil thickness, vapor rating of 0.20 perms.

F. Auxiliary Vapor Retarder Materials:

1. General: Provide adhesives, tapes, flashing, and accessories as recommended by vapor retarder manufacturer to maintain vapor rating for entire barrier.
2. Paper slip sheet 6-lb rosin sized paper.

2.05MISCELLANEOUS MATERIALS

A. Cant Strips and Flashing Accessories: Types recommended by manufacturer for FSR material, provided at locations indicated and at locations recommended by mfr., and including adhesive tapes, flashing cements, and sealants.

B. Mechanical Anchors: As recommended by manufacturer for deck type, and complying with fire and insurance rating requirements.

C. Coated Base Sheet: ASTM D2178, Type IV or No. 30 Asphalt Felt ASTM D226, Type II and per manufacturer's recommendations.

D. Asphalt Primer: As required by manufacturer.

E. Roof Cement: Asphaltic cement; comply with ASTM D2822.

F. Glass Fiber Fabric: As required by manufacturer for deck type and complying with fire and insurance rating requirements.

G. Asphalt: As required by manufacturer.

H. Retrofit/Underlayment Board: (As required by roofing manufacturer for conditions.)

Celotex; Celo Foam Ultra or Celo Foam Pyrox or equal
Flamespread: ASTM84 - 25 max.
Compressive density: 16 psi min.
Product density: 2 lbs/cu. ft.
Service Temperature: -100 deg. F/+250 deg. F
Dimensional Stability: less than 2%
Other Manufacturers: Mansville, International, Permalite, Koppers and as recommended by roofing manufacturer or Class A rating.

I. 5/8" U.L. listed fire-rated exterior gypsum board as required by manufacturer.

J. Cover Board: 1" wood fiberboard insulation ASTM C208 or 1" Perlite ASTM C278 to meet Class 'A' rating.

2.06MISCELLANEOUS ROOFING ACCESSORIES

A. Flashing Material: Manufacturer's standard system compatible with flexible sheet membrane.

B. Clamp Rings: Adjustable screw type non-corroding metal bands.

PART 3 - EXECUTION

3.01 EXAMINATION

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

1. Verify that roof openings and penetrations are in place and set and braced.
2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and the nailers match thicknesses of insulation.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02PREPARATION

A. Remove and dispose of all existing membrane, sheet metal copings and built-up roofing flashings prior to installing rigid roof insulation.

B. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

C. Prevent materials from spilling or migrating onto surfaces of other construction.

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

3.03PREPARATION OF SUBSTRATE

A. General: Comply with manufacturer's instructions for preparation of substrate to receive roofing system.

B. Clean substrate of dust, debris, and other substances detrimental to roofing system work. Remove any sharp projections.

C. Install cant strips, flashings, and similar accessory items as shown, and as recommended by manufacturer even though not shown.

D. Prime substrate where recommended by manufacturer of materials being installed.

E. Prevent compounds from entering and clogging drains and conductors, and from spilling or migrating onto surfaces of other work.

F. On wood-board type decks to receive membrane materials, install nailed course of paper slip sheet.

3.04INSTALLATION

A. General: Comply with manufacturer's instructions, except where more stringent requirements are indicated. All details for installation to be in strict accordance with manufacturer's recommendations for the conditions encountered.

B. Vapor Barrier Installation: Per manufacturer's requirements.

C. Vapor Retarder Installation: Provide installation for vapor retarder used as follows:

1. Seal joints in vapor retarder and seal to other surfaces at extremities and penetrations of retarder. Seal over nails, staples, tears, and punctures with tape or adhesively applied strips of vapor retarder material.

E. Insulation Installation:

1. Extend insulation full thickness as a single layer, in two layers, or in multiple layers over entire surface to be insulated, as indicated on drawings cutting and fitting tightly within 1/4" around obstructions. Fill gaps greater than 1/4" with insulation.

2. Form cant strips, crickets, saddles and tapered areas with additional material as shown and as required for proper drainage of membrane.
3. Stagger joints in one direction for each course. For multiple layers, stagger joints in both directions between courses with no gaps to form a complete thermal envelope.
4. Do not install more insulation each day than can be covered with membrane before end of day and before start of inclement weather.
5. Set units in adhesive, applied in accordance with requirements of applicable fire and insurance ratings.
6. Secure roof insulation to substrate with mechanical anchors of type and spacing indicated; but in no case provide less than one anchor per 4 square feet of surface area, or less anchorage than required by FM "Loss Prevention Data Sheet 1-28". Fasteners are not to extend beyond the minimum required by manufacturer.

F. Cover Board Installation:

1. Install 1/4" cover board over insulation with long joints in continuous straight lines with end joints staggered between rows. Stagger joints from joints in insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together and fasten to roof deck.
   a. Compositely fasten cover board and insulation using manufacturer's recommended threaded fasteners and plates per (4' by 8') board minimum (not less than 8 fasteners.)

G. Membrane Installation:

1. General: Start installation only in presence of manufacturer's technical representative.
2. Cut sheets to maximum size possible, in order to minimize seams and to accommodate contours of roof deck and proper drainage across shingled laps of sheets.

H. Hot Air Welding

1. General:
   a. All field seams exceeding 10 feet in length shall be welded with an approved automatic welder.
   b. All field seams must be clean and dry prior to initiating any field welding.
   c. Remove foreign materials from the seams (dirt, oils, etc.) with acetone or authorized alternative. Use CLEAN WHITE COTTON cloths and allow approximately five minutes for solvents to dissipate before initiating the automatic welder. *Do not use* denim or synthetic rags for cleaning.
   d. All welding shall be performed only by qualified personnel to ensure the quality and continuity of the weld.
   e. Contaminated areas within a seam will inhibit proper welding and will require a membrane patch.
2. Hand Welding:
   a. The lap or seam area of the membrane should be intermittently tack welded to hold the membrane in place.
   b. The back "interior" edge of the membrane shall be welded first, with a thin, continuous weld to concentrate heat along the exterior edge of the lap during the final welding pass.
   c. The nozzle of the hand held hot air welder shall be inserted into the lap at a 45 degree angle to the lap. Once the polymer on the material begins to flow, a hand roller shall be used to apply pressure at a right angle to the tip of the hand welder. Properly welded seams shall utilize a 1.5 inch wide nozzle, to create a homogeneous weld, a minimum of 1.5 inches in width.

d. Smaller nozzles may be used for corners, and other field detailing, maintaining a minimum 1 inch weld.

I. Roof Drains

1. Flash all roof drains in accordance with roof membrane manufacturer's roof drain details.
2. Replace all worn or broken parts that may cut the membrane or prevent a watertight seal. This includes the clamping ring and strainer basket.
3. Replace all drain bolts or clamps used to hold the drain compression ring to the drain bowl.
4. Non-reinforced 60 mil membrane shall be used for flashing the drain assembly. Drain assemblies and basins or "sumps" must be free of any asphalt or coal tar pitch residue prior to installation.
5. The drain target sheet should be sized and installed to provide for a minimum of 12 inches of exposed 60 mil on all sides of the drain.

J. Adhered Membrane Roofing System:

1. Membrane Adhered with Manufacturer's Bonding Adhesive
   a. Position the Membrane and fold the sheet to allow a workable exposure to the underside of the sheet.
   b. Apply a 100%. continuous coat of bonding adhesive to the exposed bottom side of the membrane and a mirrored area of the substrate.
   c. The amount of membrane and substrate that can be coated with adhesive will be determined by application method, ambient temperature, humidity and available manpower.
   d. Adhesive may be applied by spraying and "back" rolling or just rolling.
   e. Roller applied adhesive shall utilize a solvent resistant .375 inch nap roller, spreading the adhesive to ensure a smooth, even 100% coverage of the substrate and membrane.
   f. Spray applied adhesive must be spread out by roller to ensure a smooth 100% coverage of the substrate and membrane with no voids, skips, globs, puddles or similar irregularities. Note: A squeegee can be used to "flatten" or spread globs and puddles of adhesive.
   g. Adhesive coverage per manufacturer's recommendations or average 100 sq. ft. per gallon of applied adhesive with a 50 sq. ft. per gallon net coverage (+/-10%) for the membrane and substrate combined.
   h. Allow the adhesive to dry to a point of being tacky, but not stringy to the touch on both surfaces. Do not allow adhesive to "dry out" on either surface.
   i. When sufficiently dry, carefully maneuver the glued portion of the membrane onto the glued substrate surface, avoiding any wrinkles or air pockets.
   j. Broom the adhered portion of the membrane to ensure full contact and complete the bonding process by firmly pressing the bonded membrane into place with a weighted, foam-covered, lawn roller.
   k. Repeat the process for the remaining un-bonded portion of the membrane, lapping subsequent. Adjacent rolls of membrane a minimum of 3 inches, ensuring proper shingling of the membrane to shed water along the laps.
   l. No adhesive shall be applied to the lap "seam" areas of the membrane. Areas contaminated with adhesive are difficult to clean, will impair proper welding of the seams and require a membrane patch.
   m. Do not use bad or marginal adhesives. Contact manufacturer's representative if the quality of the adhesive is suspect.

K. Peel Stops for Adhered Roofing Systems

1. Perimeter "assurance" or restraint must be provided to avoid any modification to the standard commercial warranty.
2. Assurance or restraint is accomplished using rows of fasteners, installed parallel to exterior roof edges at a prescribed interval and fastener spacing to create a "peel stop" during a significant wind event.
3. Peel stops must be mechanically attached into or through the structural decking with rows of Magnum stress plates and fasteners, (or authorized alternate) @ 12 inches on center. The peel stop is sealed by heat welding a nominal 6-inch strip of membrane over the fasteners.
4. Peel stop fastening must penetrate through into the structural component. Peel stop(s) are required on adhered projects with a field design uplift pressure of -45 psf (FM1-90) or above. Peel stop intervals are based upon the field pressure and are as follows:
   a. Buildings with Design Velocity Pressure equal to -45 psf (FM 1-90).
      1. One peel stop at three feet from all edges.
   b. Buildings with Design Velocity Pressure greater than -45 psf but less than -60 psf (FM1-120).
      1. One peel stop at three feet from all edges and,
      2. The second peel stop at six feet from all edges.
   c. Buildings with Design Velocity Pressure greater than -60 psf but less than -67.5 psf (FM 1-135).
      1. One peel stop at three feet from all edges and,
      2. The second peel stop at six feet from all edges and,
      3. The third peel stop at nine feet from all edges.
   d. Buildings with Non Class 1 decking, i.e. lightweight, wood, gypsum, and cementitious wood fiber do not default to the above requirements and require additional evaluation and engineering review by manufacturer.

L. Mechanically Attached Insulation for Adhered Roofing Systems:

1. Insulation shall be applied to and installed over properly prepared and pre-approved substrates, free of any debris, dirt, grease, oil or moisture.
2. All fasteners and stress plates for the mechanical attachment of insulation and/or cover board materials shall be fasteners s provided by the manufacturer.
3. All fasteners and stress plates shall be Factory Mutual Research approved for mechanical attachment of insulation and comply with FM Standard 4470 for4 corrosion resistance.
4. 1-90 attachment for insulation/cover board in the FIELD of the roof requires 1 fastener and stress plate per 2 square feet of insulation, when the top layer is 2 inches thick and the membrane is adhered.
   a. Perimeter areas require a 50% increased in the fastener density.
   b. Corner areas require a 75% increase in fastener density.
5. 1-90 attachment for insulation/cover board in the FIELD of the roof requires 1 fastener and stress plate per 4 square feet of insulation, when the top layer is greater than 2 inches thick and the membrane is adhered.
   a. Perimeter areas require a 50% increase in the fastener density.
   b. Corner areas require a 75% increase in the fastener density.
6. Roof insulation shall be fastened in accordance with the roof insulation manufacturer's recommendations and must be approved by the manufacturer.
7. Fasteners shall be installed in accordance with manufacturer's recommendations, complying with minimum penetration requirements for specific deck types.
8. Fasteners shall be installed using depth sensing tool attachments to ensure proper installation.

M. Composition Flashing and Stripping:

1. Provide composition flashing at roof edges. Nail or provide other forms of mechanical anchorage of composition flashing to vertical surfaces, if any, as recommended by manufacturer of primary roofing materials.
2. Provide composition stripping where metal flanges are set on roofing. Except where concealed by aggregate surfacing or elastic flashing, apply a heavy coating of roofing cement over composition stripping.

N. Roof Accessories:

1. Miscellaneous sheet metal accessory items, including insulation vents and other devices, are part of these specifications.

O. Base Flashing Installation:

1. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
2. Apply solvent-based bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
3. Flash penetrations and field-formed inside and outside corners with sheet flashing.
4. Clean seam areas and overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.
5. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

P. Walkway Installation:

1. Flexible Walkways: Install walkway products in locations indicted. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturers written instructions.

3.05 FIELD QUALITY CONTROL

A. In Progress Inspection: Contractor shall include in their bid, the cost for roofing system manufacturer's technical personnel, to inspect roofing installation prior to the contractor's complete of 50% of the project. Upon completion of this inspections, the roofing system manufacturer's technical personnel shall submit an in-progress report to the owner's representative.

1. Notify Owner's representative 48 hours in advance of date and time of inspection.

B. Final Roof Inspection: Contractor shall include in their bid, the cost for the roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit final inspection report to the owner's representative.

1. Notify Owner's representative 48 hours in advance of date and time of inspection.

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

3.06 PROTECTING AND CLEANING

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

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

END OF SECTION 07530

DIVISION 7 - THERMAL & MOISTURE PROTECTION
SECTION 07620 - FLASHING AND SHEET METAL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY:

A. The extent of each type of flashing and sheet metal work is indicated on the drawings and by provisions of this section.

B. The types of work specified in this section include the following:

Flashing and Sheet Metal
Cap Flashing:
  Prefinished Galvanized Cap Flashing
Reglet Flashing:
  Prefinished Galvanized Reglet Flashing
Roof / Wall Flashing:
  Galvanized Roof / Wall Flashing

C. Roofing accessories are specified in roofing system sections as roofing work.

1.03 SUBMITTALS:

A. Product Data: Flashing, Sheet Metal, Accessories: Submit manufacturer's product specifications, installation instructions and general recommendations for each specified sheet material and fabricated product.

1.04 JOB CONDITIONS:

A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of the work and protection of materials and finishes.

PART 2 - PRODUCTS

2.01 FLASHING AND SHEET METAL MATERIALS:

A. Sheet Metal Flashing/Trim:

1. Steel zinc coated sheet ASTM A446 with G 90 zinc coating, 24 gage except as otherwise indicated. Baked on 20 year color to be selected from manufacturer's standard.

B. Miscellaneous Materials and Accessories:

1. Fasteners: Same metal as flashing/sheet metal or, other noncorrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
2. Bituminous Coating: FS TT-C0494 or SSPC - Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
3. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.
4. Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed; comply with DOW 790.
5. Epoxy Seam Sealer: 2-part noncorrosive metal seam cementing compound, recommended by manufacturer for exterior/interior nonmoving joints including riveted joints.
6. Adhesives: Type recommended by flashing sheet manufacturer for aterproof/weather-resistant seaming and adhesive application of flashing sheet.
7. Reglets: Metal units of the type and profile indicated, compatible with flashing indicated, noncorrosive. Similar to Frye Reglet: Type SM.
8. Metal Accessories: Provide sheet metal clips, starts, anchoring devices and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gage required for performance.
9. Elastic Flashing Filler: Closed-cell polyethylene or other soft-closed-cell material recommended by elastic flashing manufacturer as filler under flashing loops to ensure movement with minimum stress on flashing sheet.
10. Roofing Cement: ASTM D-2822, asphaltic.

2.02 FABRICATED UNITS:

A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels and indicated, with exposed edges folded back to form hems.

B. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seals with epoxy seam sealer; rivet joints for additional strength where required.

C. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be sufficiently water/weatherproofed, form expansion joints of intermeshing hooked flanges, not less than 1" deep, filled with mastic sealant (concealed within joints) and provide joints covers extending 4" minimum each side of joint.

D. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with industry standards and provide joint covers.

E. Separations: Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

PART 3 - EXECUTION

3.01 INSTALLATION REQUIREMENTS:

A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations, and with SMACNA "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 metal flashing at all wall to roof intersections, roof penetrations and areas where sheathing would be exposed to the elements. Install work with laps, joints and seams which will be permanently watertight and weatherproof.

B. Underlayment: Where stainless steel or aluminum is to be installed directly on cementitious or wood substrates, install a course of paper slip sheet and a course of polyethylene underlayment.

C. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.

    1. Install counterflashing in reglets, either by snap-in seal arrangement, or by wedging in place for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure.

D. Install elastic flashing without stretching. Install elastic flashing filler strips to provide for movement by forming loops or bellows in width of flashing. Locate filler strips to facilitate complete drainage of water from flashing. Seam flashing sheets with adhesive, and anchor edges in manner indicated.

E. Nail flanges of expansion joint units to curb nailers, at maximum spacing of 6". Complete seams at joints between units, to form a continuous waterproof system.

3.02 CLEANING AND PROTECTION:

A. Clean exposed metal surfaces removing substances which might cause corrosion of metal or deterioration of finishes.

B. Protection: Installer shall advise contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction, to ensure that work will be without damage or deterioration, other than natural weathering, at time of substantial completion.

END OF SECTION 07620

DIVISION 7 - THERMAL & MOISTURE PROTECTION
SECTION 07720 - ROOF ACCESSORIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY

A. This section includes the following:

Roof Accessories:
Expansion Joints
Pipe Seal
Pipe Jack
D-Edge Metal

Roof Drains:
Existing

Vents

1.03 SUBMITTALS

A. Product Data: Submit specifications, installation instructions, and general recommendations from siding manufacturer, including data that materials comply with requirements.

B. Samples: Full range of manufacturer's samples for color and texture selection, color/style/texture offered.

1.04 PRODUCT HANDLING

A. Store materials at site to prevent damage, elevating above ground on level blocking and covering to prevent water damage and to permit adequate ventilation within bundles.

1.05 JOB CONDITIONS

A. Substrate: Proceed with work only after substrate construction and penetrating work have been completed.

B. Weather Conditions: Proceed with work only when substrate is completely dry.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Expansion Joints:

1. Manville: Expand-O-Flash

B. Pipe seals: Similar to Portals Plus Retrofit Pipe Seals

C. Pre-flashed pipe jack: Similar to MPAN manufactured by Mweld, Inc., Roof Products & Systems Corp. or Equal.

D. Roof Starter Metal: Provide prefinished 'D' metal starter edge. Color selected by Architect. Manufacturer's standard gage.

2.02 MISCELLANEOUS MATERIALS

A. Sealants: Comply with requirements of Division 7 Section 07900 - Caulking and Sealants for materials required for siding work. Use only materials approved by siding manufacturers for compatibility with siding panels and installation.

2.03 MATERIALS GENERAL

A. Shop Finish, Rain Drainage: Provide manufacturer's standard baked-on acrylic shop finish on units (downspouts, and similar exposed units); 1.0 mil dry film thickness.

PART 3 - PROCEDURES

3.01INSTALLATION

A. Install as recommended by manufacturer. Verify installation requirements with roofing system.

B. Install as required by project conditions.

C. Conceal fasteners to greatest extent possible, by using heads prefinished to match siding at exposed locations.

    1. All edges to be painted if not covered by sealant.

D. Sealants: Seal joints as necessary for weather-tight, vermin-proof installation. Sealant: Match finish and color.

END OF SECTION 07720

DIVISION 7 - THERMAL & MOISTURE PROTECTION
SECTION 07900 - SEALANTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of Contract apply to work of this section.

1.02 SUMMARY:

Sealants and Accessories
Butyl Sealant
Backer Rod
Silicone Sealant
Acrylic Sealant
Fire Caulk

PART 2 - PRODUCTS

2.01 MATERIALS:

Exterior Use:

A. Sealant: Dow #790, General Electric Silicone Sealant; Pecora BC-158 butyl, PTI 757 butyl, Sonneborn Butakauk; standard colors selected by Project Representative.

B. Joint Filler (7/8" maximum width):

1. Closed-cell foamed butyl or polyethylene rod: PRC "89" preformed joint filler, Dow "Ethafoam", PRC "Mincel" backer rods.
2. For joints exceeding 7/8" closed cell sponge of vinyl or rubber of medium density open celled sponge of vinyl or polyethylene tape bondbreaker on top.
3. Do not use asphalt saturated filler.

C. Primers: As recommended by manufacturer of sealant materials.

PART 3 - PROCEDURES

3.01 PREPARATION:

A. Prime joints both sides to full depth of sealant as required by manufacturer.

B. Fill large, deep joints with backing rod to proper depth for sealant shape.

C. Apply masking tape both sides of exposed joints.

3.02 INSTALLATION:

A. Apply sealant with gun or hand tool using nozzle of proper size for joints. Make beads at least 1/4" x 3/8" but not less that manufacturer's recommended sizes.

B. Point up exposed joints neatly by striking with tool or finger; do not allow ragged edges, runs, spatters.

C. Remove all masking tape. Clean sealant from adjacent surfaces.

END OF SECTION 07900

DIVISION 9 – FINISHES

DIVISION 9 - FINISHES
SECTION 09900 - PAINTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract apply to work in this section.

1.02 SUMMARY

A. Extent of painting work is indicated on drawings and as herein specified.

B. The work includes painting and finishing of exterior surfaces throughout the project, except as otherwise indicated.

C. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

D. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts and elevator shafts.

E. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use.

B. Samples: Submit samples for architect's review of color and texture only. Provide a listing of material and application for each coat of each finish sample.

1.04 DELIVERY AND STORAGE

A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label.

1.05 JOB CONDITIONS

A. Apply water-base paints only when temperature of surface to be painted and surrounding air temperatures are between 50 degrees F (10 degrees C) and 90 degrees F (32 degrees C), unless otherwise permitted by paint manufacturer's printed instructions.

B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F (7 degrees C) and 95 degrees F (35 degrees C), unless otherwise permitted by paint manufacturer's printed instructions.

C. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by paint manufacturer's printed instructions.

Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.01 COLORS AND FINISHES

Prior to beginning work, architect to select colors from standard color chips for surfaces to be painted.

Use representative colors when preparing samples for review.

A. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.

B. Paint Coordination: Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on characteristics of finish materials proposed for use, to ensure compatible prime coats are used. Provide barrier costs over incompatible primers or remove and reprime as required. Notify architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

2.02 MATERIAL QUALITY

Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

A. Proprietary names used to designate colors or materials are not intended to imply that products of named manufacturers are required to exclusion of equivalent products of other manufacturers.

Provide undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.

B. Manufacturers:
Sonneborn
Thoroseal
Tenemec
Or Approved Equal

2.03 EXTERIOR PAINT SYSTEMS

Provide the following paint systems for various substrates as indicated:

A. Concrete Masonry Units - EPS - 4: **ALT #1a**

EPS - 4.1: Similar to Sonneborn hydrocide heavy texture colorcoat.

1st Coat - Fill N Patch Block Filler
2nd Coat - Heavy Textured Colorcoat
Others: Thoroseal

PART 3 - EXECUTION

3.01 INSPECTION

Applicator must examine areas and conditions (including surface conditions under which painting work is to be applied and notify contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to applicator.

STARTING of painting work will be construed as APPLICATOR'S ACCEPTANCE of surfaces and conditions within any particular area.

Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions otherwise detrimental to formation of a durable paint film.

3.02 SURFACE PREPARATION

A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.

   Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall into wet, newly-painted surfaces. Wipe new gypboard surfaces down with a damp mop prior to priming to remove dust and seal surface.

B. Cementitious Materials: Prepare cementitious surfaces of concrete, concrete block, and cement plaster to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze.

   Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application of paint. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed directions.

3.03 MATERIALS PREPARATION

A. Mix and prepare painting materials in accordance with manufacturer's directions.
B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.
C. Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

3.04 APPLICATION

A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

   Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure

that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

Omit first coat (primer) on metal surfaces which have been shop- primed and touch-up painted, unless otherwise indicated.

B. Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate per coat to establish a total dry film thickness.

D. Prime Coats: Apply prime coat of material which is required to be painted or finished, and which has not been prime coated by others.

Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.

E. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

3.05 CLEAN-UP AND PROTECTION

A. Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

B. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to architect.

Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.

At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION 09900