

Specifications for
PINE KNOLL SHORES
PUBLIC SERVICES BUILDING

Pine Knoll Shores,
North Carolina



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Project No.
23019



October 18, 2023

Project Manual
including
Contract Documents & Specifications
for the Construction of
PINE KNOLL SHORES PUBLIC SERVICES BUILDING
PINE KNOLL SHORES, NORTH CAROLINA

PREPARED BY:

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PINE KNOLL SHORES PUBLIC SERVICES BUILDING PROJECT # 23019

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INVITATION TO BIDS

BIDS for the construction of the Pine Knoll Shores Public Services Building will be received by the Town at the Town Hall, Thursday February 15, 2024 until 2:00 pm.

At the Town Hall the proposals will be opened and read aloud. All bids must be in sealed envelopes reflecting on the outside thereof the bidder's name and "Bid for the Pine Knoll Shores Public Services Building". The Town will consider all bids properly submitted at its scheduled opening in the PKS Town Hall Town Board Room.

A pre-bid conference will be held at 2:00PM on site Tuesday February 6, 2024.

The CONTRACT DOCUMENTS may be obtained free from Architects website, www.coastalarchitecture.net or purchased from the Architect for a sum of \$150.00 per set.
(Non-Refundable)

The Owner reserves the unqualified right to reject any and/or all bids.

A 5% Bid Bond will be required, and a 100% Performance and Payment Bond will be required.

Minority participation is encouraged.

AWARDING OF CONTRACT

1. For any bid to be considered or accepted by the Town, at the time of filing, a bid bond will be required in the amount of 5% of the total bid price. The bid bond must be executed by a corporate surety licensed under the laws of North Carolina to execute such bonds, conditioned that the surety will immediately upon demand make payment to the obligee upon said bond if bidder fails to execute the contract in accordance with the bid bond.

2. To be considered a complete bid, all of the following documents must be properly completed, signed, and delivered as part of the bid:

- _____ Proposal Form
- _____ Bid Bond
- _____ Anti-Collusion Statement
- _____ E-Verify Compliance Certification
- _____ Certification Regarding Lobbying
- _____ Iran Divestment Act Certification
- _____ Certification of No Debarment or Suspension
- _____ Conflict of Interest Disclosure
- _____ Minority Business Participation Forms

3. The Town intends to award the contract to the lowest responsible bidder taking into consideration quality, performance, and the time specified in the proposals for performance of the contracts. While price will be the determinative factor if all other factors in proposals are equal, there is no obligation on the part of the Town to award the contract to the proposer with the lowest price when proposals contain different specifications or terms. The Town reserves the right to award the contract to the bidder submitting a responsive proposal which is most advantageous and in the best interest of the Town. The Town shall be the sole judge of the proposal that is in its best interest and its decision shall be final.

4. PKS will adhere to all federal procurement guidelines in this project. The following federal provisions apply pursuant to 2 C.F.R. § 200.327 and 2 C.F.R. Part 200, Appendix II (as applicable), and are contained in Appendix I Federal Contract Clauses. These provisions will be included in the contract.

5. Right to Waive and Reject.

a. The Town, in its absolute discretion, may waive any non-compliance, material or otherwise, with the requirements in the request for bids for documentation, information or other matters and to enter negotiations for a contract with the bidder who can best complete the Project in a cost effective and timely fashion and best serve the interests of the Town.

b. The Town, in its absolute discretion, may reject any and all bids, in whole or part, and request new bids, or abandon the project.

c. The Town, in its sole discretion, may reject any bid of a bidder that has failed, in the opinion of the Town, to complete or perform a Town contracted project in a timely fashion or has failed in any other way, in the opinion of the Town, to perform a prior contract with any other person or entity in a satisfactory manner.

6. Bid Protest

The Town Clerk shall post a tabulation of proposals received along with the intended award recommendations or a short list of proposers on the bulletin board in the Pine Knoll Shores Town Hall. Any person allegedly adversely affected by the decision or intended decision of award must file a written notice of protest within three (3) business days after posting of the award recommendation.

This notice must be delivered to the Town Clerk and must contain the following:

1. The protestant's business name, address & phone #.
2. The solicitation involved.
3. A clear statement as to the grounds of protest (applicable statutes, ordinances, laws, etc.
4. Specifically request the relief to which the protestant deems itself entitled.

Failure to file a written notice of protest within the specified time period specified shall result in relinquishment of all rights of protest by the vendor.

The Town Clerk shall review all protests within five (5) business days. If necessary, the Town Manager shall schedule a hearing for appropriate action to be determined. The proposal protester will be notified, in writing, of their final findings.

WITNESS:

(Name of Firm or Corporation Making Bid)

By: _____

(Proprietorship or Partnership)

Title: _____
(Owner, Partner, or Corporate President or
Vice President only)

ATTEST:

Address: _____

By: _____

Title: _____
(Corporate Secretary or
Assistant Secretary Only)

License No.: _____
(Corporate Seal)

Addenda Received and Used in Computing Bids: (Initial as Appropriate)

Addendum No.1 _____

Addendum No.2 _____

Addendum No.3 _____

Addendum No.4 _____

End of Proposal Form

ANTI-COLLUSION STATEMENT:

The below signed Bidder has not divulged to, discussed or compared his proposal with other proposers and has not colluded with any other proposer or parties to a proposal whatever. (Note: No premiums, rebates, or gratuities are permitted either with, prior to, or after any delivery of materials. Any such violation will result in the cancellation and/or return of material (as applicable) and the removal from proposal list(s).

Bidder's Company Name: _____

Authorized Signature: _____

Printed Name

Title: _____

Address _____

Phone # Fax # _____

Federal ID # or SS # _____

E-VERIFY COMPLIANCE CERTIFICATION

Public Services Building

Bidder hereby certifies that the U.S. Department of Homeland Security's E-Verify system will be used to verify the employment eligibility of all new employees hired by the contractor during the contract term, and shall expressly require any subcontractors performing work or providing services pursuant to the contract to likewise utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the contract term; and shall provide documentation of such verification to the TOWN upon request.

=====

As the person authorized to sign this statement, I certify that this company complies/will comply fully with the above requirements.

Contractor's name

Signature Contractor's Authorized Official

Name and Title of Authorized Official

Date: _____

Emal: _____

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

APPENDIX A, 44 C.F.R. PART 18 –

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure. The Contractor, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Contractor's name

Signature of Contractor's Authorized Official

Name and Title of Authorized Official

Date: _____

IRAN DIVESTMENT ACT CERTIFICATION

Public Services Building

Bidder hereby certifies that he, and all subcontractors, are not on the Iran Final Divestment List ("List") created by the North Carolina State Treasurer pursuant to N.C.G.S. 147-86.58. If awarded the contract, Proposer shall not utilize any subcontractor that is identified on the List.

Contractor's name

Signature of Contractor's Authorized Official

Name and Title of Authorized Official

Date: _____

CERTIFICATION OF NO DEBARMENT OR SUSPENSION

Public Services Building

Bidder acknowledges that a contract award (see 2 CFR 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

Bidder certifies that at the time of making his proposal, and if selected as the contractor, at the time of contract execution, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any federal department or agency.

Contractor's name

Signature Contractor's Authorized Official

Name and Title of Authorized Official

Date: _____

CONFLICT OF INTEREST DISCLOSURE FORM

Public Services Building

For purposes of determining any possible conflict of interest, all bidders must disclose if any Commissioner, the mayor, employee, or member of any appointed board, of the Town of Pine Knoll Shores, or their spouses, is a corporate officer, director, employee, consultant, or subcontractor of the proposer.

Indicate either "yes" or "no". If yes, give person(s) name(s) and position(s) with your business.

YES _____ NO _____

NAME(S)

POSITION(S)

Contractor's name

Signature Contractor's Authorized Official

Name and Title of Authorized Official

Date: _____

Small and Minority Business, Women's Business Enterprises (SMWBE), and Labor Surplus Area Firms Utilization Plan

Company Name (Proposer):	
Project Name:	

2 CFR §200.321 requires local governments to take all necessary affirmative steps to assure that minority business, women's business enterprises, and labor surplus area firms are used when possible. The Town requires that proposers, **if subcontracts are to be let**, to take affirmative steps as cited in RFP Section 7. Small and Minority Businesses, Women's Business Enterprises (SMWBE), and Labor Surplus Area Firms Opportunity Program Requirements. Please describe your firm's plan for identifying and potential use of SMWBE and Labor Surplus Area Firms. Additional pages may be attached, as necessary.

If **no** subcontracts are to be let, please certify by signature below.

_____ (Contractor Name) certifies that no subcontracts are to be used in the performance of this work.

Print Name

Signature

Date

State of North Carolina AFFIDAVIT A – Listing of Good Faith Efforts

County of _____

(Name of Bidder)

Affidavit of _____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- 1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- 2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- 3 – (15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- 4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- 5 – (10 pts)** Attended prebid meetings scheduled by the public owner.
- 6 – (20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- 7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- 8 – (25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- 9 – (20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- 10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____
Signature: _____
Title: _____



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

State of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of _____

Affidavit of _____

(Name of Bidder)

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

_____ contract.

(Name of Project)

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

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

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

Notary Public _____

My commission expires _____

State of North Carolina - AFFIDAVIT C - Portion of the Work to be Performed by HUB Certified/Minority Businesses

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by HUB certified/minority businesses as defined in GS143-128.2(g) and 128.4(a),(b),(e) is equal to or greater than 10% of the bidders total contract price, then the bidder must complete this affidavit.
 This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of _____ I do hereby certify that on the
 (Name of Bidder)

_____ (Project Name)
 Project ID# _____ Amount of Bid \$ _____

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

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

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

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

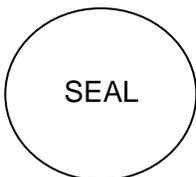
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

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

Notary Public _____

My commission expires _____

State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

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

Affidavit of _____ I do hereby certify that on the _____
 (Name of Bidder)

Project ID# _____ (Project Name) Amount of Bid \$ _____

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

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

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

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Examples of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

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

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

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

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

Notary Public _____

My commission expires _____

APPENDIX E

MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor/Architect: _____

Address & Phone: _____

Project Name: _____

Pay Application #: _____ Period: _____

The following is a list of payments made to Minority Business Enterprises on this project for the above-mentioned period.

MBE FIRM NAME	* INDICATE TYPE OF MBE	AMOUNT PAID THIS MONTH	TOTAL PAYMENTS TO DATE	TOTAL AMOUNT COMMITTED

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

Date: _____ Approved/Certified By: _____

Name

Title

Signature

SUBMIT WITH EACH PAY REQUEST & FINAL PAYMENT

GUIDELINES FOR RECRUITMENT AND SELECTION OF MINORITY BUSINESSES FOR PARTICIPATION IN STATE CONSTRUCTION CONTRACTS

In accordance with G.S. 143-128.2 (effective January 1, 2002) these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager at risk, and alternative contracting methods, on State construction projects in the amount of \$300,000 or more. The legislation provides that the State shall have a verifiable ten percent (10%) goal for participation by minority businesses in the total value of work for each project for which a contract or contracts are awarded. These requirements are published to accomplish that end.

SECTION A: INTENT

It is the intent of these guidelines that the State of North Carolina, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded shall cooperate and in good faith do all things legal, proper and reasonable to achieve the statutory goal of ten percent (10%) for participation by minority businesses in each construction project as mandated by GS 143-128.2. Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from minority-business contractors or minority-business subcontractors who do not submit the lowest responsible, responsive bid or bids.

SECTION B: DEFINITIONS

1. Minority - a person who is a citizen or lawful permanent resident of the United States and who is:
 - a. Black, that is, a person having origins in any of the black racial groups in Africa;
 - b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
 - c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
 - d. American Indian, that is, a person having origins in any of the original peoples of North America; or
 - e. Female
2. Minority Business - means a business:
 - a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
 - b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.
3. Socially and economically disadvantaged individual - means the same as defined in 15 U.S.C. 637. "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities". "Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged".
4. Public Entity - means State and all public subdivisions and local governmental units.
5. Owner - The State of North Carolina, through the Agency/Institution named in the contract.
6. Designer – Any person, firm, partnership, or corporation, which has contracted with the State of North Carolina to perform architectural or engineering, work.
7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.

8. Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.
9. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the State of North Carolina to perform construction work or repair.
10. Subcontractor - A firm under contract with the prime contractor or construction manager at risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in his subcontract.

SECTION C: RESPONSIBILITIES

1. Office for Historically Underutilized Businesses, Department of Administration (hereinafter referred to as HUB Office).

The HUB Office has established a program, which allows interested persons or businesses qualifying as a minority business under G.S. 143-128.2, to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:

- a. Identify those areas of work for which there are minority businesses, as requested.
- b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
- c. Assist in the determination of technical assistance needed by minority business contractors.

In addition to being responsible for the certification/verification of minority businesses that want to participate in the State construction program, the HUB Office will:

- (1) Maintain a current list of minority businesses. The list shall include the areas of work in which each minority business is interested.
- (2) Inform minority businesses on how to identify and obtain contracting and subcontracting opportunities through the State Construction Office and other public entities.
- (3) Inform minority businesses of the contracting and subcontracting process for public construction building projects.
- (4) Work with the North Carolina trade and professional organizations to improve the ability of minority businesses to compete in the State construction projects.
- (5) The HUB Office also oversees the minority business program by:
 - a. Monitoring compliance with the program requirements.
 - b. Assisting in the implementation of training and technical assistance programs.
 - c. Identifying and implementing outreach efforts to increase the utilization of minority businesses.
 - d. Reporting the results of minority business utilization to the Secretary of the Department of Administration, the Governor, and the General Assembly.

2. State Construction Office

The State Construction Office will be responsible for the following:

- a. Furnish to the HUB Office a minimum of twenty-one days prior to the bid opening the following:
 - (1) Project description and location;
 - (2) Locations where bidding documents may be reviewed;
 - (3) Name of a representative of the owner who can be contacted during the advertising period to advise who the prospective bidders are;
 - (4) Date, time and location of the bid opening.
 - (5) Date, time and location of prebid conference, if scheduled.
- b. Attending scheduled prebid conference, if necessary, to clarify requirements of the general statutes regarding minority-business participation, including the bidders' responsibilities.

- c. Reviewing the apparent low bidders' statutory compliance with the requirements listed in the proposal, that must be complied with, if the bid is to be considered as responsive, prior to award of contracts. The State reserves the right to reject any or all bids and to waive informalities.
- d. Reviewing of minority business requirements at Preconstruction conference.
- e. Monitoring of contractors' compliance with minority business requirements in the contract documents during construction.
- f. Provide statistical data and required reports to the HUB Office.
- g. Resolve any protest and disputes arising after implementation of the plan, in conjunction with the HUB Office.

3. Owner

Before awarding a contract, owner shall do the following:

- a. Develop and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment, and interaction between minority businesses and non-minority businesses.
- b. Attend the scheduled prebid conference.
- c. At least 10 days prior to the scheduled day of bid opening, notify minority businesses that have requested notices from the public entity for public construction or repair work and minority businesses that otherwise indicated to the Office for Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification shall include the following:
 - 1. A description of the work for which the bid is being solicited.
 - 2. The date, time, and location where bids are to be submitted.
 - 3. The name of the individual within the owner's organization who will be available to answer questions about the project.
 - 4. Where bid documents may be reviewed.
 - 5. Any special requirements that may exist.
- d. Utilize other media, as appropriate, likely to inform potential minority businesses of the bid being sought.
- e. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
- f. Review, jointly with the designer, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing good faith efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award to the State Construction Office.
- g. Evaluate documentation to determine good faith effort has been achieved for minority business utilization prior to recommendation of award to State Construction Office.
- h. Review prime contractors' pay applications for compliance with minority business utilization commitments prior to payment.
- i. Make documentation showing evidence of implementation of Owner's responsibilities available for review by State Construction Office and HUB Office, upon request

4. Designer

Under the single-prime bidding, separate prime bidding, construction manager at risk, or alternative contracting method, the designer will:

- a. Attend the scheduled prebid conference to explain minority business requirements to the prospective bidders.
- b. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
- c. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
- d. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S.143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with

corresponding total dollar value of the bid and affidavit listing Good Faith Efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.

- e. During construction phase of the project, review “MBE Documentation for Contract Payment” – (Appendix E) for compliance with minority business utilization commitments. Submit Appendix E form with monthly pay applications to the owner and forward copies to the State Construction Office.
- f. Make documentation showing evidence of implementation of Designer’s responsibilities available for review by State Construction Office and HUB Office, upon request.

5. Prime Contractor(s), CM at Risk, and Its First-Tier Subcontractors

Under the single-prime bidding, the separate-prime bidding, construction manager at risk and alternative contracting methods, contractor(s) will:

- a. Attend the scheduled prebid conference.
- b. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.
- c. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification will include the following:
 - (1) A description of the work for which the subbid is being solicited.
 - (2) The date, time and location where subbids are to be submitted.
 - (3) The name of the individual within the company who will be available to answer questions about the project.
 - (4) Where bid documents may be reviewed.
 - (5) Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.

If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.

- d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
- e. Identify on the bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).
- f. Make documentation showing evidence of implementation of PM, CM-at-Risk and First-Tier Subcontractor responsibilities available for review by State Construction Office and HUB Office, upon request.
- g. Upon being named the apparent low bidder, the Bidder shall provide one of the following: (1) an affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.
- h. The contractor(s) shall identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values. The schedule of values shall be provided as required in Article 31 of the General Conditions of the Contract to facilitate payments to the subcontractors.
- i. The contractor(s) shall submit with each monthly pay request(s) and final payment(s), “MBE Documentation for Contract Payment” – (Appendix E), for designer’s review.
- j. During the construction of a project, at any time, if it becomes necessary to replace a minority business subcontractor, immediately advise the owner, State Construction Office, and the Director of the HUB Office in writing, of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.

- k. If during the construction of a project additional subcontracting opportunities become available, make a good faith effort to solicit subbids from minority businesses.
- l. It is the intent of these requirements apply to all contractors performing as prime contractor and first tier subcontractor under construction manager at risk on state projects.

6. Minority Business Responsibilities

While minority businesses are not required to become certified in order to participate in the State construction projects, it is recommended that they become certified and should take advantage of the appropriate technical assistance that is made available. In addition, minority businesses who are contacted by owners or bidders must respond promptly whether or not they wish to submit a bid.

SECTION 4: DISPUTE PROCEDURES

It is the policy of this state that disputes that involves a person's rights, duties or privileges, should be settled through informal procedures. To that end, minority business disputes arising under these guidelines should be resolved as governed under G.S. 143-128(g).

SECTION 5: These guidelines shall apply upon promulgation on state construction projects. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: www.nc-sco.com

SECTION 6: In addition to these guidelines, there will be issued with each construction bid package provisions for contractual compliance providing minority business participation in the state construction program.

MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

APPLICATION:

The **Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts** are hereby made a part of these contract documents. These guidelines shall apply to all contractors regardless of ownership. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: <http://www.nc-sco.com>

MINORITY BUSINESS SUBCONTRACT GOALS:

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

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

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

OR

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

OR

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

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

MINIMUM COMPLIANCE REQUIREMENTS:

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

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

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

ADDENDUM I

PINE KNOLL SHORES PUBLIC SERVICES BUILDING

TOWN OF PINE KNOLL SHORES

Including Provisions for Federal Emergency Management Agency (FEMA) Assistance, Reimbursement Contracts

The Agreement is funded, in whole or in part, by Federal assistance in the form of grant, sub-grant, loan or reimbursement either directly to the Town of Pine Knoll Shores (“Town”) as a recipient or to the Town as a subrecipient of funding provided from the Federal government to an agency of the State of North Carolina or to another pass-through agency. In the event of a conflict between the provisions of the Agreement to which this Addendum applies and this Addendum, the provisions of this Addendum shall control.

Additional Provisions for Contracts Funded Through Federal Assistance,

The parties shall comply with all federal laws and regulations applicable to the receipt of FEMA grants, including, but not limited to the contractual procedures set forth in Title 2 of the Code of Federal Regulations, Part 200 (“2 CFR 200”), including Appendix II to such Part (“Appendix II”).

In addition, the Parties agrees as follows:

1. Town is entitled to exercise all administrative, contractual, or other remedies permitted by law to enforce Contractor’s compliance with the terms of this Agreement, except to the extent expressly provided otherwise by this Agreement.
2. Town may, at its sole discretion, terminate this Agreement for cause or convenience in accordance with the procedures set forth in this Agreement.
3. This Agreement may be amended only by written document executed by a duly authorized representative of each of the parties.
4. Equal Employment Opportunity
Applicable to federally assisted construction contracts. The following clause shall be inserted.

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

- (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in a conspicuous place, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

- (2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
- (4) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or worker's representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (8) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provision of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided*, that if the applicant so participating is a State or local government, the above equal

opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

5. Compliance with the Davis-Bacon Act and Copeland Anti-Kickback Act, as applicable, to the Contractor's performance pursuant to this Agreement.

The Davis Bacon Act is applicable to the Emergency Management Preparedness Grant Program, Homeland Security Grant Program, Nonprofit Security Grant Program, Tribal Homeland Security Grant Program, Port Security Grant Program, and the Transit Security Grant Program. It DOES NOT apply to other FEMA grant and cooperative agreement programs, including the Public Assistance Program. If the Davis-Bacon Act is not applicable, the Copeland Anti-Kickback Act is not applicable. In the event the two acts apply to a federal grant the required contract language can be found in at 29 CFR §5.5(a)(1)-(10).

6. Contract Work Hours and Safety Standards Act

Applicability. This requirement applies to all FEMA contracts awarded by the non-federal entity in excess of \$100,000 under grant and cooperative agreement programs that involve the employment of mechanics or laborers. It is applicable to construction work. These requirements do not apply to the purchase of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

- (1) *Overtime requirements.* No contractor or sub-contractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such work week unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such work week.

- (2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.
- (3) *Withholding for unpaid wages and liquidated damages.* Town shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.
- (4) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

7. Rights to Inventions Made Under a Contract or Agreement

This clause is not applicable to the FEMA Public Assistance Program, but may be applicable to other federal grant or cooperative agreement programs. The clause is required for funding agreements relative to performance of experimental, developmental or research on behalf of the federal government under a funding agreement as defined by 37 CFR §401.2(a).

8. Compliance with the Clean Air Act and the Federal Water Pollution Control Act.

a. Clean Air Act

- (i) Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, 42 U.S.C. §7401 et seq.
- (ii) Contractor agrees to report each violation to Town and understands and agrees that Town will, in turn, report each violation as required to assure notification to FEMA and the appropriate Environmental Protection Agency Regional Office.
- (iii) Contractor agrees to include these requirements in each subcontract exceeding \$150,000.00 financed in whole or in part with Federal assistance provided by FEMA.

b. Federal Water Pollution Control Act

- (i) Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.

- (ii) Contractor agrees to report each violation to the Town, the Contractor understands and agrees that the Town will, in turn, report each violation as required to assure notification to the State of North Carolina Emergency Management, Federal Emergency Management Agency (FEMA) and appropriate Environmental Protection Agency Regional Office.
- (iii) The contractor agrees to include these requirements in each subcontract exceeding \$150,000.00 financed in whole or in part with Federal assistance provided by FEMA.

9. Suspension and Debarment

- a. This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the Contractor is required to verify that neither the Contractor, its principals (defined at 2 C.F.R. § 180.995), or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).
- b. Contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C and must include a requirement to comply with these regulations in any lower tier covered transaction related in any way to the performance of this Agreement.
- c. This certification is a material representation of fact relied upon by Town. If it is later determined that Contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to Town, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
- d. The Contractor agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this Agreement is valid and throughout the period of any contract that may arise from the performance of this agreement. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

10. Compliance with Byrd Anti-Lobbying Amendment

- a. Contractor hereby certifies to the best of its knowledge that:
 - (i) No Federal appropriated funds have been paid or will be paid, by or on behalf of Contractor, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
 - (ii) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, Contractor shall complete and submit Standard Form- LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- b. Contractor shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts

under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. Contractors who apply or bid for an award of \$100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient.

- c. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000.00 and not more than \$100,000.00 for each such failure.
- d. By executing this Agreement, Contractor hereby certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 *et seq.*, apply to this certification and disclosure, if any.

11. Procurement of Recovered Materials

- a. In the performance of this Agreement, Contractor shall make maximum use of products containing recovered materials that are EPA- designated items unless the product cannot be acquired
 - (i) Competitively within a timeframe providing for compliance with the contract performance schedule;
 - (ii) Meeting contract performance requirements; or
 - (iii) At a reasonable price.
- b. Information about this requirement, along with the list of EPA-designate items, is available at EPA's Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.

12. Prohibition on certain telecommunications and video surveillance services or equipment.

- (a) Definitions. As used in this clause, the terms backhaul; covered foreign country; covered telecommunications equipment or services; interconnection arrangements; roaming; substantial or essential component; and telecommunications equipment or services have the meaning as defined in FEMA Policy 405-143-1, Prohibitions on Expending FEMA Award Funds for Covered Telecommunications Equipment or Services (Interim), as used in this clause.
- (b) Prohibitions.
 - (1) Section 889(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, and 2 C.F.R. 200.216 prohibit the head of an executive agency on or after Aug. 13, 2020, from obligating or expending grant, cooperative

agreement, loan, or loan guarantee funds on certain telecommunications products or from certain entities for national security reasons.

- (2) Unless an exception in paragraph (c) of this clause applies, the contractor and its subcontractors may not use grant, cooperative agreement, loan, or loan guarantee funds from the Federal Emergency Management Agency to:
- (i) Procure or obtain any equipment, system, or services that uses covered telecommunications equipment or services as substantial or essential component of any system, or as critical technology of any system;
 - (ii) Enter into, extend, or renew a contract to procure or obtain any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology of any system; or
 - (iii) Enter into, extend, or renew contracts with entities that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, or as critical technology as part of any system; or
 - (iv) Provide, as part of its performance of this contract, subcontract, or other contractual instrument, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system.

(c) Exceptions.

- (1) This clause does not prohibit contractors from providing:
 - (i) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or
 - (ii) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.
- (2) By necessary implication and regulation, the prohibitions also do not apply to:
 - (i) Covered telecommunications equipment or services that:
 - i. Are not used as a substantial or essential component of any system; and
 - ii. Are not used as critical technology of any system.
 - (ii) Other telecommunications equipment or services that are not considered covered telecommunications equipment or services.

(d) Reporting Requirement.

- (1) In the event the contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the contractor is notified of such by a subcontractor at any tier or by any other source, the contractor shall report the information in paragraph (d)(2) of this clause to the recipient or subrecipient, unless elsewhere in this contract are established procedures for reporting the information.
- (2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause:
 - (i) Within one business day from the day from the date of such identification or notification: The contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.
 - (ii) With 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: Any further available information about mitigation actions undertaken or recommended. In addition, the contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered

telecommunications equipment or services.

- (e) Subcontracts. The Contractor shall insert the substance of this clause, including this paragraph (e), in all subcontracts and other contractual instruments.

13. Domestic Preferences for Procurements

- (a) As appropriate and to the extent consistent with law, the contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States. This includes, but is not limited to iron, aluminum, steel, cement, and other manufactured products.
- (b) For purposes of this section:
- (1) "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
- (2) "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

14. Affirmative Socioeconomic Steps

If subcontracts are to be let, the prime contractor is required to take all necessary steps identified in 2 C.F.R. §200.321(b)(1)-(5) to ensure that small and minority businesses, women's business enterprises, and labor surplus firms are used when possible. Those steps are outlined below:

- Placing qualified small and minority businesses and women's business enterprises on solicitation lists.
- Assuring that small and minority businesses, and women's business enterprises are solicited whenever there are potential sources.
- Dividing total requirements, when economically feasible, into smaller task or quantities to permit maximum participations by small and minority businesses, and women's business enterprises.
- Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises.
- Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

15. Access to Records

The following access to records requirement applies to this Agreement:

- a. Contractor agrees to provide, the Town, the State of North Carolina Emergency Management, the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.
- b. Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
- c. Contractor agrees to provide the FEMA Administrator or his authorized representatives access to construction or other work sites pertaining to the work being completed under the contract.
- d. In compliance with section 1225 of the Disaster Recovery Reform Act of 2018, Town and the Contractor acknowledge and agree that no language in this contract is intended to

prohibit audits or internal reviews by the FEMA Administrator or the Comptroller General of the United States.

16. Use of DHS Seal

Contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval. The contractor shall include this provision in any subcontract.

17. Compliance with Federal Law

This is an acknowledgement that FEMA financial assistance will be used to fund all or a portion the Agreement only. The Contractor will comply with all applicable federal law, regulations, executive orders, FEMA policies, procedures, and directives.

18. No Obligation of Federal Government

The Federal Government is not a party to this Agreement and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

19. Program Fraud and False or Fraudulent Statements or Related Acts

Contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the contractor's actions pertaining to this contract.

20. License and Delivery of Works Subject to Copyright and Data Rights

Applies to contracts related to producing copyrightable subject matter and/or data and provides the federal government certain rights as defined in 2 CFR §200.315(b) and (d).

The Contractor grants to the Town, a paid-up, royalty-free, nonexclusive, irrevocable, worldwide license in data first produced in the performance of this contract to reproduce, publish, or otherwise use, including prepare derivative works, distribute copies to the public, and perform publicly and display publicly such data. For data required by the contract but not first produced in performance of this contract, the Contractor will identify such data and grant to the Town or acquires on its behalf a license of the same scope as for data first produced in the performance of this contract. Data, as used herein, shall include any work subject to copyright under 17 U.S.C. §102, for example, any written reports or literary works, software and/or source code, music choreography, pictures or images, graphics, sculptures, videos, motion pictures or other audiovisual works, sound and/or video recordings, and architectural works. Upon or before the completion of this contract, the Contractor will deliver to the Town data first produced in the performance of this contract and data required by the contract but not first produced in the performance of this contract in formats acceptable by the Town.

21. Safeguarding of Sensitive Information and Information Technology Security and Privacy Training (reference Homeland Security Acquisition Regulation (HSAR 3052.204-71 Contractor Access)

(a) Sensitive Information, as used in this clause, means any information, which if lost, misused, disclosed, or, without authorization is accessed, or modified, could adversely affect the national or homeland security interest, the conduct of Federal programs, or the privacy to which individuals are entitled under section 552a of title 5, United States Code (the Privacy Act), but which has not been specifically authorized under criteria established by an Executive Order or

an Act of Congress to be kept secret in the interest of national defense homeland security or foreign policy. This definition includes the following categories of information:

- (1) Protected Critical Infrastructure Information (PCII) as set out in the Critical Infrastructure Information Act of 2002 (Title II, Subtitle B, of the Homeland Security Act, Pub. L. 107- 296, 196 Stat. 2135), as amended, the implementing regulations thereto (Title 6, Code of Federal Regulations, part 29) as amended, the applicable PCII Procedures Manual, as amended, and any supplementary guidance officially communicated by an authorized official of the Department of Homeland Security (including the PCII Program Manager or his/her designee);
 - (2) Sensitive Security Information (SSI), as defined in Title 49, Code of Federal Regulations, part 1520, as amended, "Policies and Procedures of Safeguarding and Control of SSI," as amended, and any supplementary guidance officially communicated by an authorized official of the Department of Homeland Security (including the Assistant Secretary for the Transportation Security Administration or his/her designee);
 - (3) Information designated as "For Official Use Only," which is unclassified information of a sensitive nature and the unauthorized disclosure of which could adversely impact a person's privacy or welfare, the conduct of Federal programs, or other programs or operations essential to the national or homeland security interest; and
 - (4) Any information that is designated "sensitive" or subject to other controls, safeguards or protections in accordance with subsequently adopted homeland security information handling procedures.
- (b) "Information Technology Resources" include, but are not limited to, computer equipment, networking equipment, telecommunications equipment, cabling, network drives, computer drives, network software, computer software, software programs, intranet sites, and internet sites.
 - (c) Contractor employees working on this contract must complete such forms as may be necessary for security or other reasons, including the conduct of background investigations to determine suitability. Completed forms shall be submitted as directed by the Contracting Officer. Upon the Contracting Officer's request, the Contractor's employees shall be fingerprinted, or subject to other investigations as required. All Contractor employees requiring recurring access to Government facilities or access to sensitive information or IT resources are required to have a favorably adjudicated background investigation prior to commencing work on this contract unless this requirement is waived under Departmental procedures.
 - (d) The Contracting Officer may require the Contractor to prohibit individuals from working on the contract if the Government deems their initial or continued employment contrary to the public interest for any reason, including, but not limited to, carelessness, insubordination, incompetence or security concerns.
 - (e) Work under this contract may involve access to sensitive information. Therefore, the Contractor shall not disclose, orally or in writing, and sensitive information to any person unless authorized in writing by the Contracting Officer. For those Contractor employees authorized access to sensitive information, the Contractor shall ensure that these persons receive training concerning the protection and disclosure of sensitive information both during and after contract performance.

The Contractor shall include the substance of this clause in all subcontracts at any tier where the subcontractor may have access to Government facilities, sensitive information, or resources.

SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS AND GENERAL REQUIREMENTS

SUPPLEMENTS TO AIA DOCUMENT A-201: 2017 Edition

The following supplements modify, delete from or add to the "General Conditions of the Contract for Construction", AIA Document A-201, 2007. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect. If in the event any articles of the Construction Contract are in direct conflict with Articles of the General Conditions, the Contract shall override for that portion that may be in conflict.

ARTICLE 1:

Add the following definitions:

- "Product" includes materials, systems, and equipment.
- "Provide" shall mean furnish and install complete in place, operational and ready for use.
- "Building Code" and "Code" refer to regulations of governmental agencies having jurisdiction.
- "Or approved equal" and "equal to" shall mean substitute products by manufacturers other than those specified in the project manual, addenda, and on the drawings and which may be incorporated in the work after review and concurrence by the designer and the Owner.
- "Approved", "required", and "as directed" refer to and indicate the work or materials that may be approved, required or directed by the Architect acting as the agent for the Owner.
- "Indicated" and "shown" shall mean as detailed or called for and reasonably implied in the contract documents.
- "Latest edition" shall mean the current printed document issued up to 30 calendar days prior to date of receipt of bids, unless specified otherwise.
- "Drawings" or "plans" mean the drawings enumerated in the contract documents, as well as all the information in the detail manual when applicable, addenda, and designer prepared field drawings and clarification drawings.
- "Specifications" mean this project manual and addenda thereto.
- "Similar" means in its general sense and not necessarily identical.
- "Shown", "indicated", "detailed", "noted", "scheduled" and terms of similar import, refer to the requirements contained in the Contract Documents.

ARTICLE 2:

2.2.5 Add: Drawings and Specification furnished to contractors:

Final Plans, Specifications and any Addendum will be posted on the Architect's website.

ARTICLE 3:

3.1.1 Add: The General Contractor shall be the "Project Expediter" and shall be responsible for proper coordination of all work.

- 3.12.11 Add: Product Data, and Samples - Each contractor shall submit electronic copies of all shop drawings, and any required samples for approval.
- 3.12.12 Add: The contractor shall make any corrections required by the Architect and file with him electronic copies, when requested. Additional copies shall be furnished to other trades and prime contractors where necessary to coordinate their work.
- 3.12.13 Add: The Contractor shall keep at the site a current set of shop drawings that bear the stamped approval of the Architect or Engineer.
- 3.15.1 Add: Prior to final inspection and acceptance of the building, the General Contractor shall clean the building, including but not limited to, glass, hardware, fixtures, equipment, masonry, clean floors as specified, and completely prepare the building for use by the Owner with no cleaning required by the Owner.

ARTICLE 5:

ARTICLE 7:

- 7.2.1 Add: The allowances for overhead and profit combined shall not exceed fifteen (15)% of net cost except where the change involves a subcontractor; allowances shall not exceed fifteen (15)% for the subcontractor and five (5)% for the prime contractor. No allowances shall be made for overhead and profit. In the case of deductible change orders, the contractor shall include not less than seven (7)% profit, but no allowance for overhead.

At the time of signing a change order, the contractor shall certify as follows, "I certify that my bonding company will be notified forthwith that my contract has been increased or decreased by the amount of this change order, and that a copy of the approved change order will be mailed upon receipt by me to my surety".

All requests for Change Orders must be in writing and be supported by a breakdown showing method of arriving at net costs. Breakdown shall include materials, labor, taxes, profit & overhead.

ARTICLE 8:

- 8.1.2 Add: The Contractor shall commence work to be performed under this agreement on a date to be specified in a written Notice to Proceed and shall fully complete work hereunder within **180 consecutive calendar days**.

ARTICLE 9:

- 9.2 Add: Schedule of Values shall separate labor and material for each phase of the work.

The phases of work shall be broken down per each section of the specifications. Where a section includes two or more major items of work, they shall also be broken out separately including labor and material.

Each item in the Schedule of Values and Application for Payment shall be complete including its total cost and proportionate share of general overhead and profit margin.

At the Contractor's option, temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense.

Submit five (5) copies, within 10 days of Notice to Proceed.

9.3.1 Add: Type of Form: Application and Certificate for Payment AIA Document G 702 and Continuation Sheet G 702A, latest edition. (The contractor may purchase these certificates from the American Institute of Architects, 1735 New York Avenue, NW, Washington, D.C.).

Number of copies: Five (5) unless otherwise noted. Must have original signatures.

Cut off for each application shall be the 25th of each month.

Application shall be in Architect's office no later than the last day of each month and shall be signed and notarized.

Retainage: Each certificate shall show, and the Owner will retain 5% of the amount of each estimate until final completion and acceptance of all work covered by the contract.

9.6.1 Add: The Owner shall make payment of each certificate no later than the last day of the following month.

ARTICLE 11:

Add: All Certificates of Insurance required by the Contract Documents shall contain a provision that coverage's afforded under the policies will not be canceled, reduced in amount or coverage's eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the Owner of such alteration or cancellation.

Full contract amount shall appear on each document as necessary.

Effective date on each document shall be the same as the contract document date.

Expiration date shall be sufficient to complete the project.

An authorized individual agent, licensed to do business in North Carolina, shall countersign each policy.

The title "Licensed Resident Agent" shall appear after the signature.

11.1 Add:

Shall be furnished and maintained by contractor as outlined with the following adjustments and additions.

General Liability shall include: Comprehensive forms, premises- operations, independent contractor's protective, products and completed operations broad form property damaged, and explosion and collapse hazard.

Automobile liability shall include: Comprehensive form, owned, hired, and non-owned.

Worker's Compensation and Employer's Liability in accordance with North Carolina Statutory requirements.

11.1.2 Limits shall be as follows:

Pine Knoll Shores
Public Services Building

Combined Single Limit
General Liability - For Bodily Injury and Property Damage
Each Occurrence = \$1,000,000
General Aggregate = \$2,000,000

Auto Liability - For Bodily Injury and Property Damage
Combined Single Limit = \$300,000

Employer Liability for each accident = \$100,000

Subcontractor's Insurance Coverage - The Contractor shall either:

1. Require each of his subcontractors to procure and to maintain during the life of his subcontract, Subcontractor's Comprehensive General Liability, Automobile Liability, and Property Insurance of the type and the same amount as specified in paragraph above; or
2. Insure the activity of his subcontractors in his own policy.

11.3 Contractor to provide and Supply Builders Risk Insurance.

11.4.1 Performance bond and payment bond will be required for 100% of the contract price.

ARTICLE 13: MISCELLANEOUS PROVISIONS

The Project Expediter shall provide temporary power required for construction for all trades and disciplines unless otherwise stated in the specifications.

The Contractor will pay for electricity and water usage. The Contractor shall assure that temporary power and water are used in a responsible manner.

ARTICLE 15:

15.1.5.1 Add: When Contract Time has been extended, as provided under this Paragraph 4.3.7.1, such extension of time shall not be considered as justifying extra compensation to the Contractor for Administrative costs or other such reasons.

15.1.2 Add: Mediation will be the first step in solving claims. Arbitration shall be used to settle disputes or claims only if both parties agree to arbitration, otherwise, all disputes and claims shall be settled by normal legal means.

If arbitration is agreed by both parties, then after appointment of the arbitrator or arbitrators, the parties to the arbitration shall have the right to take depositions and to obtain discovery regarding the subject matter of the arbitration and, to that end, to use and exercise all of the same rights, remedies, and procedures, and be subject to all of the same duties, liabilities, and obligations in the arbitration with respect to the subject matter thereof, as if the matter of the arbitration were pending in a civil action before a Superior Court of the State.

END OF SECTION 00800

SECTION 00820 – SPECIAL CONDITIONS

1. **General:** All contractors shall conduct their operations so as to cause the least possible interference with the normal remainder of the site. All contractors shall limit use of the site for access and storage of materials to those areas approved by the Owner. All access to the area of work must be through designated areas approved by the Owner.
2. **On Site Parking:** Parking is not permitted on the Owner's property except for construction vehicles used in the performance of the work and only where approved by the Owner.
3. **Site Security:** The present level of security for the existing site shall not be reduced in any way, due to work of this contract.
4. **Personnel Safety:** Contractor shall provide barricades and similar types of safety items required to protect anyone in the area of work from the hazards of construction activities. Roadways, walks, paths, entrances, exits, etc. shall remain unobstructed and shall be maintained in a safe and satisfactory manner.
5. **Site Protection:** Contractor shall be responsible for and shall protect adjacent site features. Any damage shall be fully corrected to the satisfaction of the Architect. Sidewalks and paved areas shall be protected from damage prior to vehicular traffic use. If during the construction, public or private property is damaged or destroyed, during the course of the work, the responsible contractor shall, at his own expense, restore such property to a condition equal to that existing before such damage or injury was done, by repairing, rebuilding or replacing it, or otherwise making good such damage or destruction in an acceptable manner.
6. Access to the site shall be only between the hours of 7:00 am – 8:00 pm, Monday through Saturday unless otherwise approved in advance.
7. The Town waives the cost of the Building Permit, but the Contractor is responsible for submitting for the permit.

END OF SECTION 00820

SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The Contractor shall, unless otherwise specified, supply all labor, transportation, materials, apparatus, fuel, water, energy, light and tools necessary for entire, proper and substantial completion of his work and shall install, maintain, and remove all equipment for the construction, other utensils or things and shall be responsible for the safe, proper and lawful construction, maintenance and use of same and shall construct in the best and most workmanlike manner a complete structure and everything properly incidental thereto as shown on plans, stated in specifications or reasonably implied there from, all in accordance with the Contract Documents.
- B. Contract type
- The work will be accomplished under:
1. A single lump sum prime general contract covering general, finish sitework, mechanical, plumbing and electrical construction contract.
- C. Scope of Work - scope of the work is, but not limited to as follows:
1. General Construction
 2. HVAC System
 3. Electrical work
 4. Site Work
 5. All related work

PART 2 & 3 - NOT USED.

END OF SECTION 01010

SECTION 01020 - ALLOWANCES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. General: All allowances considered in the Contract Price shall be clearly identified in the Contract and approved before signing. If the actual cost is more than, or less than the allowance, the Contract Price will be adjusted up or down accordingly when the actual cost is determined. Adjustments in the Allowances will be made by Change Order. Unless specified otherwise, the allowance amounts include the net cost of materials, and shipping charges.

- B. Cash Allowance: The Contractor's overhead, profit and taxes shall be included in the Contract Price, but not in the allowance. All allowances agreed upon shall clearly indicate materials only or materials and labor included as the case may be. For allowance listed as materials only, the Contractor shall include labor and installation in his base bid price. The contractor shall submit to the Architect for approval all bills for materials under Cash Allowances.

1.2 SCHEDULE OF CASH ALLOWANCES

The Respective Bidder shall clearly identify allowances within the contract.

- A. Contingency Allowance: \$25,000.00 (Note: taxes, overhead, and profit are in base bid and are not part of allowance figure.)

- B. Hardware \$5,000.00 (materials only)

- C. Testing \$7,500.00 (materials and labor)

PARTS 2 & 3 - NOT USED.

END OF SECTION 01020

SECTION 01027 – APPLICATIONS FOR PAYMENT

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Work included: Comply with procedures described in this Section when applying for progress payment and final payment under the Contract.
- B. Related work
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

- A. Prior to start of construction, secure the Architect's approval of the Schedule of Values required to be submitted under Paragraph 9.2 of the General conditions, and further described in Section 01370 of these Specifications.
Schedule of values to break out material and labor costs.
- B. During progress of the work the Schedule of Value are to remain unchanged as approved by the Architect. Changes in the Contract Sum due to Change Orders or other modifications of the Contract shall be added to the Schedule of Values as Change Orders.
- C. Base requests for payment on the approved schedule of values.

1.3 SUBMITTALS

- 1. Make submittal of request for payment by filling in the agreed data on AIA Document G702, "Application and Certificate for Payment," plus continuation sheet or sheets.
- 2. Sign and notarize the Application and Certificate for Payment.
- 3. Submit (5) originals of the Application and Certificate for Payment (Electronic copies if agreed upon by all parties.)
- 4. Cut off period is the 25th of the month.
- 5. Submittals are due in Architect's office by the last day of each month.

END OF SECTION 01027

SECTION 01050 - FIELD ENGINEERING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work included: Provide such field engineering services as are required for proper completion of the Work including, but not necessarily limited to:
 - 1. Establishing and maintaining lines and levels.
 - 2. Structural design of shores, forms, and similar items provided by the Contractor as a part of his means and methods of construction.
 - 3. Geotechnical Engineering Including Footings, Slabs, and Pavement subgrade compaction.
- B. Related work:
 - 1. Additional requirements for field engineering also may be described in other Section of these Specifications.
 - 2. See also General Conditions.

1.2 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Upon request of the Architect, submit:
 - 1. Certification, signed by the Contractor's retained field engineer, certifying that elevations and locations of improvements are in conformance or non-conformance with requirements of the Contract Documents.

1.3 PROCEDURES

- A. In addition to procedures directed by the Contractor for proper performance of the Contractor's responsibilities:
 - 1. Locate and protect control points before starting work on the site.
 - 2. Preserve permanent reference points during progress of the Work.
 - 3. Do not change or relocate reference points or items of the Work without specific approval from the Architect.
 - 4. Promptly advise the Architect when a reference point is lost or destroyed or requires relocation because of other changes in the Work.
 - a. Upon direction of the Architect, require the field engineer to replace reference stakes or markers.
 - b. Locate such replacements according to the original survey control.
- B. The General Contractor shall employ a locator service to locate and mark all underground utilities as required.

PART 2 & 3 - NOT USED.

END OF SECTION 01050

SECTION 01090 - ABBREVIATIONS AND SYMBOLS

PART 1 - GENERAL

1.1 REFERENCE TO APPLICABLE STANDARDS

- A. Wherever reference is made to Codes, Standards Specifications or other data published by regulating agencies or accepted organizations, it shall be understood that such reference is made to the latest edition, (including addenda) published prior to the date of Contract Documents, except as noted specifically otherwise by date in the contract documents.
- B. Abbreviations and symbols used in the Specifications can be grouped into three (3) basic categories:
1. Abbreviations of reference symbols.
 2. Abbreviations of words and phrases.
 3. Symbols.
- C. Among those, which may be used in the Contract Documents, are the following (with respective abbreviation used):

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ABMA	American Boiler Manufacturers Association
ACI	American Concrete Institute
ACRI	Air Conditioning and Refrigeration Institute
ADC	Air Diffusion Council
AFI	Air Filter Institute
AGA	American Gas Association
AGCA	Associated General Contractors of America, Inc.
AIA	American Institute of Architects
AIMA	Acoustical and Insulating Materials Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALS	American Lumber Standards
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
ARI	Air Conditioning and Refrigeration Institute
ASAHC	American Society of Architectural Hardware Consultants
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for testing and Materials
ATI	Asphalt Tile Institute
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Institute of America
BRI	Building Research Institute
CABRA	Copper and Brass Research Association
CAGI	Compressed Air and Gas Institute

CE	Corps of Engineers (Army)
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
CTI	Cooling Tower Institute
DFPA	Douglas Fir Plywood Association
ETL	Electrical Testing Laboratories
FGMA	Flat Glass Marketing Association
FHA	Federal Housing Administration
FM	Factory Mutual Engineering Division, Association of Factory Mutual Fire Insurance Companies
FPL	Forest Products Laboratory
FS	Federal Specifications
FTI	Facing Tile Institute
GA	Gypsum Association
GTA	Glass Tempering Association
HPMA	Hardwood Plywood Manufacturers Association
IBRM	Institute of Boiler and Radiator Manufacturers
IEEE	Institute of Electrical and Electronics Engineering
IES	Illuminating Engineering Society
JAN	Joint Army-Navy Specifications
MAC	Masonry Advisory Council
MIA	Marble Institute of America
MLMA	Metal Lath Manufacturers Association
MS	Military Specifications
MSS	Manufacturers Standardization Society of the Valves and Fitting Industries
MSTD	Military Standard
NAAMM	National Association of Architectural Metal Manufacturers
NAFM	National Association of Fan Manufacturers
NAPF	National Association of Plastic Manufacturers
NBHA	National Builders Hardware Association
NBS	National Bureau of Standards
NCMA	National Concrete Masonry Association
NEC	National Electric Code (NFPA Pamphlet No. 70)
NEMA	National Electric Manufacturers Association
NEMI	National Elevator Manufacturing Industry, Inc.
NFC	National Fire Code
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NHLA	National Hardwood Lumber Association
NHPMA	Northern Hardwood and Pine Manufacturers Association
NPA	National Particleboard Association
NPCA	National Paint and Coatings Association
NRMCA	National Ready Mixed Concrete Association
NSC	National Safety Council
NSF	National Sanitation Foundation
NTMA	The National Terrazzo and Mosaic Association, Inc.
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PEI	Porcelain Enamel Institute, Inc.
PS	Product Standard, U.S. Department of Commerce
RIS	Redwood Inspection Service
RTI	Resilient Tile Institute
SAE	Society of Automotive Engineers
SBI	Steel Boiler Institute
SCMA	Southern Cypress Manufacturers Association
SDI	Steel Deck Institute

SDI	Steel Door Institute
SJI	Steel Joint Institute
SMACCNA	Sheet Metal and Air Conditioning Contractors National Association
SMFMA	Sprayed Mineral Fiber Manufacturers Association, Inc.
SPIB	Southern Pine Inspection Bureau
SSPC	Steel Structures Painting Council
SWFPA	Structural Wood Fiber Products Association
TCA	Tile Council of America
TEMA	Tubular Exchange Manufacturing Association
TIMA	Thermal Insulation Manufacturers Association
TPI	Truss Plate Institute
UL	Underwriter's Laboratories, Inc.
UPC	Uniform Plumbing Code
WRI	Wire Reinforcement Institute
WWPA	Western Wood Products Association

1.2 ABBREVIATIONS OF WORDS AND PHRASES

- A. Abbreviations of words and phrases applicable to this Project; other than listed above for reference standards, shall be as shown on the Drawings.

1.3 SYMBOLS

- A. Symbols representing construction materials and the equipment applicable to this Project shall be as shown on the Drawings.

PART 2 & 3 - NOT USED.

END OF SECTION 01090

SECTION 01200 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work included: To enable orderly review during progress of the Work, and to provide for systematic discussion of problems, the Architect will conduct project meetings throughout the construction period.
- B. Related work:
 - 1. The Contractor's relations with his subcontractors and materials suppliers, and discussions relative thereto, are the Contractor's responsibility and normally are not part of project meetings content. If subcontractor's issues are of a concern, it can be communicated at this meeting, but management of the subcontractor will remain the responsibility of the Contractor.

1.2 SUBMITTALS

- A. Agenda items: To the maximum extent practicable, advise the Architect at least 24 hours in advance of project meetings regarding items to be included in or added to the agenda.
- B. Minutes:
 - 1. The Architect or Owner's representative will compile minutes of each project meeting and will furnish one copy to Contractor and required copies to the Owner.
 - 2. Recipients of copies may make and distribute such other copies as they wish.

1.3 QUALITY ASSURANCE

- A. For those persons designated by the Contractor to attend and participate in project meetings, provide required authority to commit the Contractor to solutions agreed upon in the project meetings.

PART 2 - PRODUCTS

(No products are required in this Section)

PART 3 - EXECUTION

3.1 GENERAL

- A. Except as noted below for Pre-Construction Meeting, project meetings will be held monthly, unless project dictates differently.
- B. Coordinate as necessary to establish mutually acceptable schedule for meetings.

3.2 PRECONSTRUCTION MEETING

- A. Pre-construction Meeting will be held as soon as possible after the written Notice to Proceed.
 - 1. Provide attendance by authorized representatives of the Contractors and major subcontractors.
 - 2. The Architect or Owner's representative will advise other interested parties, including the Owner, and request their attendance.

- B. Minimum agenda: Data will be distributed and discussed on at least the following items:
 - 1. Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, and Architect.
 - 2. Channels and procedures for communication.
 - 3. Construction schedule, including sequence of critical work.
 - 4. Contract Documents, including distribution of required copies of original Documents and revisions.
 - 5. Processing of Shop Drawings and revisions.
 - 6. Processing of Bulletins, field decisions, and Change Orders.
 - 7. Rules and regulations governing performance of the Work
 - 8. Procedures for safety and first aid, security, quality control, housekeeping, and related matters.

3.3 PROJECT MEETINGS

- A. Attendance:
 - 1. To the maximum extent practical, assign the same person or persons to represent the Contractor at project meetings throughout progress of the Work.
 - 2. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspect of the Work is involved.
- B. Minimum agenda:
 - 1. Review progress of the Work since last meeting, including status of submittals for approval.
 - 2. Identify problems, which impede planned progress.
 - 3. Develop corrective measures and procedures to regain planned schedule.
 - 4. Complete other current business.

END OF SECTION 01200

SECTION 01310 - SCHEDULES AND REPORTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions and other Division 1 specifications sections, apply to work of this section.

1.2 DESCRIPTION

- A. Post Award Requirements
 - 1. Draft of Construction Schedule: Within two weeks of Date of Commencement of the Work, Contractor shall complete draft of time-scaled CPM Construction Schedule. (Bar chart is acceptable.)
 - 2. Level of Detail: Except for procurement and General Conditions requirements, differentiate activities on schedule so that no single activity shown requires more than twenty-one (21) calendar days to complete.
- B. Schedule of Values
 - 1. Within seven (7) days after completion of CPM Construction Schedule and before first pay request, Contractor shall submit Schedule of Values (see Section 01370) for review by the Architect allocating a dollar value for each activity on Construction Schedule. Dollar value for each activity will include cost broken into labor, materials, and pro rata contribution to overhead and profit. Subcontract sums will be identified on the Schedule of Values and broken down as described above.
- C. Approval
 - 1. Approval of Construction Schedule and Schedule of Values will be signified by the Architect and Contractor's joint signatures on one copy of each document. Thereafter, Project will be monitored with Construction Schedule, which Contractor shall use in planning, organizing, directing, coordinating, and executing the Work and which shall be the basis for evaluating the progress of the Work.
- D. Schedule Revisions
 - 1. General: Revisions to approved Construction Schedule must be approved in writing by Architect and Contractor.
 - 2. Contractor: Submit requests for revisions to schedule to Architect together with written rationale and description of logic for rescheduling work to maintain Specific Contractual Milestone Dates.
 - a. Proposed revisions acceptable to the Architect will be incorporated into next update of Construction Schedule by the Contractor.
 - 3. Owner: Changes initiated by Owner and implemented by Change Orders have potential to affect critical dates will require Contractor to prepare revised schedule for the Architect's concurrence. The Architect's approved revisions will be incorporated into the Construction Schedule. Adjustments in scheduled completion dates, either for intermediate activities or for Contract as a whole, will be considered only to extent that there is not sufficient float to absorb the revisions accepted.
- E. Recovery Schedule
 - 1. General: Should updated Construction Schedule show Contractor to be fourteen (14) or more days behind schedule at any time during construction, the Architect may require Contractor to prepare Recovery Schedule, displayed in

- CPM format, which will display Contractor's plan for returning to schedule within subsequent pay period.
2. Schedule Preparation: Within seven (7) days after notice from the Architect, prepare and submit to the Architect a Recovery Schedule, incorporating best available information from Subcontractors and others which will permit return to Construction Schedule within subsequent pay period. Prepare Recovery Schedule to same level of detail as Construction Schedule.
3. Schedule Assessment: Seven (7) days prior to expiration of Recovery Schedule, confer with the Architect to assess effectiveness of Recovery Schedule. As a result of this conference, the Architect will direct Contractor as follows:
4. Behind Schedule: If the Architect determines Contractor is still behind the Architect will direct Contractor to prepare another Recovery subsequent pay period.
5. On Schedule: If the Architect determines Contractor has successfully complied with provisions of Recovery Schedule, the Architect will direct Contractor to return to use of Construction Schedule.
- schedule,
Schedule for

PARTS 2 & 3 - NOT USED.

END OF SECTION 01310

SECTION 01340 - SUBMITTALS AND SUBSTITUTIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work included: Make submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements.
- B. Related work:
 - 1. Documents affecting work of this Section include but are not necessarily limited to General Conditions Amendments to General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
 - 2. Individual requirements for submittals also may be received in pertinent Sections of these Specifications.
- C. Work not included:
 - 1. Unrequired submittals will not be reviewed by the Architect.
 - 2. The Contractor may require his subcontractors to provide drawings, setting diagrams, and similar information to help coordinate the Work, but such data shall remain between the Contractor and his subcontractors and will not be reviewed by the Architect.

1.2 SUBMITTALS

- A. Make submittals of Shop Drawings, Samples, substitution requests, and other items in accordance with the provisions of this Section.
- B. Coordination of Submittals:
 - 1. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted.
 - 2. Verify that each item and the submittal for it CONFORMS IN ALL RESPECTS to the specified requirements.
 - 3. By affixing his signature to each submittal, the Contractor certifies that THIS COORDINATION HAS BEEN PERFORMED.
 - 4. The Contractor shall stamp the shop drawings as "Approved" or "Approved as Noted" before submitting to Architect or Owner's representative for review.

1.3 QUALITY ASSURANCE

- A. "Equals" and "Substitutions"
 - 1. The Contract is based on the standards of quality established in the Contract Documents. Requests for substitutions will be considered when submitted according to the procedures set forth below.
 - a. Particularly with regard to MAJOR materials, equipment or methods proposed for the Work as set forth in the Contract Documents, Contractor's request(s) for approvals of "equals" not specifically named in the Contract Documents MUST BE SUBMITTED IN WRITING with supporting documentation, and in the hands of the Architect prior to contract award. Telephone requests for consideration of proposed "equals" will not be accepted.
 - b. On other items of Work, Contractor may request consideration of substitution, when submitted in writing with supporting documentation

- within thirty (30) days following the Notice to Proceed.
- B. Where the phrase "or equal" or "equal as approved by Architect" occurs in the Contract Documents, do not assume that the Contractor's choice of materials, equipment, or methods will be approved as equal unless the item has been specifically approved for this Work by the Architect.
 - C. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved in writing for this Work by the Architect.

PART 2 - PRODUCTS

2.1 SHOP DRAWINGS

- A. Scale and Measurements: Make Shop Drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its methods of connection to the Work.
- B. Types of prints required:
 - 1. Submit Shop Drawings in electronic format.
- C. Review comments of the Architect will be shown in red on prints and returned to the Contractor. The Contractor may make and distribute such copies as are required for his purposes.

2.2 MANUFACTURER'S LITERATURE

- A. Where contents of submitted literature from the manufacturers includes data not pertinent to the submittal, clearly show which portions of the contents are being submitted for review.
- B. Submit three copies of each which are required to be returned, plus one copy which will be retained by the Architect.

2.3 SAMPLES

- A. Provide Sample or Samples identical to the precise article proposed to be provided. Identify as described under "Identification of Submittals" below.
- B. Number of Samples required:
 - 1. Unless otherwise specified, submit one sample in the quantity, which is required to be returned, plus one which will be retained by the Architect.
 - 2. By prearrangement in specific cases, a single Sample may be submitted for review and, when approved, be installed in the Work at a location agreed upon by the Architect.
 - 3. Except as noted in 2.3.B.2 above, no selections of color, texture or finish will be approved by the Architect until ALL substitutions have been approved by the Architect, and ALL necessary samples and color, texture, finish proposals have been submitted in their entirety by the Contractor, in order that a coordinated, total scheme may be developed by the Architect.

PART 3 - EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

- A. Consecutively number all submittals. (i.e.: G-1, G-2.... etc. for General Construction, P-1, P-

2, etc. for Plumbing; M-1, M-2, etc. for Mechanical (HVAC); E-1, E-2, etc. for Electrical; SP-1, SP-2....etc for Sprinkler System; SU-1, SU-2, ... etc. for Site/Utilities.

1. When material is resubmitted of any reason, transmit under a new letter of transmittal and with a shop drawing number. (G-1r)
 2. On resubmittals, cite the original submittal number for reference.
- B. Accompany each submittal with a letter of transmittal showing all information required for identification and checking.
- C. On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number in which the item was included.
- D. Maintain an accurate submittal log for the duration of the Work, showing current status of all submittals at all times. Make the submittal log available to the Architect for his review upon request.

3.2 GROUPING OF SUBMITTALS

- A. Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
1. Partial submittals may be rejected as not complying with the provisions of the Contract.

3.3 TIMING OF SUBMITTALS

- A. Make submittals far enough in advance of schedule dated for installation to provide time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery. All submittals shall be submitted within ninety (90) days of the notice to proceed.

3.4 ARCHITECT'S REVIEW

- A. Review by the Architect or Owner's representative does not relieve the Contractor from responsibility for errors, which may exist in the submitted data.
- B. Revisions
1. Make revisions required by Architect or Owner's representative.
 2. If the Contractor considers any required revision to be a change, he shall so notify the Architect or Owner's representative as provided in the General Conditions.
 3. Make only those revisions directed or approved by the Architect.

END OF SECTION 01340

SECTION 01370 - SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work included: Provide a detailed breakdown of the agreed Contract sum showing values allocated to each of the various parts of the Work, as specified herein and in other provisions of the Contract Documents.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Amendments to General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
 - 2. Schedule of values may be described on the continuation sheet of AIA document G702 accompanying applications for payment.
 - 3. Schedule of values is required under Paragraph 9.2 of the General Conditions.

1.2 QUALITY ASSURANCE

- A. Use required means to assure arithmetical accuracy of the sums described.
- B. When so required by the Architect or Owner's representative, provide copies of the subcontracts or other data acceptable to the Architect or Owner's representative, substantiating the sums described.

1.3 SUBMITTALS

- A. Prior to first application for payment, submit a proposed schedule of values to the Architect. See Section 01310.
 - 1. Meet with the Architect and determine additional data, if any, required to be submitted.
 - a. Mobilization, Submittal Review, Material Delivery, Execution of the Work, and Punchlisting shall be included in the schedule.
 - b. Mobilization shall be billed on a monthly basis equally distributed throughout construction contract time.
 - c. Materials and Labor breakdowns should be provided for each portion of work.
 - d. All General Conditions items shall be broken out separately.
 - e. All labor and materials are to be broken out separately.
 - 2. Secure the Architect or Owner's representative's approval of the schedule of values prior to submitting first application for payment.

PART 2 & 3 - NOT USED.

END OF SECTION 01370

SECTION 01410 - TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The Contractor shall select a testing laboratory qualified in accordance with ASTM E329.
- B. The Contractor shall pay for all testing and inspection services as are specified in this Section and/or elsewhere in the Contract Documents, except as otherwise noted.
- C. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Amendments to General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
 - 2. Requirements for testing may be described in various Sections of these Specifications.
 - 3. Where no testing requirements are described, but the Owner decides that testing is required, the Owner may require such testing to be performed under current pertinent standards for testing. Payment for such testing will be made as described in this Section.
- D. Work not included:
 - 1. Selection of testing laboratory: The Contractor will select a prequalified independent testing laboratory.
 - a. ECS
 - b. SM&E
 - 2. Payment for initial testing: The Contractor will pay for all initial services of the testing laboratory as further described in Article 2.1 of this Section.

1.2 QUALITY ASSURANCE

- A. The testing laboratory will be qualified to the Owner's approval in accordance with ASTM E329.
- B. Testing, when required, will be in accordance with all pertinent codes and regulations, and with selected standards of the American Society for Testing and Materials.

1.3 PRODUCT HANDLING

- A. Promptly process and distribute required copies of test reports and related instructions to assure necessary retesting and replacement of materials with the least possible delay in progress of the Work.

PART 2 - PRODUCTS

2.1 PAYMENT FOR TESTING

- A. The Contractor will pay for initial testing services required.
- B. When initial tests indicate non-compliance with the Contract Documents, subsequent retesting occasioned by the non-compliance shall be performed by the same testing agency, and costs shall be the sole responsibility of the Contractor.
- C. Where no testing requirements are described, but the Owner decides that testing is

required, the Owner may require such testing be performed under current pertinent standards for testing. If testing reveals the work to be in compliance with Contract requirements, Owner will pay for these testing services. If work is found to be in non-compliance with Contract requirements, Contractor shall pay for these testing services.

- D. Inspections and tests required by codes or ordinances, or by a plan approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

2.2 CONTRACTOR'S CONVENIENCE TESTING

- A. Inspecting and testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

PART 3 - EXECUTION

3.1 COOPERATION WITH TESTING LABORATORY

- A. Representatives of the testing laboratory shall have access to the Work at all times and at all locations where the Work is in progress. Provide facilities for such access to enable the laboratory to perform its function properly. All testing shall be coordinated by the Architect.

3.2 TAKING SPECIMENS

- A. All specimens and samples for testing, unless otherwise provided in the Contract Documents, shall be taken by the testing personnel. All sampling equipment and personnel will be provided by the testing laboratory. All deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

3.3 SCHEDULES FOR TESTING

- A. Establishing schedule: (Contractor shall be responsible for scheduling Testing Laboratory.)
 - 1. By advance discussion with the testing laboratory approved by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings.
 - 2. Provide all required time within the construction schedule.
- B. Revising schedule: When changes of construction schedule are necessary during construction, coordinate all such changes with the testing laboratory as required.
- C. Adherence to schedule: When the testing laboratory is ready to test according to the established schedule but is prevented from testing or taking specimens due to incompleteness of the Work, all extra charges for testing attributable to the delay may be back-charged to the Contractor and shall not be borne by the Owner.

END OF SECTION 01410

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work included: Provide temporary facilities and controls needed for the Work including, but not necessarily limited to:
1. Temporary utilities such as heat, water, electricity, facsimile machine and telephone
 2. Sanitary facilities
 3. Enclosures such as tarpaulins, barricades, and canopies
 4. Project sign
 5. Field office for the Contractor's personnel
- B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Amendments to General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
 2. Except that equipment furnished by subcontractors shall comply with requirements of pertinent safety regulations, such equipment normally furnished by the individual trades in execution of their own portions of the Work are not part of this Section.
 3. Permanent installation and hookup of the various utility lines are described in other Sections.

1.2 PRODUCT HANDLING

- A. Maintain temporary facilities and controls in proper and safe condition throughout progress of the Work.

1.3 LOCAL REGULATIONS

- A. Comply with all local ordinances including local and temporary facilities, parking and storage.

PART 2 - PRODUCTS

2.1 UTILITIES

- A. Water:
1. The Contractor and his Plumbing Subcontractor to provide necessary temporary piping and water supply and, upon completion, remove such temporary facilities.
 2. Contractor may use existing onsite water.
- B. Electricity:
1. The Contractor and his Electrical Subcontractor to provide necessary temporary

wiring and, upon completion of the Work, remove such temporary facility.

2. Provide area distribution boxes so located that the individual trades may furnish and use 100' maximum length extension cords to obtain power and lighting at points where needed for work, inspection, and safety.
 3. Amounts of electricity during the construction will be paid for by the Contractor.
- C. Heating: Provide and maintain temporary heat necessary for proper conduct of operations needed in the Work.
- D. Temporary Fire Protection:
1. Contractor to provide any and all temporary construction fire extinguishers and standpipes required for the duration construction.

2.2 FIELD OFFICES AND SHEDS

- A. Contractors facilities:
1. Provide a field office building and sheds adequate in size and accommodation for Contractors offices, supply and storage.
 2. Within the Contractor's facilities, provide enclosed space adequate for holding project meetings. Furnish with table, chairs, and utilities.
- B. Sanitary facilities:
1. Provide temporary sanitary facilities in the quantity required for use by all personnel.
 2. Maintain in a sanitary condition at all times.

2.3 ENCLOSURES

- A. Provide and maintain for the duration of construction all scaffolds, tarpaulins, canopies, warning signs, steps, platforms, bridges, and other temporary construction necessary for proper completion of the Work in compliance with pertinent safety and other regulations.
1. All apparatus, equipment, temporary and permanent construction shall meet all local and State labor laws and safety regulations applicable thereto.

2.4 PROJECT SIGN

- A. Project signs shall only be installed where approved by Owner.
- A. Upon completion of the Work, demount the project signs.
- B. Except as otherwise specifically approved by the Architect, do not permit other signs or advertising on the job site.

PART 3 - EXECUTION

3.1 MAINTENANCE AND REMOVAL

- A. Maintain temporary facilities and controls as long as needed for safe and proper completion of the Work.
- B. Remove such temporary facilities and controls as rapidly as progress of the Work will permit, or as directed by the Architect or Owner's representative.

3.2 TRAFFIC COORDINATION

- A. Any construction related activities, such as receiving, loading, unloading, or other activities which may be an interruption to normal vehicular traffic flow on the site shall be coordinated in advance by the Contractor with the Owner or public authority having jurisdiction.

END OF SECTION 01500

SECTION 01620 - PRODUCT HANDLING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work Included: Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to the General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
 - 2. Additional procedures also may be prescribed in other Sections of these Specifications.

1.2 QUALITY ASSURANCE

- A. Include within the Contractor's quality assurance program such procedures as are required to assure full protection of work and materials.

1.3 MANUFACTURER'S RECOMMENDATIONS

- A. Except as otherwise approved by the Architect, determine and comply with manufacturer's recommendations on product handling, storage and protection.

1.4 PACKAGING

- A. Deliver products to the job site in the manufacturer's original containers with labels intact and legible.
 - 1. Maintain packaged materials with seals unbroken and labels intact until time of use.
 - 2. Promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements at no additional cost to the Owner.
- B. The Architect may reject as non-complying, material and products that do not bear identification satisfactory to the Architect as to manufacturer, grade, quality, and other pertinent information.

1.5 PROTECTION

- A. Protect finished surfaces, including jambs and soffits of openings used as passageways, through which equipment and materials are handled.
- B. Provide protection for finished floor surfaces in traffic are prior to allowing equipment or materials to be moved over such surfaces.
- C. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the Owner.

1.6 REPAIRS AND REPLACEMENTS

- A. In the event of damage, promptly make replacement sand repairs to the approval of the Architect, and at no additional cost to the Owner.
- B. Additional time required to secure replacements and to make repairs will not be considered by the Architect to justify an extension in the Contract Time of Completion.

END OF SECTION 01620

SECTION 01710 - CLEANING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work included: Throughout the construction period, maintain the building and site in a standard of cleanliness as described in this Section.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Amendments to General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
 - 2. In addition to standards described in this Section, comply with requirements for cleaning as described in pertinent other Sections of these Specifications.

1.2 QUALITY ASSURANCE

- A. Conduct daily inspection to verify that requirements for cleanliness are being met.
- B. In addition to the standards described in this Section. Comply with pertinent requirements of governmental agencies having jurisdiction.

PART 2 - PRODUCTS

2.1 COMPATIBILITY

- A. Use only the cleaning materials and equipment, which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

PART 3 - EXECUTION

3.1 PROGRESS CLEANING

- A. General:
 - 1. Retain stored items in an orderly arrangement allowing maximum access, not impeding traffic or drainage, and providing required protection of materials.
 - 2. Do not allow accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
 - 3. At least twice each month, and more often if necessary, completely remove all scrap, debris, and waste material from the job site.
 - 4. Provide adequate storage for all items awaiting removal from the job site, observing requirements for fire protection and protection of the ecology.
 - 5. The building shall be cleaned daily of all debris and waste material resulting from the construction operations.

END OF SECTION 01710

SECTION 01720 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RECORD DRAWINGS

- A. Contractors shall maintain a set of Record Drawings at the project site. These shall be kept legible and current and shall be available at all times for the inspection of the Architect. All differences or changes in the contract work, or work added, shall be recorded daily on these Record Drawings in a contrasting color.
- B. The Architect or Owner's representative shall approve the Record Drawings.
- C. Receipt and approval of Record Drawings are prerequisites for final payment.

1.2 MANUALS

- A. Each Contractor shall submit to the Architect or Owner's representative before final acceptance three copies of all installation, operating instructions, and maintenance instructions on the equipment and materials furnished under his contract. Each set of copies shall be bound in a 3-ring, loose-leaf binder for 8-1/2" x 11 " paper. Label binder designating the name of the project, the names of the Owner, the name of the Contractor, and the equipment or materials included in the manual.

1.3 GUARANTEES AND WARRANTIES

- A. Contractors shall submit to the Architect or Owner's representative before final acceptance three originals of all warranties, guarantees, and surety bonds. All such documents shall show the name and location of the project and the name of the Owner.

PART 2 & 3 - NOT USED.

END OF SECTION 01720

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes.
- B. Concrete paving and walks are specified in Division 2.
- C. Finishes and concrete floor toppings are specified in Division 9.
- D. Post-tensioned slabs and beams are specified in Section 03365.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:
 - 1. Shop drawings for reinforcement, showing bending, and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for detailing Reinforced Concrete Structures" showing bar schedules, bar spacing, diagrams of bent bars, and arrangement of concrete reinforcement. Copies of the contract drawings shall not be marked and submitted as shop drawings.
 - 2. Concrete Mix Design for each type and strength of concrete shown on the plans.
 - 3. Laboratory test reports for the following:
 - a. Aggregate gradation tests
 - b. Concrete mix design tests - Submit test records in accordance with the requirements of ACI 301 and the provisions of this specification.
 - 4. Materials certificates or manufacturer's literature signed by manufacturer and Contractor, certifying that each material item complies with the provisions of this specification for the following:
 - a. Aggregates
 - b. Admixtures
 - c. Reinforcement
 - d. Cement
 - e. Waterstops
 - 5. Product data for embedded and drilled in place anchors.

1.4 QUALITY ASSURANCE

- A. Codes and Standards: Comply with the applicable provisions of the following standards except as modified by the supplemental requirements specified in this section:
 - 1. ACI 318, "Building Code Requirements for Reinforced Concrete."
 - 2. ACI 301, "Standard Specification for Structural Concrete"
 - 3. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."
- B. Concrete Testing Service: The independent testing agency, including branch office used, referred to in this section shall meet the requirements of ASTM E 329 and shall have been inspected within the past 3 years by the Cement and Concrete Reference Laboratory of the NBS and shall have corrected any deficiencies noted.
- C. Materials and installed work may require testing and retesting at any time during progress of work. All retesting of rejected materials for installed work shall be done at Contractor's expense.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

- A. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on 4 edges. Structural design of formwork is contractor's responsibility.
- B. Form Coatings: Provide commercial formulation form-coating compounds with a maximum VOC of 350 mg/l that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.2 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- B. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.
- C. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire-bar-type supports complying with CRSI specifications.
 - 1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
 - 2. Where concrete will be exposed to view in the finished structure, the portions of all bar supports within 1/2 inch of the concrete surface shall be non-corrosive or protected against corrosion.

2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I. Use one brand of cement throughout project unless otherwise acceptable to the Engineer.
- B. Fly Ash: If used, it shall conform to the following requirements:
 - 1. Maximum substitution of fly ash for Portland cement shall not exceed 20 percent of cement content by weight.
 - 2. Fly ash shall meet the requirements of ASTM C 618, Type F, except loss on ignition shall not exceed 4 percent.
 - 3. Use of fly ash shall be indicated on the mix design submittal.
 - 4. Submit a Materials Certification to the Engineer indicating the fly ash meets the stated requirements.
- C. Aggregates:
 - 1. General:
 - a. Provide hardrock aggregate complying with ASTM C33, with additional attributes as specified herein.
 - b. For making grading tests of fine and coarse aggregate, use square mesh wire cloth complying with ASTM E11.
 - 2. Fine aggregate:
 - a. Provide washed natural sand having strong, hard, durable particles, and containing not more than 2% by weight of deleterious matter such as clay lumps, mica, shale, or schist.
 - b. Grade from coarse to fine within the following limits for percentage by weight passing sieve:

Sieve Size:	Minimum:	Maximum:
3/8"	100	---

No. 4	95	100
No. 8	65	95
No. 16	45	75
No. 30	30	50
No. 50	10	22
No. 100	2	8

3. Coarse Aggregate:

- a. Provide coarse aggregate consisting of clean, hard, fine grained, sound crushed rock or washed gravel, or a combination of both, containing not more than 5% by weight flat, chip-like, thin, elongated, friable, or laminated pieces, not more than 2% by weight of shale or cherty material. Any piece having a length in excess of five times the average thickness shall be considered flat or elongated.
- b. Use coarse aggregate of the largest practicable size for each condition of placement, except: Do not exceed $\frac{3}{4}$ of the clear distance between reinforcing bars, $\frac{1}{5}$ th of the narrowest dimension between sides of forms, of $\frac{1}{3}$ rd the depth of any slab section.
- c. Grade combined aggregate within the following limits for percentage by weight passing sieve:

Sieve Size:	1-1/2" Aggr.		1" Aggr.		3/4" Aggr.	
	Min	Max	Min	Max	Min	Max
1-1/2"	95	---	---	---	---	---
1"	75	90	90	100	---	---
3/4"	55	77	70	90	90	100
3/8"	40	55	45	65	60	80
No. 4	30	40	31	47	40	60
No. 8	22	35	23	40	30	45
No. 16	16	30	17	35	20	35
No. 30	10	20	10	23	13	23
No. 50	2	8	2	10	5	15
No. 100	0	3	0	3	0	5

- D. Water: Drinkable, clean and free from deleterious amounts of acid alkali, salts, and organic materials.
- E. Admixtures: Provide admixtures for concrete that contain not more than 0.1 percent chloride ions.
 1. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
 2. Water-Reducing Admixture: ASTM C 494, Type A.
 3. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C 494, Type F or Type G.
 4. The use of set control additives may only be used with the prior approval of the Engineer. The additives shall only be added at the point of batching.

2.4 OTHER MATERIALS

- A. Waterstops: Provide flat, dumbbell-type or centerbulb-type waterstops at all construction joints and other joints as required. Size to suit joints.
 1. Rubber Waterstops: Corps of Engineers CRD-C 513.
 2. Polyvinyl Chloride Waterstops: Corps of Engineers CRD-C 572.
- B. Vapor Barrier: Moistop reinforced or equal (Poly or VisQueen will not be acceptable).

- C. Liquid Membrane-Forming Curing Compound: Liquid-type membrane- forming curing compound complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.055 gr./sq. cm. when applied at 200 sq. Ft./gal.
- D. Expansion Joint Material: Self-expanding, non-extruding, 1/2", cork complying with ASTM D 1751.
- E. Isolation Joint Material: Shall be the thickness shown on the drawings and shall comply with ASTM D 1751.

2.5 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Engineer for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing.
- B. Submit written reports to Engineer of each proposed mix for each type and strength of concrete at least 15 days prior to start of work. Do not begin concrete production until proposed mix designs have been reviewed by the Engineer.
- C. Design mixes to provide normal weight concrete with the following properties, unless otherwise indicated on drawings and schedules:
 1. Floor Slabs: 4000-psi, 28-day compressive strength.
 2. Footings and grade beams; 3000-psi, 28-day compressive strength.
 3. Post-tension slabs, cast-in-place walls, columns; 5000psi, 28-day compressive strength.

2.6 ADMIXTURES

- A. Use water-reducing admixture or high-range water-reducing admixture (Superplasticizer) in concrete as required for placement and workability.
- B. Use high-range water-reducing admixture (HRWR) in pumped concrete, concrete for industrial slabs, architectural concrete, parking structure slabs, concrete required to be watertight, and concrete with water/cement ratios below 0.50.
- C. Use air-entraining admixture in all concrete exposed to freezing and thawing. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content of 5 percent with a tolerance of plus or minus 1-1/2 percent. Other concrete not exposed to freezing, thawing, or hydraulic pressure or to receive a surface hardener shall have 2 percent to 4 percent air content.
- D. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
 1. Footings and slabs on grade: Not more than 3 inches.
 2. Concrete containing HRWR admixture (Superplasticizer): Not more than 6 inches after addition of HRWR to site-verified 2-inch slump concrete.
 3. Other concrete: Not more than 4 inches.

2.7 CONCRETE MIXING

- A. Job-Site Mixing: not allowed for this project
- B. Ready-Mix Concrete:
 1. Comply with requirements of ASTM C 94, and as specified.

2. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
3. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity.

PART 3 - EXECUTION

3.1 GENERAL

- A. Coordinate the installation of joint materials and vapor retarders with placement of forms and reinforcing steel.

3.2 FORMS

- A. General: Design, erect, support, brace, and maintain formwork to support vertical and lateral, static and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances complying with ACI 347.
- B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, sinkages, keyways, recesses, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.
- D. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- E. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
- F. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed. Retighten forms and bracing before concrete placement as required to prevent mortar leaks and maintain proper alignment.

3.3 VAPOR BARRIER INSTALLATION

- A. General: Following leveling and tamping of granular base for slabs on grade, place vapor barrier sheeting with longest dimension parallel with direction of pour.
- B. Lap joints 6 inches and seal vapor barrier joints with manufacturers' recommended mastic and pressure-sensitive tape.

- C. After placement of vapor barrier, cover with sand cushion and compact to depth as shown on drawings.

3.4 PLACING REINFORCEMENT

- A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as herein specified.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, required. Avoiding cutting or puncturing vapor barrier during reinforcement placement and concreting operations.
- D. Place reinforcement to obtain at least minimum coverage for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Welding of bar reinforcement will not be permitted unless otherwise indicated on the drawings.
- F. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.5 JOINTS

- A. Construction Joints: Locate and install construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to the Engineer.
- B. Provide keyways at least 1-1/2 inches deep in construction joints in walls and slabs and between walls and footings. Accepted bulkheads designed for this purpose may be used for slabs.
- C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as otherwise indicated.
- D. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.
- E. Waterstops: Provide waterstops in all construction joints and/or as required. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Field-fabricate joints in waterstops in accordance with manufacturer's printed instructions.
- F. Isolation Joints in Slabs-on-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs-on-ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, and elsewhere as indicated.

- G. Contraction (Control) Joints in Slabs-on-Ground: Construct contraction joints in slabs-on-ground to form panels of patterns as shown. Use saw cuts 1/8-inch-wide by 1/4 slab depth or inserts 1/4-inch-wide by 1/4 of slab depth, unless otherwise indicated.
1. Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
 2. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
 5. Joint sealant material is specified in Division 7 Sections of these specifications.

3.6 INSTALLATION OF EMBEDDED ITEMS

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached thereto.
- B. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to obtain required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

3.7 CONCRETE PLACEMENT

- A. Changes in the approved mix design including the addition of mix water at the job site is prohibited.
- B. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work.
- C. General: Comply with ACI 304, "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete," and as herein specified.
- D. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
1. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Bring slab surfaces to correct level with straightedge and strike off. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
 3. Maintain reinforcing in proper position during concrete placement.
- E. Cold-Weather Placing: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
- F. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
1. Do not use-frozen materials or materials containing ice or snow. Do not place concrete on frozen sub grade or on sub grade containing frozen materials.

2. Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators.
- G. Hot-Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.
1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg F (32 deg C). Mixing water may be chilled or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.
 2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
 3. Fog spray forms, reinforcing steel, and sub grade just before concrete is placed.

3.8 FINISH ING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces to receive a rubbed finish, and to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where exposed to public view.
- D. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
- E. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.9 SLAB FINISHES

- A. Trowel Finish: After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with surface leveled to tolerances of Ff 20 - Fl 17. Grind smooth surface defects that would telegraph through applied floor covering system.
- B. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply trowel finish as specified, then immediately follow with slightly scarifying surface by fine brooming.

- C. Non-Slip Broom Finish: Apply to exterior concrete ramps, platforms and steps, and elsewhere as indicated. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to the main traffic route. Coordinate required final finish with Architect before application.

3.10 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply in accordance with manufacturer's instructions after screeding and bull floating, but before power floating and troweling.
- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting; keep continuously moist for not less than 7 days.
- C. Curing Methods: Perform curing of concrete by moisture retaining cover. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3.11 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.
- D. Reinforced Masonry: Provide concrete grout for reinforced masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

3.12 CONCRETE SURFACE REPAIRS

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Engineer.
 - 1. Cut out honeycomb, rock pockets, voids over 1/4 inch in any dimension, and holes left by tie rods and bolts, down to solid concrete but in no case to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with specified bonding agent. Place patching mortar before bonding compound has dried.
 - 2. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and

color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

- B. Repair of Slab Surfaces: Test surfaces for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having required slope.
1. Repair finished surfaces that contain defects that affect durability of concrete. Surface defects, as such, include crazing and cracks in excess of 0.01-inch-wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.
 2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
 3. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with patching compound. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable to Engineer.
 4. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
- C. Perform structural repairs with prior approval of Engineer for method and procedure, using specified epoxy adhesive and mortar.

3.13 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. Concrete testing services will be performed and paid for by the Contractor. Testing services shall be performed by an independent testing agency approved by the Engineer. The testing agency shall be responsible for making, handling and curing the specimens in addition to testing the concrete.
- B. Sampling and testing for quality control during placement of concrete may include the following, as directed by Engineer, for Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
1. Slump: ASTM C 143; one test at point of discharge for each truck delivered to the job site
 2. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
 3. Concrete Temperature: Test hourly when air temperature is 40 deg F (4 deg C) and below, when 80 deg F (27 deg C) and above, and each time a set of compression test specimens is made.
 4. Compression Test Specimen: ASTM C 31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cure test specimens are required.
 5. Compressive Strength Tests: ASTM C 39; one set for each 50 cubic yards (or each day's pour if less than 50 cubic yards placed during a day) of each type and strength of concrete; two specimens tested at 7 days and two specimens tested at 28 days.

- C. Test results will be reported in writing to Architect, Structural Engineer, Ready-Mix Producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.
- D. If additional testing, curing, or other measures are required to confirm or verify the strength of any concrete in question, cost shall be paid by the contractor.

END OF SECTION 03300

SECTION 07210 - BUILDING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. EXT. wall insulation.
 - 2. Sound Insulation
 - 3. Roof insulation.
 - 4. See also drawings for other requirements.

1.2 DEFINITIONS

- A. Thermal Resistance (R-value): The temperature difference in degrees F between the two surfaces of a material of given thickness, required to make 1 BTU of energy flow through 1 square foot of the material in 1 hour.

1.3 SUBMITTALS

- A. Product Data: Submit for each product specified in this section.

1.4 DELIVERIES, STORAGE, AND HANDLING

- A. Insulation: Minimize period between product delivery and actual installation. Protect against exposure to flame, sparks, or excessive heat. Minimize exposure to sunlight.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide manufacturer's standard preformed insulation units, sized for proper fit in indicated applications.
- B. Exterior Wall Insulation:
 - 1. Exterior Walls R-25 Super Saver. (Including all supports and attachments)
- C. Roof Insulation:
 - 1. To be Simple Saver with Grid; R-35. (2'X2' grid)

2.2 ACCESSORIES

- A. Provide accessories as necessary to properly install specified products.
 - 1. Adhesive: Insulation manufacturer's recommended adhesive, complying with fire performance requirements.
 - 2. Clips: Attachments as required to support the insulation as required.

PART 3- EXECUTION

3.1 EXAMINATION

- A. Verify that conditions conform to requirements of contract documents.
- B. Verify that related work to be performed within indicated spaces before installation of insulation has been completed.
- C. Verify that substrates are in satisfactory condition to receive insulation.

- D. Do not proceed until unsatisfactory conditions have been corrected. Commencement of installation indicates acceptance of conditions.

3.2 PREPARATION

- A. Clean substrates of any substances, which might damage materials to be installed.
- B. Remove harmful projections capable of puncturing vapor retarder.

3.3 INSTALLATION

- A. Do not install insulation which is damaged, wet, soiled, or which has been covered at any time with ice or snow.
- B. Comply with insulation manufacturer's recommendations and installation sequence. Provide permanent placement and support of insulation.
- C. Install materials in a manner, which will maximize continuity of thermal or sound attenuation envelope, as applicable. Use a single layer of insulation wherever possible to achieve indicated requirements, unless otherwise indicated.
- D. Insulation Blankets/Batts:
 - 1. Unfaced Sound Attenuation Insulation, Stud Partitions: Friction-fit blanket insulation between partition framing members and extended from floor slab to ceiling. Stuff pieces of insulation into cracks between framing and into miscellaneous voids and cavity spaces (e.g., perimeter of wall openings).

3.4 PROTECTION

- A. Protect installed materials from damage until permanent concealing work is completed.
- B. Where concealing work is not performed immediately after installation work of this section is completed, erect suitable temporary coverings or enclosures to prevent damage.

END OF SECTION 07210

SECTION 07600 - FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions, Amendments to General Conditions, and Supplementary Conditions and Sections in Division I of the Specifications apply to work of this section.

1.2 DESCRIPTION

- A. Extent of each type of flashing and sheet metal work is indicated on drawings and by provisions of this Section.
- B. Types of work specified in this Section include the following:
 - 1. Metal counter flashing and base flashing.
 - 2. Exposed metal trim.
 - 3. Miscellaneous sheet metal accessories.
- C. Related Work:
 - 1. Section 07900 - Joint Sealants

1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01620.
- B. Product Data; Sheet Metal, Accessories: Submit manufacturer's product data, installation instructions and general recommendations for each specified sheet material and fabricated product.
- C. Samples; Flashing, Sheet Metal, Accessories: Submit 8" square samples of specified sheet materials to be exposed as finished surfaces.
 - 1. Submit 12" long, completely finished units of specified factory-fabricated products exposed as finished work.
- D. Shop Drawings; Flashing, Sheet Metal, Accessories: Submit shop drawings showing layout, joining, profiles, and anchorages of fabricated work, including major counter flashing, trim/fascia units, etc.; layouts at 1/4" scale, detail at 3" scale.

1.4 QUALITY ASSURANCE

- A. Comply with industry standards and recommendations of SMACNA Architectural Sheet Metal Manual except as specifically indicated otherwise.

1.5 JOB CONDITIONS

- A. Coordinate work of this Section with interfacing and adjoining work for proper sequencing of each installation. Insure best possible weather resistance and durability of work and protection of materials and finishes.
- B. Surfaces to which flashing, and sheet metal are applied shall be even, smooth, sound, thoroughly clean and dry and free from all defects that might affect the application. Report any unsatisfactory surfaces to the General Contractor.
- C. Do not proceed with installation of sheet metal work until curb and substrate

construction, blocking, roofing, regrets, and other construction that will receive the work are completed. Proceeding with application of sheet metal work will be evidence of substrate acceptance by Installer.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Comply with pertinent provisions of Section 01620.
- B. Materials furnished by this Section, which are to be built-in by other trades, shall be delivered to the Site in time to avoid delays in construction schedule.

PART 2 - PRODUCTS

2.1 FLASHING AND SHEET METAL MATERIALS

- A. .032 Aluminum minimum
- B. Flashing exposed to view, color to be selected to match surrounding conditions.

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. 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.
- B. Bituminous Coating: SSPC-Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
- C. Mastic Sealant: Polyisobutylene; nonhardening nonskinning, noncorrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior non-moving joints including riveted joints.
- D. Adhesives: Type recommended by flashing sheet manufacturer for waterproof weather-resistant seaming and adhesive application of flashing sheet.
- E. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation work, matching or comparable with material being installed. They shall be noncorrosive, in sizes and gauges required for proper performance.

PART 3 - EXECUTION

3.1 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. Provide for thermal expansion of metal units. Conceal fasteners where possible and set units true to line and level as indicated. Install work with laps, joints and seams, which will be permanently watertight and weatherproof.
- B. Underlayment: Where aluminum is to be installed directly on cementitious or wood substrates, apply a coating or other permanent separation as recommended by manufacturer/fabricator to concealed aluminum surfaces.

3.2 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 flashing and sheet metal work during construction, to ensure that work be without damage or deterioration, other than natural weathering, at time of substantial completion.

END OF SECTION 07600

SECTION 07840 - FIRE STOPPING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Fire Stopping Materials.
- B. Related Documents: Division 0 - Bidding & General Conditions; Division 1, General Requirements, all applicable provisions in the Technical Sections of Division 2 through 16 and applicable drawings apply to this Section.
- C. Related Sections:
 - 1. Section 07900 - Joint Sealants.
 - 2. Section 09260 - Gypsum Wallboard Systems.
- D. Description of Work in this Section: Only tested fire stop systems shall be used in specific locations as follows:
 - 1. Penetrations for the passage of duct, cable, cable tray, conduit, piping, electrical bus ways and raceways through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor/ceiling assemblies), and vertical service shaft walls and partitions.
 - 2. Safing slot gaps between edge of floor slabs and curtain walls.
 - 3. Openings between structurally separate sections of wall or floors.
 - 4. Gaps between the top of walls and ceilings or roof assemblies.
 - 5. Expansion joints in walls and floors.
 - 6. Openings and penetrations in fire-rated partitions or walls containing fire doors.
 - 7. Openings around structural members which penetrate floors or walls.

1.2 SUBMITTALS

- A. Product Data: Manufacturer's Specifications and Technical Data for each material including the composition and limitations, documentation of UL Fire Stop Systems to be submitted.

1.3 QUALITY ASSURANCE

- A. Engage an experienced installer who is certified, licensed, or otherwise qualified by the fire stopping manufacturer as having been provided the necessary training to install the manufacturer's products per requirements.

1.4 REFERENCE STANDARDS

- A. Test Requirements: ASTM E-814, "Standard Method of Fire Tests of Through Penetration Fire Stops". (July 1997).
- B. Underwriters Laboratories (UL) of Northbrook, IL runs ASTM E-814 under their designation of UL 1479 and publishes the results in their "FIRE RESISTANCE DIRECTORY" that is updated annually.

1. UL Fire Resistance Directory:
 - a. Firestop Devices (XHJI).
 - b. Fire Resistance Ratings (BXUV).
 - c. Through-Penetration Firestop Systems (XHEZ).
 - d. Fill, Voids or Cavity Material (XHHW).
 - e. Forming Materials (XHKU).
 2. Alternate "Omega Point Laboratories Directory" (updated annually).
- C. Test Requirements: UL 2079, "Tests for Fire Resistance of Building Joint Systems" (July 1998.)
 - D. Test Requirements: ASTM E 1966, "Standard test method for Fire Resistive Joint Systems" (July 2000).
 - E. Inspection Requirements: ASTM E 2174 – 01, "Standard Practice for On-site Inspection of Installed Fire Stops".
 - F. International Fire Stop Council Guidelines for Evaluating Firestop Systems Engineering Judgments
 - G. ASTM E-84, Standard Test Method for Surface Burning Characteristics of Building Materials.
 - H. All major building codes: ICBO, SBCCI, BOCA, and IBC. (Note to Specifier: Retain or delete building codes listed above as applicable)
 - I. NFPA 101 - Life Safety Code
 - J. NFPA 70 - National Electric Code

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials undamaged in manufacturers clearly labeled, unopened containers, identified with brand, type, and UL label where applicable.
- B. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job-site.
- C. Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements, including temperature restrictions.
- D. Comply with recommended procedures, precautions or remedies described in material safety data sheets as applicable.
- E. Do not use damaged or expired materials.

1.6 PROJECT CONDITIONS

- A. Do not use materials that contain flammable solvents.
- B. Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.

- C. Verify existing conditions and substrates before starting work. Correct unsatisfactory conditions before proceeding.
- D. Weather conditions: Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation printed on product label and product data sheet.
- E. During installation, provide masking and drop cloths to prevent firestopping materials from contaminating any adjacent surfaces.

PART 2 - PRODUCTS

2.1 FIRE STOPPING - GENERAL

- A. Provide fire stopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the fire stopping under conditions of service and application, as demonstrated by the firestopping manufacturer based on testing and field experience.
- B. Provide components for each firestopping system that are needed to install fill material. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.
- C. Firestopping Materials are either "cast-in-place" (integral with concrete placement) or "post installed". Provide cast-in-place fire stop devices prior to concrete placement.

2.2 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with through penetration firestop systems (XHEZ) and joint systems (XHBN) listed in Volume 2 of the UL Fire Resistance Directory, provide products of the following manufacturers as identified below:
 - 1. Hilti, Inc., Tulsa, Oklahoma 1-800-879-8000.
 - 2. STI Fire Protection Products.
 - 3. Approved equal.

2.3 MATERIALS

- A. Use only fire stop products that have been UL 1479, ASTM E-814, or UL 2079 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each separate instance.
- B. Cast-in place fire stop devices for use with non-combustible and combustible plastic pipe (closed and open piping systems) penetrating concrete floors, the following products are acceptable:
 - 1. Hilti CP 680 Cast-In Place Firestop Device.
- C. Sealants, caulking materials, or foams for use with non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT), the following products are acceptable:
 - 1. Hilti FS-ONE Intumescent Firestop Sealant.
 - 2. Hilti CP 604 Self-leveling Firestop Sealant.
 - 3. Hilti CP 620 Fire Foam.

- D. Sealants or caulking materials for use with sheet metal ducts, the following products are acceptable:
1. Hilti CP 601s Elastomeric Firestop Sealant.
 2. Hilti CP 606 Flexible Firestop Sealant.
 3. Hilti FS-ONE Intumescent Firestop Sealant.
 4. Hilti CP 604 Self-leveling Firestop Sealant.
- E. Sealants, caulking or spray materials for use with fire-rated construction joints and other gaps, the following products are acceptable:
1. Hilti CP 672 Speed Spray.
 2. Hilti CP 601s Elastomeric Firestop Sealant.
 3. Hilti CP 606 Flexible Firestop Sealant.
 4. Hilti CP 604 Self-leveling Firestop Sealant.
- F. Pre-formed mineral wool designed to fit flutes of metal profile deck; as a backer for spray material.
1. Hilti CP 677 Speed Plugs.
- G. Intumescent sealants, caulking materials for use with combustible items (penetrants consumed by high heat and flame) including insulated metal pipe, PVC jacketed, flexible cable or cable bundles and plastic pipe, the following products are acceptable:
1. Hilti FS-ONE Intumescent Firestop Sealant.
- H. Foams, intumescent sealants, caulking or putty materials for use with flexible cable or cable bundles, the following products are acceptable:
1. Hilti FS-ONE Intumescent Fire Stop Sealant.
 2. Hilti CP 618 Fire Stop Putty Stick.
 3. Hilti CP 620 Fire Foam.
- I. Non-curing, re-penetrable intumescent sealants, caulking or putty materials for use with flexible cable or cable bundles, the following products are acceptable:
1. Hilti CP 618 Fire Stop Putty Stick.
- J. Wall opening protective materials for use with U.L. listed metallic and specified non-metallic outlet boxes, the following products are acceptable:
1. Hilti CP 617 Firestop Putty Pad.
- K. Firestop collar or wrap devices attached to assembly around combustible plastic pipe (closed and open piping systems), the following products are acceptable:
1. Hilti CP 642 Firestop Collar.
 2. Hilti CP 643 Firestop Collar.
 3. Hilti CP 645 Wrap Strips.
- L. Materials used for complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:
1. Hilti CP 637 Trowelable Fire Stop Compound.
 2. Hilti FS 657 FIRE BLOCK.
 3. Hilti CP 620 Fire Foam.

- M. Non-curing, re-penetrable materials used for large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:
 - 1. Hilti FS 657 FIRE BLOCK.
- N. Sealants or caulking materials used for openings between structurally separate sections of wall and floors, the following products are acceptable:
 - 1. Hilti CP 672 Speed Spray.
 - 2. Hilti CP 601s Elastomeric Fire Stop Sealant.
 - 3. Hilti CP 606 Flexible Fire Stop Sealant.
 - 4. Hilti CP 604 Self-Leveling Fire Stop Sealant.
- O. Provide a fire stop system with an "F" Rating as determined by UL 1479 or ASTM E814 which is equal to the time rating of construction being penetrated.
- P. Provide a fire stop system with an Assembly Rating as determined by UL 2079 which is equal to the time rating of construction being penetrated.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verification of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
 - 1. Verify penetrations are properly sized and in suitable condition for application of materials.
 - 2. Surfaces to which firestop materials will be applied shall be free of dirt, grease, oil, rust, laitance, release agents, water repellents, and any other substances that may affect proper adhesion.
 - 3. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.
 - 4. Comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.
 - 5. Do not proceed until unsatisfactory conditions have been corrected.

3.2 COORDINATION

- A. Coordinate location and proper selection of cast-in-place Firestop Devices with trade responsible for the work. Ensure device is installed before placement of concrete.
- B. Responsible trade to provide adequate spacing of field run pipes to allow for installation of cast-in-place firestop devices without interferences.

3.3 INSTALLATION

- A. Regulatory Requirements: Install fire stop materials in accordance with UL Fire Resistance Directory or Omega Point Laboratories Directory.

- B. Manufacturer's Instructions: Comply with manufacturer's instructions for installation of through-penetration and construction joint materials.
 - 1. Seal all holes or voids made by penetrations to ensure an air and water-resistant seal.
 - 2. Consult with mechanical engineer, project manager, and damper manufacturer prior to installation of UL firestop systems that might hamper the performance of fire dampers as it pertains to duct work.
 - 3. Protect materials from damage on surfaces subjected to traffic.

3.4 FIELD QUALITY CONTROL

- A. Examine sealed penetration areas to ensure proper installation before concealing or enclosing areas.
- B. Keep areas of work accessible until inspection by applicable code authorities.
- C. Inspection of through-penetration fire stopping shall be performed in accordance with ASTM:
 - 1. E 2174, "Standard Practice for On-Site Inspection of Installed Fire Stops" or other recognized standard.
- D. Perform under this section patching and repairing of fire stopping caused by cutting or penetrating of existing fire stop systems already installed by other trades.

3.5 ADJUSTING AND CLEANING

- A. Remove equipment, materials and debris, leaving area in undamaged, clean condition.
- B. Clean all surfaces adjacent to sealed holes and joints to be free of excess firestop materials and soiling as work progresses.

END OF SECTION 07840

SECTION 07900 - JOINT SEALANTS

PART 1- GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. The sealing of exterior and interior joints.

1.2 SUBMITTALS

- A. Product Data: Manufacturer's data on each joint sealer, with instructions for substrate preparation and installation.
- B. Samples for Color Selection: Cured samples of actual products showing manufacturer's full range of colors.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original containers or bundles with labels showing manufacturer, product name or designation, color, shelf life, and installation instructions.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install sealers if any of the following conditions exist:
 - 1. Air or substrate temperature exceeds the range recommended by sealer manufacturer or is below 40 degrees F (4.4 degrees C).
 - 2. Substrate is wet, damp, or covered with snow, ice, or frost.
- B. Dimensional Limitations: Do not install sealers if joint dimensions are less than or greater than that recommended by sealer manufacturer; notify the architect and get sealer manufacturer's recommendations for alternative procedures.

PART 2 - PRODUCTS

2.1 MATERIALS - GENERAL

- A. General: Provide only products which are recommended and approved by their manufacturer for the specific use to which they are put and which comply with all requirements of the contract documents.
 - 1. For each generic product, use only materials from one manufacturer.
 - 2. Provide only materials which are compatible with each other and with joint substrates.
 - 3. Colors of exposed sealers: As selected by the Architect from manufacturer's standard colors.

2.2 ELASTOMERIC SEALANTS

- A. Elastomeric Sealants - General: Chemically curing elastomeric sealants of types indicated, complying with ASTM C 920, including specific Type, Grade, Class, and Uses indicated, as well as all other requirements specified.
 - 1. Exterior, Non-Traffic Areas: Type S, Grade NS, Class 25, Use NT. Provide one of the following Polyurethane or Silicone Sealants or an approved substitution:
 - a. Polyurethane:
 - (1) Bostik/Chem-Calk 900.
 - (2) Pecora Corp./Dynatrol I.
 - (3) Sonneborn-ChemRex, Inc./Sonolast NPI.
 - (4) Tremco, Inc./Dymonic.

- b. Silicone:
 - (1) Bostik/Chem-calk 2200.
 - (2) Pecora Corp./895 Silicone.
 - (3) Sonneborn-ChemRex, Inc./Sonolastic Omniseal.
 - (4) Tremco, Inc./Spectrum 2.
 2. Exterior, Traffic Areas: Type S, Grade P, Class 25, Use T. Provide one of the following silicone sealants or an approved substitution:
 - a. Silicone:
 - (1) Bostik/Chem-calk 950.
 - (2) Pecora Corp./NR-201 Urexpan.
 - (3) Sonneborn-ChemRex, Inc./Sonolastic SLI.
 3. Interior, Non-Traffic Areas: Type S, Grade NS, Class 12.5 or 25, Use NT. Provide one of the following polyurethane or silicone sealants or an approved substitution:
 - a. Polyurethane:
 - (1) Bostik/Chem-calk 915.
 - (2) Pecora Corp./Dynatrol I.
 - (3) Sonneborn-ChemRex, Inc./Sonolast NPI.
 - (4) Tremco, Inc./Dymonic.
 - b. Silicone:
 - (1) Bostik/Chem-calk 2200.
 - (2) Pecora Corp./895 Silicone.
 - (3) Sonneborn-ChemRex, Inc./Sonolastic Omniseal.
 - (4) Tremco, Inc./Spectrum 2.
 4. Interior, Traffic Areas: Type S, Grade P, Class 25, Use T. Provide one of the following silicone sealants or an approved substitution:
 - a. Silicone:
 - (1) Bostik/Chem-calk 950.
 - (2) Pecora Corp./NR-201 Urexpan.
 - (3) Sonneborn-ChemRex, Inc./Sonolastic SLI.
 5. Expansion/ Control Joints in Concrete walls: Pecora 890

2.2 LATEX SEALANTS

- A. Latex Sealant - General: One-part, nonsag, mildew-resistant, paintable latex sealant complying with ASTM C 834.
 1. Exterior: Do not use for exterior applications.
 2. Interior: Use only on non-working joints. Provide one of the following or an approved substitution:
 - a. Pecora Corp./AC-20.
 - b. Sonneborn-ChemRex, Inc./Sonolac.
 - c. Tremco, Inc./Acrylic Latex 834.

2.3 SEALANT BACKERS

- A. Backers - General: Nonstaining; recommended or approved by sealant manufacturer for specific use.
- B. Backer Rods: Flexible, nonabsorbent, compressible polyurethane foam, either open-cell or non-gassing closed-cell, unless otherwise restricted by sealant manufacturer; preformed to appropriate size and shape.
- C. Bond-Breaker Tape: Self-adhesive, polyethylene or other plastic tape, unless otherwise restricted by sealant manufacturer; suitable for preventing sealant adhesion.

2.4 MISCELLANEOUS MATERIALS

- A. Primers: As recommended by sealer manufacturer.

- B. Cleaners: As recommended by sealer manufacturer and not damaging to substrates.
- C. Masking Tape: Nonabsorbent, nonstaining.
- D. Tooling Agents: Approved by sealant manufacturer; nonstaining to sealant and substrate.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints for characteristics that may affect sealer performance, including configuration and dimensions.
- B. Do not begin joint sealer work until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Cleaning: Just before starting sealer installation, clean out joints in accord with recommendations of sealer manufacturers and as follows:
 1. Remove all material that could impair adhesion, including dust, dirt, coatings, paint, oil, and grease. Exception: Materials tested to show acceptable adhesion and compatibility.
 2. Dry out damp and wet substrates thoroughly.
 3. Remove loose particles by vacuuming or by blowing with oil-free compressed air.
 4. Concrete: Remove laitance and form-release coatings.
 5. Clean substrates with methods recommended by sealant manufacturer which will not damage the substrate.
 6. Use methods which will not leave residues that will impair adhesion.
- B. Priming: Prime substrates as recommended by sealer manufacturer.
- C. Masking Tape: Use masking tape to keep primers and sealers off of adjacent surfaces which would be damaged by contact or by cleanup. Remove tape as soon as practical.
- D. Install fillers where needed to provide proper joint depth or support for sealant backers.
- E. Provide caulk joints at all exterior exposed concrete construction/pour joints.

3.3 INSTALLATION

- A. Comply with sealer manufacturers' installation instructions and recommendations, except where more restrictive requirements are specified.
- B. Gunnable and Pourable Sealants: Comply with recommendations of ASTM C 1193.
- C. Backers:
 1. Install backers at depth required to result in shape and depth of installed sealant which allows the most joint movement without failure.
 - a. Make backers continuous, without gaps, tears, or punctures.
 - b. Do not stretch or twist backers.
 2. If backers become wet or damp before installation of sealant, dry out thoroughly before proceeding.
 3. Use bond-breaker tape where indicated and wherever it is necessary to keep sealant from adhering to back or third side of joint.

- D. Sealants: Use methods recommended by manufacturer; completely fill the joint; make full contact with bond surfaces; tool nonsag sealants to smooth surface eliminating air pockets.
 - 1. Use concave joint shape shown in Figure 5A in ASTM C 1193, where not otherwise indicated.

3.4 PROTECTION AND CLEANING

- A. Clean surfaces adjacent to joints as work progresses and before sealants set using methods and materials approved by manufacturers of sealers and of surfaces to be cleaned.
- B. Protect joint sealers from contamination and damage.
- C. Remove and replace damaged sealers.

3.5 WARRANTY

- A. Provide 20-year caulking warranty.

END OF SECTION 07900

SECTION 08100 - FIBERGLASS DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions, Amendments to General Conditions, Supplementary Conditions and Sections in Division 1 of the Specifications apply to work of this Section.

1.2 DESCRIPTION

- A. This section applies to fiberglass reinforced plastic (FRP) doors, frames, or approved equal.

1.3 SUBMITTALS

- A. Shop Drawings shall provide pertinent dimensions, hardware locations, transom and lite sizes, louver locations and dimensions, and door elevations. Mortises for hardware must be molded in at the factory as the door is built. Mortises shall not be routed or cut out of the stile structure or the jambs.

1.4 PRODUCT HANDLING

- A. All materials shall be delivered to the site in sealed, undamaged containers fully identified with the manufacturer's name, project number, the tag location, the door type, color and weight. The doors and frames must be shipped in wood crates with wood perimeters. Store materials in original cartons, on edge in such a way to prevent falling or damage to face, corners or edges.

PART 2 - PRODUCTS

2.1 DOORS

- A. Door shall be made of fiberglass reinforced plastic (FRP) using resins tailored to a specific corrosive environment (stated by the purchaser at the time the order is placed) and have a fiberglass content of 25% by weight. The doors shall be flush construction, having no seams or cracks. All mortises shall be molded in at the factory. The doors shall be 1-3/4" thick with a 15mil (plus or minus 3 mil) color gelcoat and have an R-factor of 12. Secondary painting over pultrusions to achieve color is not acceptable.
- B. **STILES AND RAILS**
 - 1. Shall be constructed starting from the outside toward the inside of a 15-20 mil gel coat of the color specified followed by a matrix of at least three layers of 1.5 ounce per square foot of fiberglass mat. The stile and rail shall be molded in one continuous piece to a U-shaped configuration and to the exact dimensions of the door (patented). In this manner there will be no miter joints or disparate materials used to form the one-piece stile and rail. Pultrusions will not be acceptable for stiles and rails as (1) the color gel coat is not an integral part of the structure (it must of necessity be applied as paint when the structure is assembled), and (2) mortises must be cut into the pultrusions, thus weakening by removing as much as

two-thirds of its thickness and (3) the practice of mitered joints in pultrusions leaves access areas for penetration of contaminants to the inside of the door.

C. DOOR PLATES

1. Shall be molded in one continuous piece, starting with a 15-20 mil gel coat of the color specified, integrally molded with at least two layers of 1.5 ounce per square foot fiberglass mat and layer of 16 ounces per square yard unidirectional glass roving.

D. REINFORCEMENT

1. Adequate reinforcing and compression members shall be used to accommodate surface hinges, closers, locksets, kickplates, or push or pull plates. When engineering considerations dictate, mild steel is buried in the fiberglass matrix to provide enhanced screw holding power. In no case should screws be used into fiberglass matrix to provide holding for hinges, locks or closers or any structured attachment.
2. Thru-bolting is recommended for attachment of hinges, and closers in as much as the strength of thru-bolting is five to six times as great as edge attaching with screws. When thru-bolting is to occur, a compression member is to be located which will provide memory and resistance to the torquing of thru-bolts.
3. All voids between the door plates shall be completely filled with the equivalent of 4-6 pounds expanded polyurethane foam, having a flame spread of 25 or less per ASTM E-84. A phenolic-coated kraft honeycomb may be substituted for urethane foam where engineering requirements dictate.

E. FLAME SPREAD

1. All reinforcing resins shall contain a halogenated additive or coreactant plus Antimony Trioxide to achieve a flame spread of 25 or less per ASTM E-84 and shall be self-extinguishing per ASTM D-635.

F. COLOR:

1. The color of the door or frame shall be integrally molded as the part is made.
2. The color is to be as selected by the Architect.
3. The deposit of 15-20 mils of gel coat is the equivalent of 50 to 60 coats of paint applied by spray.

2.2 FRAMES

- A. Frames shall be similar to the doors in construction and materials except the frames shall be solid fiberglass. The stop and frame will be molded all in one piece. The frame shall be integrally gelcoated to the customer's color when molded. Mortises will be molded in. It is not permitted to rout in mortises or remove any material from the head or jambs, to provide mortises.
- B. Reinforcement for mounting hinges, closers, etc., shall be of mild steel plates strategically located and buried in the resin-glass matrix so they will not be exposed to the elements.
- C. The jamb shall be flat on the backside (against the openings) and uniform in thickness so as to provide a solid, uniform surface against the wall opening. No wood blocks or spacers are permitted.
- D. Rated/labeled fiberglass door frame required where indicated on plans and schedules.

2.3 HARDWARE

- A. 1 ½ pair heavy duty stainless steel butts.
- B. Brushed chrome level handle – entry lock function.
- C. Weather stripping.
- D. Aluminum threshold.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation shall be in strict compliance with manufacturer's written instructions using non-corrosive materials and methods.

3.2 GUARANTEE

- A. Door Company shall unconditionally guarantee its registered doors for ten years against failure due to corrosion from the specific environment named at the time of purchase.

END OF SECTION 08100

SECTION 08710 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Definition
 - 1. "Finish Hardware" includes items known commercially as finish hardware which are required for swing, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door hardware. For any door not shown to receive hardware, provide hardware as shown for a similar opening. If there is no similar opening, provide three (3) butt hinges, one (1) mortise lockset, one (1) door closer, one (1) kick plate, and one (1) doorstop per leaf.
- C. Submittals: Submit through Contractor required product data, final hardware schedule, separate keying schedule, and samples as specified in this Section, unless otherwise indicated.
- D. Construction Schedule: Inform Contractor promptly of estimated times and dates that will be required to process submittals, to furnish templates, to deliver hardware, and to perform other work associated with furnishing door hardware for purposes of including this data in construction schedule. Comply with this schedule.
- E. Coordination and Templates: Assist Contractor as required to coordinate hardware with other work in respect to both fabrication and installation. Furnish Contractor with templates and deliver hardware to proper locations.
- F. Product Handling: Package, identify, deliver, and inventory door hardware specified in this Section.
- G. Discrepancies: Based on requirements indicated in Contract Documents in effect at time of door hardware selection, furnish types, finishes, and quantities of door hardware, including fasteners, and Owner's maintenance tools required to comply with specified requirements and as needed to install and maintain hardware. Furnish or replace any items of door hardware resulting from shortages and incorrect items at no cost to the Owner or Contractor. Obtain signed receipts from Contractor for all delivered materials.
- H. Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements. Provide only hardware, which has been tested and listed by UL or FM types and sizes of doors, required and complies with requirements of door and doorframe labels.
 - 1. Where emergency exit devices are required on fire-rated doors (with supplementary marking on doors UL or FM labels indicating "fire door to be equipped with fire exit hardware") provide UL or FM label on exit devices indicating "fire exit hardware."
 - 2. Provide hardware as required to meet label requirements whether scheduled or not.

1.2 CONTRACTOR'S RESPONSIBILITIES SHALL BE AS FOLLOWS:

- A. Submittals: Coordinate and process submittals for door hardware in same manner as submittals for other work.

- B. Construction Schedule: Cooperate with door hardware supplier in establishing schedules dates for submittals and delivery of templates and door hardware. Incorporate in construction schedule the times and dates related to furnishing hardware by door hardware supplier.
- C. Coordination: Coordinate door hardware with other Work. Furnish Hardware supplier or manufacturer with shop drawings of other work where required or requested. Verify completeness and suitability of hardware with supplier.
- D. Product Handling: Provide secure lock-up for hardware delivered to the site. Inventory hardware jointly with representative of hardware supplier and issue signed receipts for all delivered materials.
- E. Installation Information: The general types and approximate quantities of hardware required for this Project are indicated at the end of this Section in order to establish Contractor's costs for installation and other work not included in allowance.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification section.
 1. Product data including manufacturer's technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
 2. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 3. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
 4. Type, style, function, size, and finish of each hardware item.
 5. Name and manufacturer of each item.
 6. Fastenings and other pertinent information.
 7. Location of each hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
 8. Explanation of all abbreviations, symbols, and codes contained in schedule.
 9. Mounting locations for hardware.
 10. Door and frame sizes and materials.
 11. Keying information.
- B. Submittal Sequence: Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
- C. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.
- D. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawing of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

1.4 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer.

- B. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by UL, Warnock Hersey, FM, or other testing and inspecting organization acceptable to authorities having jurisdiction for use on types and sizes of doors indicated in compliance with requirements of fire-rated door and door frame labels.

1.5 PRODUCT HANDLING

- A. Tag each item or package separately with identification related to final hardware schedule and include basic installation instructions with each item or package.
- B. Packaging of door hardware is the responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two more identical sets may be packed in same container.
- C. Inventory door hardware jointly with representative of hardware supplier and hardware installer until each is satisfied that count is correct.
- D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).
- E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.6 MAINTENANCE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 The following types of hardware will be used generally but are not restricted to same: All hardware to be approved by Architect and Owner.

- A. Hardware Schedule:
 - AB ABH
 - GL Glynn Johnson
 - HA Hager Hinge
 - MA Markar
 - MC McKinney
 - NA National Guard
 - RO Rockwood
 - SA Sargent
 - YA Yale
 - SC Schlage

- B. All exterior hardware used to be of appropriate material to resist rust.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.
- B. "Recommended Locations for Builders Hardware for Standard Steel doors and Frames" by the Door and Hardware Institute.
- C. "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute. NWWDA Industry Standard I.S.1.7, "Hardware Locations for Wood Flush Doors".
- D. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.
- E. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- G. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers".
- H. Weather-stripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.2 ADJUSTING, CLEANING, AND DEMONSTRATING

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.
- D. Six-Month Adjustment: Approximately six month after the date of Substantial Completion, the Installer, accompanied by representatives of the manufacturers of latch sets and locksets and of door control devices, and of other major hardware suppliers, shall return to the Project to perform the following work:
 - 1. Examine and re-adjust each item of door hardware as necessary to restore function of doors and hardware to comply with specified requirements.
 - 2. Consult with and instruct Owners personnel in recommended additions to the maintenance procedures.

3. Replace hardware items that have deteriorated or failed due to faulty design, materials, or installation of hardware units.
4. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

- C. Hardware Schedule:
1. Submit for approval.

3.3 KEYING

- A. Provide master keying system. Provide 4 keys to each door and 4 master keys.

3.4 HARDWARE ALLOWANCE

- A. See 01020 Allowances.

END OF SECTION 08710

SECTION 10520 – FIRE EXTINGUISHERS AND CABINETS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Work included: Provide fire extinguishes and cabinets where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: Within 45 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
 - 1. Materials list of items proposed to be provided under this Section.
 - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
 - 3. Dimensioned drawings as needed to depict the space required for these items, and their interface with the work of other trades.
 - 4. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.

1.4 PRODUCT HANDLING

- A. Comply with pertinent provisions of Section 01620.

PART 2 – PRODUCTS

2.1.1 FIRE EXTINGUISHERS

- A. At each fire extinguisher location (See G-2), provide one multi-purpose chemical fire extinguisher with UL rating of 2A-10B; C, Larsen model, "MP5" on standard hook, (verify compatibility with cabinet) or equal products by J-L Industries or Potter Roemer.
- B. Service, charge, and tag each fire extinguisher not more than five calendar days prior to the Date of Substantial Completion of the work as that date is established by the Architect.

PART 3 – EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

- A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
- B. Install the work of this Section in strict accordance with the original design, the approved Shop Drawings, pertinent requirements of governmental agencies having jurisdiction, and the manufacturer's recommended installation procedures firmly into position for long life under hard use.
- C. Coordinate all locations with local Fire Inspector before blocking out cabinet locations.

3.3 LOCATION:

- A. Provide fire extinguishers and cabinets as located on drawings.
- B. Provide fire extinguishers and standard mounting bracket located on drawings G-2.

END OF SECTION 10520

SECTION 13 34 19

METAL BUILDING SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Metal Framing Components.
- B. Metal Roof Wall Panels and Trim.
- C. Metal Building Accessories

1.2 REFERENCE STANDARDS

- A. American Institute of Steel Construction (AISC):
 - 1. AISC Specification for Structural Steel Buildings.
 - 2. AISC Serviceability Design Considerations for Low-Rise Buildings
- B. American Iron and Steel Institute (AISI):
 - 1. AISI North American Specification for the Design of Cold-Formed Steel Structural Members
- C. American Welding Society (AWS):
 - 1. AWS D1.1 / D1.1M – Structural Welding Code – Steel.
 - 2. AWS D1.3 / D1.3M – Structural Welding Code – Sheet Steel
- D. Association for Iron & Steel Technology (AISE):
 - 1. AISE 13 – Specifications for Design and Construction of Mill Buildings.
- E. ASTM International (ASTM):
 - 1. ASTM A 36 – Standard Specification for Carbon Structural Steel
 - 2. ASTM A 48 – Specification for Gray Iron Castings
 - 3. ASTM A 123 – Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 - 4. ASTM A 307 – Specification for Carbon Steel Bolts and Studs, 60 000 psi Tensile Strength
 - 5. ASTM A 325 – Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
 - 6. ASTM A 354 – Standard Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners
 - 7. ASTM A 475 – Specification for Zinc-Coated Steel Wire Strand

8. ASTM A 490 – Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength
9. ASTM A 500 – Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
10. ASTM A 529 – Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality.
11. ASTM A 563 – Specification for Carbon and Alloy Steel Nuts
12. ASTM A 572 – Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
13. ASTM A 653 / A 653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
14. ASTM A 792 / A 792M – Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
15. ASTM A 992 – Standard Specification for Structural Steel Shapes.
16. ASTM A 1011 – Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
17. ASTM A 1039 – Specification for Steel, Sheet, Hot Rolled, Carbon, Commercial, Structural, and High-Strength Low-Alloy, Produced by Twin-Roll Casting Process
18. ASTM E 96 / E 96M – Standard Test Methods for Water Vapor Transmission of Materials.
19. ASTM E 108—Spread-of Flame Testing: Class 1A Rating.
20. ASTM E 283 – Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
21. ASTM E 331 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
22. ASTM E 1592 – Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference
23. ASTM E 1646 – Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference
24. ASTM E 1680 – Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems
25. ASTM E 2140 – Test Method for Water Penetration of Metal Roof Panel Systems by Static Water Pressure Head
26. ASTM F 436 – Specification for Hardened Steel Washers
27. ASTM F 1145 – Specification for Turnbuckles, Swaged, Welded, Forged
28. ASTM F 1554 – Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength

F. CSA – Canadian Standards Association

G. CWB – Canadian Welding Bureau

H. IAS – International Accreditation Service

- I. LGSJ – Light Gauge Steel Institute
- J. SJI – Steel Joist Institute
- K. FM Global:
 - 1. FMRC Standard 4471 – Approval Standard for Class 1 Roofs for Hail Damage Resistance, Combustibility, and Wind Uplift Resistance.
- L. Metal Building Manufacturers Association (MBMA):
 - 1. MBMA Metal Building Systems Manual.
- M. Underwriters Laboratories (UL):
 - 1. UL 580 – Standard for Tests for Uplift Resistance of Roof Assemblies.

1.3 DEFINITIONS

- A. Metal Building System: A building system that will employ:
 - Either continuous or simple-span ‘Z’ or ‘C’-shaped cold-formed purlins for support of the roof cladding.
 - All systems (roof and wall framing, and portal frames) work together to provide resistance to vertical and lateral loading demands.
- B. Gable Symmetrical: A continuous frame building with the ridge in the center of the building, consisting of tapered or straight columns and tapered or straight rafters. The rafters may not have interior columns.
- C. Roof Slope: Pitch expressed as inches of rise for each 12” of horizontal run.
- D. Collateral Loads: The weight of any non-moving equipment or material, such as electrical.
- E. Dead Load: The actual weight of the building system (as provided by the metal building supplier) supported by a given member.
- F. Roof Live Loads: Loads produced by maintenance activities, rain, erection activities, and other movable or moving loads but not including wind, snow, seismic, crane, or dead loads.
- G. Roof Snow Loads: Gravity load induced by the weight of snow or ice on the roof, assumed to act on the horizontal projection of the roof.
- H. Seismic Loads: Loads acting in any direction on a structural system due to the action of an earthquake.
- I. Wind Loads: The loads on a structure induced by the forces of wind blowing from any horizontal direction.

1.4 DESIGN REQUIREMENTS

A. General

1. The building manufacturer will use standards, specifications, recommendations, findings and/or interpretations of professionally-recognized groups such as AISC, AISI, AWS, ASTM, CSA, CWB, MBMA, Federal Specifications, and unpublished research by MBMA as the basis for establishing design, drafting, fabrication, and quality criteria, practices, and tolerances. The Manufacturer's design, drafting, fabrication and quality criteria, practices, and tolerances shall govern, unless specifically countermanded by the contract documents.
2. Design structural mill sections and built-up plate sections in accordance with:
 - a. (US) code-appropriate edition of AISC's "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings", ANSI/AISC 360 ASD method.
 - b. (Canada) CSA S16, "Design of Steel Structures", latest edition.
3. Cold-Formed steel structural members and panels will generally be designed in accordance with "Specifications for the Design of Cold-Formed Steel Structural Members", 2007 Edition, ANSI/AISI S-100-07 or CAN CSA S136-07.
4. Design weldments per the following:
 - a. Structural Welding
 - 1) (US) Design per AWS D1.1, "Structural Welding Code – Steel", Latest Edition.
 - b. Cold-Formed Welding
 - 1) (US) Design per AWS D1.3, "Structural Welding Code – Sheet Steel", Latest Edition.

B. Design Code:

1. Structural design for the building structural system shall be provided by the metal building system manufacturer for the following design criteria:
 - a. Governing Building Code: (See Drawings).
 - b. Year/Version: (See Drawings).
 - c. Occupancy Category: (See Drawings).

C. Design Loads:

1. Dead Load – Weight of the building system as determined by manufacturer.
2. Roof Live Load – (See Drawings).
3. Collateral Load – (See Drawings).
4. Roof Snow Load:
 - a. Ground Snow Load – (see Drawings).
 - b. Snow Exposure Coefficient (Ce) – (See Drawings).
 - c. Thermal Coefficient (Ct) – (See Drawings).
 - d. Roof Snow Load – (See Drawings).
5. Wind Load:
 - a. Wind Speed – (See Drawings).
 - b. Wind Exposure – (See Drawings).

6. Seismic Load:
 - a. Spectral response acceleration for short periods (S_s) – (See Drawings).
 - b. Spectral response acceleration for 1-sec. period (S_1) – (See Drawings).
 - c. Site Class – (See Drawings).
 7. Floor Load.
 - a. Live Load – (See Drawings).
 - b. Dead Load (Weight of Material by others)–(See Drawings).
 - c. Collateral Load – (See Drawings).
- D. General Serviceability Limits :
1. Deflection Limits shall be in accordance with the applicable provisions of the Metal Building Systems Manual (MBMA), latest edition.
 2. Vertical Deflections:
 - a. Roof Secondary (Purlins) – $L/150$.
 - b. Main Frame roof beams – $L/180$.
 3. Horizontal Deflections:
 - a. Main Frames – $H/60$.
 4. Vertical deflection limits apply for snow load (50-year mean-recurrence interval) plus collateral load, or the code required live load. The horizontal drift and deflections limits apply for the loads induced by a basic wind speed corresponding to a 10 year mean-recurrence interval.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01340.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.
- C. Shop Drawings: Submit shop drawing and calculation sealed by a Registered NC Engineer. Provide complete erection drawings for the proper identification and assembly of all building components. Drawings will show anchor bolt settings, transverse cross-sections, sidewall, endwall and roof framing, flashing and sheeting, and accessory installation details.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two samples, representing actual product, color, and patterns.

- F. Certifications: Shop drawings and design analysis shall bear the seal of a registered professional engineer upon request. Design analysis shall be on file and furnished by manufacturer upon request.
- G. Bill of Materials: Bills of material shall be furnished and shall include item weights.
- H. Preventative Maintenance Manual.
- I. Welder's Certifications: Certification of welder qualifications shall be furnished as specified by the Project Engineer.
- J. Submit certification verifying that the metal roof system has been tested and approved by Underwriter's Laboratory as Class 90.

1.6 QUALITY ASSURANCE

- A. Manufacturer / Fabricator Qualifications:
 - 1. (US) All primary products specified in this section will be supplied by a single IAS AC 472 Accredited Manufacturer /Fabricator with a minimum of five (5) years' experience.
 - 2. (Canada) All primary products specified in this section will be supplied by a single Manufacturer / Fabricator certified by the CAN/CSA A660-10, "Certification of Manufacturers of Steel Building Systems" program.
- B. Weldments/Welder/Weld Inspection Qualifications:
 - 1. (US) Welding inspection and welding inspector qualification for structural steel shall be in accordance with AWS D1.1, "Structural Welding Code – Steel", latest edition. Welding inspection and welding inspector qualification for cold-formed steel shall be in accordance with AWS D1.3, "Structural Welding Code – Sheet Steel", latest edition.
 - 2. (Canada) The metal building manufacturer shall be certified per CWB W47.1, "Certification of Companies for Fusion Welding of Steel", latest edition.
- C. Erector Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified.
- D. Design: Standard drawings and design analysis must bear the seal of a registered professional engineer. Design analysis must be on file and furnished by manufacturer upon request.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Acceptance Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

- B. Storage and Handling Requirements:
 - 1. Store and handle materials in accordance with manufacturer's instructions.
 - 2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
 - 3. Do not store materials directly on ground.
 - 4. Store materials on flat, level surface, raised above ground, with adequate support to prevent sagging.
 - 5. Protect materials and finish during storage, handling, and installation to prevent damage.
- C. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- D. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

1.8 WARRANTY

- A. Building System Warranty
 - 1. Furnish manufacturer's standard warranty for the metal building system, excluding paint.
 - 2. The manufacturer shall warranty the metal building system against failure due to defective material or workmanship for a period of one (1) year from date of shipment.
 - 3. The liability under this warranty shall be limited to furnishing, but not dismantling or installing, necessary replacement material F.O.B. manufacturer's plant.
- B. Roof Weathertightness Warranty
 - 1. Furnish manufacturer's weathertightness warranty for a maximum of 20 years against leaks in roof panels, arising out of or caused by ordinary wear and tear under normal weather and atmospheric conditions.
- C. Roof Paint Finish Warranty
 - 1. Roof Panel systems
 - a. Furnish manufacturer's standard warranty for the roof panels against rupture, structural failure, or perforation due to normal atmospheric conditions.
 - b. The warranty shall be for a period of 20 years from the date of shipment for Galvalume® systems.
- D. Wall Panel Finish Warranty
 - 1. Minimum 20 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacture Nucor Building Systems or Approved Equal.

2.2 MATERIALS

- A. Primary Framing Steel:
 - 1. Steel for hot rolled shapes must conform to the requirements of ASTM Specifications A-36, A-572 or A-992, with minimum yield of 36 or 50 ksi, respectively.
 - 2. Steel for built-up sections must conform to the requirements of ASTM A-1011, A-1018, A-529, A-572 or A-36 as applicable, with minimum yield of 42, 46, 50, or 55 ksi as indicated by the design requirements.
 - 3. Round Tube must conform to the requirements of ASTM A-500 Grade B with minimum yield strength of 42 ksi.
 - 4. Square and Rectangular Tube must conform to the requirements of ASTM A-500 Grade B with a minimum yield strength of 46 ksi.
 - 5. X-bracing will conform to ASTM A-36 or ASTM A-529 for rod and angle bracing or ASTM A-475 for cable bracing.
- B. Secondary Framing Steel:
 - 1. Steel used to form purlins and eave struts must meet the requirements of ASTM A-1011 or ASTM A-1039 Grade 55 for primed material or ASTM A-653 Grade 55 for galvanized material with a minimum yield of 55 ksi.
 - 2. Design Thicknesses – Gauge to be determined by design to meet specified loading conditions.
- C. Fasteners:
 - 1. As per manufacturers recommendations.
- D. Flashing and Trim: Match material, finish, and color of adjacent components. Provide trim at rakes, including peak and corner assemblies, high and low eaves, corners, bases, framed openings and as required or specified to provide weathertightness and a finished appearance.

2.3 PRIMARY FRAMING

- A. Rigid Frames: Fabricated as welded built-up "I" sections or hot-rolled sections.
 - 1. Frame Design: Gable Symmetrical.
 - 2. Frame Type: Clear-Span.
- B. Rigid Frame Columns:
 - 1. Tapered

- C. Rigid Frame Rafters:
 - 1. Tapered
- D. Endwall Frames / Roof Beams: Fabricated as mill-rolled sections or built-up "I" sections depending on design requirements. Fabricate endwall columns of cold-formed "C" sections, mill-rolled sections, or built-up "I" sections depending on design requirements.
- E. Finish: Red-Oxide as well as Field Applied Paint Coat.
- F. Field Bolted Connections: All field bolted connections shall be designed and detailed utilizing ASTM A-325 or A-490 depending on design requirement.

2.4 SECONDARY FRAMING

- A. Purlins: Purlins shall be cold-formed "Z" sections with stiffened flanges. Flange stiffeners shall be sized to comply with the requirements of the latest edition of AISI and LGSI. They shall be pre-punched at the factory to provide for field bolting to the rigid frames. They shall be simple or continuous span as required by design. Connection bolts will install through the purlin/girt webs, not purlin/girt flanges.
- B. Purlins: Horizontal structural members which support roof coverings.
 - 1. Depth: To be determined by design (8", 10" or 12")
 - 2. Maximum Length: To be determined by design.
 - 3. Finish: Red Oxide Primer also with Field Applied Paint Coat.
- C. Eave Struts: Unequal flange, cold-formed "C" sections or "Z" purlins.
 - 1. Depth: To be determined by design (8", 10" or 12")
 - 2. Maximum Length: To be determined by design.
 - 3. Finish: Red Oxide Primer.
 - 4. Finish: Gray Primer.
 - 5. Finish: Pre-Coated Galvanized.

2.5 ROOF PANELS & WALL PANELS.

- A. Roof Panel: A NUCOR CFR.
 - 1. Gauge: 24.
 - 2. Finish/Color: To be selected from manufacturer standard colors
- B. Wall Panels.
 - 1. NUCOR Classic Wall (Color to be selected from manufacturer standard colors)
 - 2. 26 Gauge.

2.6 ACCESSORIES

- A. Roof Line Trim:
 - Trim Type: Simple Eave/Rake Trim.
- B. Wall Panel
 - 1. Color to be chosen from manufacturers standard finish selections

2.7 PANEL FINISHES

- A. Roof Panel:
 - 1. To be selected from manufacturers standard color selections.

2.8 FABRICATION

- A. General:
 - 1. Shop-fabricate all framing members for field bolted assembly. The surfaces of the bolted connections must be smooth and free from burrs or distortions.
 - 2. Shop connections must conform to the manufacturer's standard design practices as defined in this section. Certification of welder qualifications will be furnished when required and specified in advance.
 - 3. All framing members must carry an identifying mark.
- B. Primary Framing:
 - 1. Plates, Stiffeners and Related Members.: Factory weld base plates splice plates, cap plates, and stiffeners into place on the structural members.
 - 2. Bolt Holes and Related Machining: Shop fabricate base plates, splices and flanges to include bolt connection holes. Shop fabricated webs to include bracing holes.
 - 3. Secondary structural connections (purlins and girts) to be ordinary bolted connections, which may include welded clips.
 - 4. Manufacturer is responsible for all welding inspection in accordance with the manufacturer's IAS Accreditation or CAN/CSA A660 Certification. Special inspection by the buyer or owner may be done in the manufacturer's facility and must be noted on the Contract Documents.
 - 5. Non-Destructive Testing (NDT) - NDT shall be performed and documented as required by the governing building code for this project.
- C. Zee Purlins:
 - 1. Fabricate purlins from cold-formed "Z" sections with stiffened flanges. Size flange stiffeners to comply with the requirements of the latest edition of AISI. Connection bolts will install through the webs, not the flanges.

- D. Bracing:

1. Special Bracing: Diagonal bracing is not permitted in the sidewall, a rigid frame type portal frame will be used.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Before erection proceeds, survey elevations and locations of concrete and masonry bearing surfaces and locations of anchor rods, bearing plates and other embedment's to receive structural framing, with Erector present, for compliance with requirements and metal building system manufacturer's tolerances.
- C. Proceed with erection only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Provide temporary shores, guys, braces, and other supports during erection to keep structural framing secure, plumb, and in alignment against temporary construction loads equal in intensity to design loads. Remove temporary supports when permanent structural framing connections and bracing are in place, unless otherwise indicated.

3.3 INSTALLATION

- A. The erection of the building system shall be performed by a qualified erector, in accordance with the appropriate erection drawings, erection guides and /or other documents furnished by manufacturer, using proper tools, equipment and safety practices.
- B. Erection practices shall conform to "Common Industry Practices", Section 6, MBMA (LR)-Building Systems Manual.
- C. There shall be no field modifications to primary structural members except as authorized and specified by manufacturer.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION