

PROJECT MANUAL

PHS INTENSIVE INTERVENTION CLASSROOMS RENOVATION

HAYWOOD COUNTY CONSOLIDATED SCHOOL SYSTEM WAYNESVILLE, NORTH CAROLINA

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**Project No: 19012
October 8, 2019**

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INVITATION FOR BIDS

The Haywood County Consolidated School System, North Carolina invites interested licensed Contractors to submit construction bids for the PHS INTENSIVE INTERVENTION CLASSROOMS RENOVATION. Bids will be received by the Owner, Haywood County Consolidated School System, in the Office of Joe Buchanan at 401 Farmview Drive, Waynesville, NC 28786 until 10:00 AM on October 29, 2019 at which time said bids will be publicly opened and read aloud. The envelopes containing the bids must be sealed and addressed to Haywood County Consolidated Schools, and designated as a Construction Bid- PHS INTENSIVE INTERVENTION CLASSROOMS RENOVATION.

A **Mandatory** Pre-Bid Conference will be held Pisgah High School at 10:00 AM on October 15, 2019.

Copies of the Bidding Documents will be issued as pdf's by email. No partial sets will be issued. Copyright of documents is emphasized. Documents may not be obtained or reproduced for any other purpose without written permission from Mark Lusk Architecture PLLC.

Performance and Payment Bond are required for contracts over \$300,000.

Each Bid must be accompanied by a certified check of the Bidder, or by a Bid Bond made payable to the Owner for an amount equal to no less than 5 percent of the total bid as a guarantee that, if the bid is accepted, the required Agreement will be executed and that a 100% Performance Bond will be furnished.

No Bid may be withdrawn after the scheduled closing time for receipt of bid for a period of 60 days.

The Owner reserves the right to waive irregularities in the Bidding process and to reject any or all Bids, subject to the laws and regulations of the State of North Carolina.

Joe Buchanan
Haywood County Consolidated School System

END OF DOCUMENT

SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

These Supplemental Instructions To Bidders amend or supplement Instructions To Bidders (AIA Document A701-1997) and other provisions of Bidding and Contract Documents as indicated below.

Compliance with these Supplemental Instructions is required by the Haywood County Consolidated School System, Waynesville, North Carolina.

All provisions of A701-1997, which are not so amended or supplemented, remain in full force and effect.

Bidders are cautioned to carefully examine the Bidding and Contract Documents for additional instructions or requirements.

RELATED DOCUMENTS

AIA Document A701-1997, hereby incorporated by reference.

Invitation For Construction Bids.

Bid Form.

Supplementary Conditions.

Other documents that may be identified in the Bidding and Contract.

MODIFICATIONS TO A701-1997

Delete Paragraph 1.1 and insert the following:

§ 1.1 BIDDING DOCUMENTS include the Bid Requirements and the proposed Contract Documents.

§ 1.1.1 Bid Requirements consist of the Invitation for Construction Bid, AIA Document A701-1997, Instructions to Bidders, this Section, Supplemental Instructions to Bidders, Bid Form and any Supplemental Instructions to Bidders included in the Bidding Documents, and all Addenda issued prior to the receipt of Bids.

§ 1.1.2 Contract Documents consist of the AIA Document A101-2017, Standard Form of Agreement Between Owner and Contractor, AIA Document A201-2017, General Conditions of the Contract for Construction, Supplementary Conditions, the Scope of Work as indicated on the Plans and the Specifications, the Contractor's Bid and Contract Modifications issued after execution of the Contract. All forms shall be referenced hereafter by the form number only. The Contract Documents shall govern the Work under all Divisions and Sections the same as if incorporated therein.

§ 1.1.3 Contract Modifications may be one of the following:

§ 1.1.3.1 A written amendment to the Contract signed by both parties;

§ 1.1.3.2 A Change Order.

§ 1.1.3.3 A Construction Change Directive;

§ 1.1.3.4 A written order for a minor change in the Work issued by the A/E.

Delete Paragraph 1.8 and insert the following:

§ 1.8 BIDDER is a person or entity who submits a Bid to the Owner.

Add the following subparagraph:

§ 1.10 ARCHITECT/ENGINEER (A/E) - A person or firm who performs professional services associated with the practice of architecture, professional engineering, land surveying, landscape architecture and interior design pertaining to construction, as defined by the Chapters 83A and 89C of the NC General Statutes, as well as incidental services that members of these professions and those in their employ may logically or justifiably perform, including studies, investigations, surveys, evaluations, consultations, planning, programming conceptual designs, plans and specifications, cost estimates, inspections, shop drawing reviews, sample recommendations, preparation of operating and maintenance manuals and other related services. In the absence of an A/E, the Owner assumes the role of the A/E.

Add the following subparagraph:

§ 1.12 Wherever the word "Architect" or "A/E" appears in the INSTRUCTIONS TO BIDDERS and herein, the intent is the design professional with whom the Owner has a contractual agreement.

§ Add the following subparagraph:

§ 1.13 Wherever the word "Owner" or "Owner" appears in the INSTRUCTIONS TO BIDDERS and herein, the intent is the Owner with whom the successful Bidder will have a contractual agreement.

Add the following subparagraph:

§ 1.14 Wherever the phrase "in the form of" or similar appears in the Contract Documents, that phrase shall be taken to permit the use of alternative forms, provided all information required by the referenced form is submitted in a format acceptable, in their sole discretion, to the Owner. Where the Bidder or Contractor is directed to use a specific form, that form shall be used without exception.

Delete Subparagraph 2.1.3 and insert the following:

§ 2.1.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents and has accepted full responsibility for any pre-bid existing conditions that would affect the Bid that were obvious and could have been ascertained by a site visit.

Add the following subparagraph:

§ 2.1.5 The workplace will be maintained drug-free in accordance with Article 5 of Chapter 90 of the NC General Statutes, as amended.

Add the following paragraph:

§ 2.2 Mandatory Pre-Bid Conference is required:

§ 2.2.1 Prospective Bidders are required to be represented at a Mandatory Pre-Bid Conference, at the specified time, date and place;

§ 2.2.2 Only those prospective Bidders that are represented and are listed on the sign-in sheet will be allowed to submit Bids on the Work;

§ 2.2.3 When it is in the best interest of the Owner, the Owner shall have the right to schedule more than one Mandatory Pre-Bid Conference. All prospective Bidders shall be represented and listed on the sign-in sheet of at least one Mandatory Pre-Bid Conference to be eligible to bid the Work.

Add the following paragraph:

§ 2.4 The A/E will publish, prior to the Bid opening, an Addendum to the Contract Documents listing, the prospective Bidders that were represented and signed-in at the Mandatory Pre-Bid Conference(s).

Delete paragraph 3.1 and substitute the following:

§ 3.1 COPIES OF BIDDING DOCUMENTS

§ 3.1.1 Invited Bidders will receive an electronic copy of the Bidding Documents for bidding purposes only. Copies are limited to the Bidder and its sub-Bidders. Use of these documents is limited to this project.

§ 3.1.2 Bidders and sub-Bidders shall use complete sets of Bidding Documents in preparing Bids or sub-Bids; neither the Owner nor A/E assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents. Partial sets of Bidding Documents will not be issued.

§ 3.1.3 The Owner and A/E have provided electronic copies of the Bidding Documents on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

Delete subparagraph 3.2.1 and substitute the following:

§ 3.2.1 The Bidder and each sub-Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid or sub-Bid is submitted. The Bidder and each sub-Bidder shall examine the site and local conditions, such as, but not limited to, location, accessibility, general character of the site or building and the extent of existing work within or adjacent to the site, and shall incorporate the impact, if any, of such conditions into the Bid submitted.

Delete subparagraph 3.2.2 and substitute the following:

§ 3.2.2 Bidders and sub-Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the A/E at least ten (10) days prior to the date for receipt of Bids. No oral interpretations in regard to the meaning of Plans and Specifications will be made and no oral instructions will be given prior to the award of the Contract.

Delete subparagraph 3.3.1 and substitute the following:

§ 3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. Reference in the Bidding Documents to the words "or equal" and "or approved equal" shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition.

Delete subparagraph 3.3.4 and substitute the following:

§ 3.3.4 No substitutions during construction for specified items shall be allowed unless they are recommended by the A/E and approved by the Owner.

Delete subparagraph 3.4.3 and substitute the following:

§ 3.4.3 No Addenda will be issued later than the fifth (5th) calendar day prior to the date set for receipt of Bids, except to:

§ 3.4.3.1 withdraw the request for Bids; or,

§ 3.4.3.2 postpone the date for receipt of Bids.

Add the following subparagraph:

§ 3.4.5 When the date for receipt of Bids is to be postponed and there is insufficient time to issue a written Addendum prior to the original Bid Date, prospective Bidders shall be notified by telephone, fax or other appropriate means with immediate follow up with a written Addendum. This Addendum shall verify the postponement of the original Bid Date and establish a new Bid Date. The new Bid Date shall be no earlier than the fifth (5th) calendar day after the date of issuance of the Addendum postponing the original Bid Date.

Add the following subparagraph:

§ 3.4.6 Bid Forms wherein the Bidder fails to acknowledge all issued Addenda by number shall be rejected as non-responsive, except for the following:

§ 3.4.6.1 The Addendum only gives clarifications or lists attendees at a Mandatory Pre-Bid Conference; or,

§ 3.4.6.2 The Bid received clearly indicates that the Bidder received the Addendum, such as where the Addendum added another item to the Invitation for Construction Bids and the Bidder submitted a Bid thereon; or,

§ 3.4.6.3 The Addendum clearly would have had no effect or merely a trivial or negligible effect on price, quality, quantity, or delivery, and does not affect the relative standing of the Bidders. Under no circumstances can the Bid Amount be changed or modified.

(1) Trivial Or Negligible Effect shall be defined as an increase in the Base Bid amount of the apparent low bidder, not to exceed one percent (1%) of the Base Bid amount. There shall be no percentage limitation if the Addendum decreases the cost of the Work. The cost of the Addendum shall be determined by the A/E or by the Owner's procurement officer.

(2) Relative Standing Of The Bidders shall mean that the order of the Bidders would be the same regardless of the Addendum. If the estimated cost of the Addendum (regardless of the percent of increase) exceeds the difference between the Bids of the apparent low bidder and the second-low bidder, then the Bid of the apparent low bidder shall be rejected as non-responsive.

Delete subparagraph 4.1.1 and substitute the following:

§ 4.1.1 Bids shall be submitted on the Bid Form included in the Bidding Documents, or on true copies thereof, and signed in ink or other indelible media. The Bidder shall make no stipulations or qualify its Bid in any manner not permitted on the Bid Form.

Delete subparagraph 4.1.4.

Delete subparagraph 4.1.5 and substitute the following:

§ 4.1.5 All requested Alternates must be bid.

§ 4.1.5.1 Indicate either a dollar amount or the words "zero" or "No Change"

§ 4.1.5.2 Indicate "ADD TO" or "DEDUCT FROM" for each Alternate,

Delete subparagraph 4.1.6.

Delete subparagraph 4.1.7.

Add the following subparagraph:

§ 4.1.8 Unsigned Bids shall be rejected; provided however, that an unsigned Bid shall not be rejected when it is accompanied by a properly prepared Bid Security or by other material indicating the Bidder's intention to be bound by the unsigned document, such as the submission of a Bid Guarantee with the Bid or a letter with the Bid signed by the Bidder, referring to and identifying the Bid itself.

Add the following subparagraph:

§ 4.1.9 Subcontractor(s) listed on the Bid Form to perform Alternate Work may be used for both the Alternate and Base Bid Work, if the Alternate is accepted.

Delete paragraph 4.2 and substitute the following:

§ 4.2 BID SECURITY

§ 4.2.1 If required as stated in the Invitation for Bid form, each Bid shall be accompanied by Bid Security in the dollar amount, if any, listed on the Bid Form, or in an amount of not less than five percent (5%) of the Base Bid. The Bid Security shall be:

§ 4.2.1.1 Written on a Surety's Bid Bond form that has been executed by a Surety, made payable to the Owner; meeting the standards required by the Bidding Documents and the Bidder and Surety are firmly bound unto the Haywood County Schools under the conditions of the Bid Bond provided in the Bidding Documents; or,

§ 4.2.1.2 An electronic Bid Bond authorization number issued by a firm or organization authorized by the surety to receive, authenticate and issue binding electronic Bid Bonds on behalf the surety; or,

§ 4.2.1.3 In the form of a certified cashier's check.

§ 4.2.2 By providing an electronic bid bond authorization code and signing the Bid Form, the Bidder is certifying that an electronic bid bond has been executed by a Surety meeting the standards required by the Bidding Documents and the Bidder and Surety are firmly bound unto the Henderson County School District under the conditions of the Bid Bond provided in the Bidding Documents.

§ 4.2.3 To be acceptable, a Bid Bond shall:

§ 4.2.3.1 Be issued by a surety company licensed to do business in North Carolina;

§ 4.2.3.2 Be issued by a surety company having, at a minimum, a "Best Rating" of "A" as stated in the most current publication of "Best's Key Rating Guide, Property-Casualty". In addition, the surety shall have a minimum "Best Financial Strength Category" of "Class V, and in no case less than five (5) times the contract amount.

§ 4.2.3.3 Be accompanied by a certified and current power of attorney by the attorney-in-fact who executes the bond on the behalf of the surety company; and,

§ 4.2.3.4 Be enclosed in the bid envelope at the time of Bid Opening, either in paper copy or as a Bid Bond authorization number provided on the Bid Form.

§ 4.2.4 By providing Bid Security, the Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bidding Documents and will, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. The Bidder shall forfeit to the Owner as liquidated damages the amount of the Bid Security if the Bidder fails to:

§ 4.2.4.1 Correct any Bid deficiency as required by the Bidding Documents and the Manual; or,

§ 4.2.4.2 Enter into such Contract; and,

§ 4.2.4.3 Furnish such bonds, if required.

§ 4.2.5 The Owner shall have the right to retain the Bid Security of any or all Bidders until such time as one of the three conditions listed below has been met.

§ 4.2.5.1 The Contract for Construction has been executed and both Labor and Material Payment and Performance Bonds, if required, have been furnished; or,

§ 4.2.5.2 The specified time has elapsed so that Bids may be withdrawn; or,

§ 4.2.5.3 The Owner has rejected all Bids.

§ 4.2.6 Bidders submitting a Bid Security not meeting the required amount, surety rating or financial strength rating shall have one working day from the Bid Opening to cure the deficiency or the Bid shall be considered non-responsive. The Bid Security amount submitted with the Bid must be at least 80% of the required amount to be eligible for correction.

Delete Subparagraph 4.3.1 and substitute the following:

§ 4.3.1 All copies of the Bid, and all other documents required to be submitted with the Bid should be enclosed in a sealed opaque envelope. The Bid Envelope should be addressed to the party receiving the Bids and shall be identified with the Project Name, the Bidder's name and address and, if applicable, the designated portion of the Work for which the Bid is submitted.

Delete subparagraph 4.3.3 and substitute the following:

§ 4.3.3 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.3.1 Bidders attending the Bid Opening should bring Bids to the place of the Bid Opening as shown in the Invitation for Construction Bids. The Bids should be given to the procurement officer of the Owner or his designee (includes the A/E) prior to the time of the Bid Opening.

§ 4.3.3.2 Bids sent by mail or special delivery service (UPS, Federal Express, etc.) should be labeled "SEALED BID ENCLOSED", and shall be addressed to the Owner designated purchasing office as shown in the Invitation for Construction Bids. Delivery of Bids to the above location shall be prior to the time of Bid Opening. Bids not received at the above location or Owner's mail room, prior to the time of Bid Opening, will be rejected.

Add the following subparagraph:

§ 4.3.5 Any other or special documents requested of the Bidder in these Bidding Documents shall be included in the Bid Envelope. If they are not included with the Bid Envelope,

the Bidder shall have twenty four (24) hours from the time of the Bid Opening to provide these documents or its Bid shall be considered non-responsive.

Add the following subparagraph:

§ 4.3.6 The official time for receipt of Bids shall be determined by reference to the clock designated by the Owner procurement officer or his designee. The procurement officer conducting the Bid Opening shall determine and announce that the deadline has arrived and no further Bids or bid modifications will be accepted. All Bids and bid modifications in the possession of the procurement officer at the time the announcement is completed shall be considered timely, whether or not the bid envelope has been date/time stamped or otherwise marked by the procurement officer.

Delete subparagraph 4.4.2 and insert the following:

§ 4.4.2 Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such modification shall be in writing on the Bid Form contained in the Bidding Documents or a true copy thereof, and over the signature of the Bidder.

Delete Article 5 in its entirety and substitute the following:

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 COMPLIANCE WITH REQUIREMENTS. To be considered, Bids shall be made in accordance with these Instructions to Bidders. Failure to comply with these bidding requirements may cause a bid to be rejected.

§ 5.2 OPENING OF BIDS

§ 5.2.1 Bids received on time will be opened publicly and read aloud. Bids that are determined, at the time of opening, to be non-responsive shall not be read. If all Bids are to be rejected, the Owner shall announce the reason(s) therefore.

§ 5.2.2 The date and location of the posting of the Notice of Intent to Award will be announced.

§ 5.2.3 The Owner shall send a copy of the final Bid Tabulation to all Bidders within ten (10) working days of the Bid Opening.

§ 5.2.4 If the Project is to be awarded, the Owner shall send a copy of the Notice of Intent to Award to all Bidders after posting.

§ 5.2.5 If only one Bid is received, the Bid shall be opened and considered.

§ 5.3 REJECTION OF BIDS

§ 5.3.1 The Owner shall have the right to reject any or all Bids, reject a Bid not accompanied by a required Bid Security or by other data required by the Bidding Documents, or reject a Bid which is in any way incomplete or irregular.

§ 5.3.2 Bids shall be rejected for any of the following reasons, which include, but are not limited to:

§ 5.3.2.1 Failure by a Bidder to be represented at a Mandatory Pre-Bid Conference or site visit;
or,

§ 5.3.2.2 Failure to deliver the Bid on time; or,

- § 5.3.2.3 Failure to comply with Bid Security requirements, except as allowed herein; or,
- § 5.3.2.4 Listing an invalid electronic Bid Bond authorization number on the bid form; or,
- § 5.3.2.5 Failure to Bid an Alternate; or,
- § 5.3.2.6 Failure to list qualified Subcontractors as required by law, or,
- § 5.3.2.7 Showing any modification(s) or exception(s) qualifying the Bid; or,
- § 5.3.2.8 Faxing a Bid directly to the Owner or their representative; or,
- § 5.3.2.9 Failure to include in the Bid Envelope all items required by the Bidding Documents; or,
- § 5.3.2.10 Failure to include a properly executed Power-of-Attorney with the bid bond.
- § 5.3.3 Bids shall not be rejected for the following reasons, which include, but are not limited to:
 - § 5.3.3.1 Failure to write "Sealed Bid Enclosed" on the outside of the mailing envelope; or,
 - § 5.3.3.2 Failure to seal the Bid envelope; or,
 - § 5.3.3.3 Listing a modification to the Bid on the outside of the Bid envelope, provided however that such modifications will not be considered; or,
 - § 5.3.3.4 Failure to list any information on the envelope other than that which may be required by law; or,
 - § 5.3.3.5 Providing a fax copy or other reproduction of any or all Bidding Documents in the Bid envelope: or,
 - § 5.3.3.6 Failure to indicate "ADD TO" or "DEDUCT FROM" on an Alternate, but only when the adjustment is obvious; or,
 - § 5.3.3.7 Failure to provide an Incremental Price or a Unit Price when requested on the Bid Form; or,
 - § 5.3.3.8 Providing additional listings of "Subcontractor Specialty" beyond those listed on the Bid Form; or,
 - § 5.3.3.9 Failure of the Bidder to sign the Bid, provided it is accompanied by a properly prepared Bid Security, or other information, as required by this Section; or,
 - § 5.3.3.10 Providing a reproduction of a signature on any or all Bidding Documents; or,
 - § 5.3.3.11 Failure of the corporation to include its seal on the Bid; or,
 - § 5.3.3.12 Bid Bond not signed by the bidder but only if the bond has been properly executed and signed by the bonding company or agent.
 - § 5.3.3.13 Immaterial variation from the exact requirements of the Bidding Documents.
- § 5.3.4 Bidders shall have one (1) working day from the time of Bid opening to correct the following deficiencies:

- § 5.3.4.1 Failure to provide five percent (5%) Bid Security when required, provided that the Bidder did furnish Bid Security in the proper form equal to at least eighty (80) percent of that required in the Invitation for Construction Bids; and,
- § 5.3.4.2 Failure to provide a Bid Bond with the proper surety rating and financial strength, provided that the Bidder did furnish Bid Security in the proper form equal to at least eighty (80) percent of that required in the Invitation for Construction Bids.
- § 5.4 ACCEPTANCE OF BID (AWARD)
- § 5.4.1 INTENT TO AWARD. It is the intent of the Owner to award a Contract to the lowest evaluated responsive bid submitted by a responsible Bidder. The lowest evaluated responsive bid will be determined by the sum of the base bid plus all alternates. However, the Owner reserves the right to accept that bid received which in the Owner's judgment is in the Owner's own best interest (Refer to 5.4.3 below). The Owner reserves the right to conduct discussions with apparent responsive bidders for the purpose of clarification to assure full understanding of the requirements of the Invitation for Bid.
- § 5.4.2 NOT USED.
- § 5.4.3 REJECTION OF BIDS. The Owner shall have the right to reject all Bids; to reject Unit Prices proposed in a Bid without invalidating other portions of the Bid; to waive informalities or irregularities in a Bid received and to accept that Bid which, in the Owner's judgment, is in the Owner's own best interests. Failure by the Bidder to correct any deficiency as requested may cause the Bid to be rejected as non-responsive.
- § 5.4.4 NOT USED

Delete Article 6 in its entirety and substitute the following:

ARTICLE 6 CONTRACTOR'S QUALIFICATIONS

- § 6.1 STANDARDS OF RESPONSIBILITY. A prospective Contractor shall be considered as meeting the State's standards of responsibility when the firm has:
- § 6.1.1 Appropriate financial, material, equipment, facility and personnel resources and expertise, or the ability to obtain them, necessary to indicate its capability to meet all contractual requirements; and,
- § 6.1.2 A satisfactory record of performance; and,
- § 6.1.3 A satisfactory record of integrity; and,
- § 6.1.4 Is qualified legally licensed to contract in the State of North Carolina, and
- § 6.1.5 Has supplied all necessary information in connection with the inquiry concerning responsibility.
- § 6.2 ADDITIONAL INFORMATION. Each Bidder submitting a Bid shall, upon request, submit an AIA Questionnaire for Contractors, and all additional information as required by the Owner to support the Owner's evaluation of the responsibility of the Bidder.

§ 6.2.1 Each Bidder, by submitting a Bid, agrees to waive any claim it has or may have against the Owner, the A/E and their respective employees arising out of or in connection with the administration, evaluation or recommendation of any bid.

Delete Article 7 in its entirety and substitute the following:

ARTICLE 7 PERFORMANCE AND PAYMENT BONDS

§ 7.1 BOND REQUIREMENTS

§ 7.1.1 When required by the Invitation for Construction Bids, the Contractor shall provide and pay the cost of Performance and Labor and Material Payment Bonds as described and defined in Paragraph 11.5 of Supplementary Conditions.

§ 7.2 TIME OF DELIVERY

§ 7.2.1 When bonds are required by the Invitation for Construction Bids, the Contractor shall have a maximum of twenty-one (21) days from the date of posting of the Notice of Intent to Award, to deliver the Performance and Labor and Material Payment Bonds, Certificate of Insurance and the Contract (signed by Contractor only). Failure to deliver these documents as required shall entitle the Owner to consider the Bidder non-responsible and to declare the Bid Security forfeited.

Insert Article 9 as follows:

ARTICLE 9 PROJECT INFORMATION

§ 9.1 PROJECT NAME: PHS INTENSIVE INTERVENTION CLASSROOMS RENOVATION
PROJECT NUMBER: 19012
PROJECT LOCATION: Canton, North Carolina

§ 9.2 Bids sent by mail or special delivery service (UPS, FedEx, etc) should be labeled "SEALED BID ENCLOSED", and shall be addressed to the Owner's designated purchasing office as follows:

Name of Owner: Haywood County Consolidated School System
Office Address: 401 Farmview Drive
Waynesville, NC 28786
Owner Representative: Mr. Joe Buchanan
(828) 456-2402
Fax: (828) 456-2452

§ 9.3 Notice of Intent to Award, will be posted at the following location: TBD

BID FORM

BID OF: _____
(Contractor)

BID TO: HAYWOOD COUNTY CONSOLIDATED SCHOOL SYSTEM
(Owner)

PROJECT NAME: _____

PROJECT NUMBER: 19012 BID DATE: _____

BASE BID AGREEMENT

The undersigned, having examined all the Bidding Documents and acknowledging all Addendum(a) as follows:

Addendum(a)#

shall execute the entire Work in the Bidding Documents as described, for a LUMP SUM amount of:

_____ Dollars

(\$ _____) which sum is hereafter called the BASE BID.

DATE FOR COMMENCEMENT AND SUBSTANTIAL COMPLETION

The Date for Commencement shall be established in the Notice to Proceed. The Contractor shall not incur any expense until the contract has been awarded. An award requires that either the Contract be signed by both the awarding authority and the contractor or a Notice to Proceed is executed.

All work shall be substantially completed (as evidenced by the date on the CERTIFICATE OF SUBSTANTIAL COMPLETION) 60 days from notice to proceed, subject to adjustments as provided in the Contract Documents.

The undersigned further agrees that from the compensation to be paid, the owner may retain as Step One liquidated damages the sum of One Hundred Fifty Dollars (\$150) for each calendar day the actual contract time for Substantial Completion exceeds the specified or adjusted contract time for Substantial Completion as provided in the Contract Documents.

BID SECURITY

The undersigned enclosed bid security in the amount of not less than five (5) percent of the BASE BID. The Contractor shall have twenty-one (21) days maximum from the date of the Notice of Intent to Award to deliver Performance and Payment Bond, Certificate of Insurance, and the Contract (signed by Contractor only). Failure to deliver these documents, as required, shall entitle the agency to consider the Contractor non-responsible and declare the bid security forfeited.

ADDENDA

The undersigned acknowledges the receipt of the addenda (as noted on page one of this Bid Form) and confirms that the BID as submitted reflects appropriate price responses.

BID HOLDING TIME AND ACCEPTANCE

The undersigned agrees that this Base Bid may not be revoked or withdrawn after the time set for the opening of bids, but shall remain open for acceptance for a period of sixty (60) days following the bid date.

CERTIFICATION REGARDING DRUG-FREE WORKPLACE

The undersigned certifies that the contractor listed below will provide a "drug-free workplace" as that term is defined in Article 5 of Chapter 90 of the NC General Statutes.

PROGRESS PAYMENTS

Contractor's Application for Payment shall be submitted to the Architect on AIA Document G702 and G703 - 1983 Edition. The period covered by each application for Payment shall be not less than one calendar month. The Owner shall make progress payments to the Contractor on undisputed amounts certified by the Architect within thirty (30) days from receipt of the Application for Payment by the Owner.

CONTRACTOR'S CLASSIFICATIONS AND SUBCLASSIFICATIONS WITH LIMITATIONS

(Classification) (Subclassification) (Limitations)

(NC Contractor's License Number)

AUTHORIZATION

(Type or Print Name of Contractor)

(Type or Print Address)

(Type or Print Phone Number)

(Type or Print Fax Number)

(Type or Print Name)

(Title)

(Signature)

(Date)

END OF BID DOCUMENT

STANDARD MODIFICATIONS TO AIA A101-2017

These Standard Modifications amend or supplement the Standard Form of Agreement Between Owner and Contractor (AIA Document A101-2017) and other provisions of Bidding and Contract Documents as indicated below.

Compliance with these Standard Modifications is required by Haywood County, North Carolina.

All provisions of A101-2017, which are not so amended or supplemented, remain in full force and effect.

RELATED DOCUMENTS

AIA Document A101-2017 hereby incorporated by reference and referred to hereafter as A101.

AIA Document A201-2017 hereby incorporated by reference and referred to hereafter as A201.

Document Supplementary Conditions.

Other documents that may be identified in the Bidding and Contract Documents.

MODIFICATIONS TO A101

ARTICLE 2 THE WORK OF THIS CONTRACT

Delete Section 2 and insert the following:

The Contractor shall fully execute the Work as described in the Contract Documents, or reasonable inferable by the Contractor as necessary to produce the results indicated by the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

Add the following new Paragraphs 3.4 and 3.5 to the end of Section 3:

§3.4 The Contractor acknowledges and recognizes that the Owner is entitled to full and beneficial occupancy and use of the complete Work following expiration of the Contract Time and that the Owner has entered into, or will enter into, binding agreements demising all or part of the premises where Work is to be completed based upon the Contractor's achieving Final Completion of the work within the Contract Time. It is hereby mutually agreed by and between the parties that time shall be an essential part of the Agreement and the Contractor further acknowledges and agrees that if the Contractor fails to complete substantially or cause the Final Completion of any portion of the Work within the Contract Time, the Owner will sustain damages and loss as a result of such failure. The exact amount of such damages will be difficult to ascertain. Therefore, the Owner and the Contractor agree as set forth below in this Paragraph 3.4.

§3.4.1 If the Contractor fails to achieve Substantial Completion of the Work within the Time for Completion allowed in the Agreement, the Owner shall be entitled to retain or recover from the Contractor and its Surety, as liquidated damages and not as a penalty, the following per diem amounts commencing upon the first day following expiration of the specified or adjusted time of performance and continuing until the actual Date of Substantial Completion. Such liquidated damages are hereby agreed to be a reasonable estimate of damages the Owner will incur as a result of delayed completion of the Work: \$150 per day.

§3.4.3 The Owner may deduct liquidated damages described in Subparagraphs 3.4.1 and 3.4.2 from any unpaid amounts then or thereafter due the Contractor under this Agreement. Any liquidated damages not so deducted from any unpaid amounts due the Contractor shall be payable to the Owner by the Contractor or its Surety at the demand of the Owner

ARTICLE 4 CONTRACT SUM

Add the following to Paragraph 4.3:

§4.4.1 Unit prices are set forth in the "Schedule of Unit Prices" attached hereto and made a part hereof as Exhibit (A). Such unit prices are considered complete and include: (1) all materials, equipment, labor, delivery, installation, overhead, and profit; and, (2) any other costs or expenses in connection with, or incidental to, the performance of that portion of the Work to which such unit prices apply.

ARTICLE 5 PAYMENTS

§ 5.1 PROGRESS PAYMENTS

Delete Subparagraph 5.1.1 and substitute the following:

§5.1.1 Based on Applications for Payment, including all supporting documentation, submitted to the Owner and the A/E by the Contractor and Certifications for Payment issued by the A/E., the Owner shall make progress payment on Account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

Delete Subparagraph 5.1.3 and insert the following:

§5.1.3 An Application for Payment, including all supporting documentation, for the period of time established in Subparagraph 5.1.2 shall be received by the A/E and the Owner not later than ten (10) days after the end of the period for which the Contractor is making application for payment. Payment on approved amounts shall be made by the Owner not later than thirty (30) days after the A/E and the Owner receive the Application for Payment.

Add the following sentence to Subparagraph 5.1.5: Each Application for Payment shall include such other information, documentation, and materials as the Owner or the A/E may require to substantiate the Contractor's entitlement to payment.

Delete Clause 5.1.7.1 and substitute the following: Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to ninety-five percent (95%) of the Contract Sum, less any amounts the A/E shall determine for incomplete and unacceptable Work, retainage applicable to such work, unsettled claims, Step One liquidated damages then due, and anticipated Step Two liquidated damages, if any.

Add the following Clause to Subparagraph 5.1.8:

§5.1.8.1 Refer to Subparagraphs 9.6.2 and 9.8.5 of the General Conditions. Any reduction or release of retainage, or portion thereof, however, shall not be a waiver of: (1) any of the Owner's rights to retainage in connection with other payments to the Contractor; or, (2) any other right or remedy that the Owner has under the Contract Documents, at law or in equity.

§ 5.2 FINAL PAYMENT

Delete Subparagraph 5.2.2 and insert the following:

§ 5.2.2 Final payment shall be made within thirty (30) days from the date the Owner (or A/E) receives the final undisputed Application for payment, including all supporting documentation, from the Contractor. All conditions stipulated in the General Conditions shall have been met before final payment is made.

ARTICLE 7 TERMINATION OR SUSPENSION

Insert the words "...as amended" after "...2017..." in paragraph 7.1.

Insert the words "...as amended" after "...2017..." in paragraph 7.2.

ARTICLE 8 MISCELLANEOUS PROVISIONS

Add the following to Paragraph 7.2: Refer to Subparagraph 9.6.2 of the General Conditions.

Add the following Subparagraphs:

§8.7.1 Contractor shall not incur any expense chargeable to the Owner on or about the Work of this Agreement until the Notice to Proceed is issued.

§8.7.2 The Contractor represents and warrants the following to the Owner (in addition to any other representations and warranties contained in the Contract Documents), as an inducement to the Owner to execute this Agreement, which representations and warranties shall survive the execution and delivery of this Agreement, any termination of this Agreement, and the final completion of the Work.

§8.7.2.1 That it and its Subcontractors are financially solvent, able to pay all debts as they mature, and possessed of sufficient working capital to complete the Work and perform all obligations hereunder.

§8.7.2.2 That it is able to furnish the plant, tools, materials, supplied, equipment, and labor required to complete the Work and perform its obligations hereunder.

§8.7.2.3 That it is authorized to do business in the State of North Carolina and is properly licensed by all necessary governmental and public and quasi-public authorities having jurisdiction over it and over the Work and the Project.

§8.7.2.4 That its execution of this Agreement and its performance thereof is within its duly authorized powers.

§8.7.2.5 That its duly authorized representative has visited the site of the Project, familiarized himself with the local and special conditions under which the Work is to be performed, and correlated his observations with the requirements of the Contract Documents, and;

§8.7.2.6 That it possesses a high level of experience and expertise in the business administration, construction, construction management, and superintendence of projects of the size, complexity, and nature of this particular Project, and it will perform the Work with the care, skill, and diligence of such a contractor.

The foregoing warranties are in addition to, and not in lieu of, any and all other liability imposed upon the Contractor by law with respect to the Contractor's duties, obligations, and performance hereunder. The Contractor acknowledges that the Owner is relying upon the Contractor's skill and experience in connection with the Work called for hereunder.

§8.7.3 The Owner reserves the right, pursuant to Section 7 of the General Conditions, to modify the Work of the Contractor.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

Insert the words "...as amended by those modifications to AIA A101-2017 and as otherwise stated herein" after "...2017..." in Subparagraph 9.1.1.

Insert the words "...as amended..." after "...2017..." in Subparagraph 8.1.2.

In Subparagraph 9.1.3 insert the Project Manual issue date and list the following:

Supplemental Conditions

3.4 List the following in Subparagraph 9.1.4:

Supplemental Instructions to Bidders
Modifications to AIA A101-2017

3.5 List the following in Subparagraph 9.1.7:

Table of Contents
Invitation for Construction Bids
Instructions to Bidders (AIA Document A701-1997 Edition)
Contractor's Bid
Construction Change Order

END OF DOCUMENT

SUPPLEMENTARY CONDITIONS

The *General Conditions of the Contract for Construction*, AIA Document A201, 2007 Edition, Articles 1 through 14 inclusive, is a part of this Contract and is incorporated as fully as if herein set forth. For brevity, AIA Document A201 is also referred to in the Contract Documents collectively as the "General Conditions."

The following supplements modify, delete and/or add to the General Conditions. Where any portion 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 the General Conditions shall remain in effect.

Unless otherwise stated, the terms used in these Standard Supplementary Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

ARTICLE 1: GENERAL PROVISIONS

§ 1.1.1 THE CONTRACT DOCUMENTS:

Add the following sentence to the end of Section 1.1.1: The Contract Documents executed in accordance with Section 1.5.1 shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic operations involving computers.

§ 1.1.2: THE CONTRACT

Add the following at the end of Section 1.1.2(2) between the words "Sub-subcontractor" and "or": except as set forth in Section 5.4.

Add the following Section 1.1.9:

§ 1.1.9 THE NOTICE TO PROCEED:

A document issued by the Owner to the Contractor (with a copy to the Architect) fixing the date on which the Contract time will commence for the Contractor to begin prosecution of the Work in accordance with the requirements of the Contract Documents.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS:

Add the following to Subparagraph 1.2.1:

§ 1.2.1.1 In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities:

1. The Agreement.
2. Addenda, with those of later date having precedence over those of earlier date.
3. The Supplementary Conditions.
4. The General Conditions of the Contract for Construction.
5. Division 1 of the Specifications.
6. Drawings and Divisions 2 through 33 of the Specifications.

In case of conflicts or discrepancies or inconsistencies among the Drawings and Divisions 2 through 33 of the Specifications or within either Document not clarified by Addendum, the Architect will determine which takes precedence in accordance with Section 4.2.11. The Contractor shall provide the better quality or greater quantity of Work; or, comply with the more stringent requirements unless a lesser requirement is determined to be acceptable by the Architect prior to bidding.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

Add the following Section 1.5.3 to Section 1.5:

§ 1.5.3 Contractor's Use of Instruments of Service in Electronic Form.

§ 1.5.3.1 The Architect may for a fee established in the specifications, and with concurrence of the Owner, furnish to the Contractor versions of instruments of Service in electronic form. The Contract

Documents executed or identified in accordance with Section 1.5.2 shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic means involving computers.

§ 1.5.3.2 The Contractor shall not transfer or reuse Instruments of Service in electronic form or machine readable form without the prior written consent of the Architect.

Add the following Section 1.7:

§ 1.7 EXECUTION OF CONTRACT DOCUMENTS

§ 1.7.1 The Contractor represents that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also represents that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Owner, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Owner.

ARTICLE 2: OWNER

§ 2.1 GENERAL

Delete the first sentence of Subparagraph 2.1.2 and substitute the following:

§ 2.1.2 The Owner, upon reasonable written request, shall furnish to the Contractor in writing such information which is in the Owner's possession and which is necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

Delete the second sentence of Subparagraph 2.2.3 and substitute the following:

§ 2.2.3 Subject to the Contractor's obligations, including those in Subparagraphs 1.8.2 and 3.2.1, the Contractor shall be entitled to rely on the accuracy of information furnished by the Owner pursuant to this Subparagraph, but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 Delete the word "...under..." in the last sentence of Subparagraph 2.2.4 and substitute "...which is within...". Add the following sentence at the end of Subparagraph 2.2.4:

Neither the Owner nor the A/E shall be required to conduct investigations or to furnish the Contractor with any information concerning subsurface characteristics or other conditions of the areas where the Work is to be performed beyond that which is provided in the Contract Documents. The Contractor shall not be entitled to rely on the accuracy of any information or services provided pursuant to this Subparagraph.

Add Section 2.2.6 to Section 2.2:

§ 2.2.6 The Owner will procure and bear costs of structural tests and special inspections as required by the applicable building code, and as specified in the Project Manual.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

Delete Subparagraph 2.4.1 and substitute the following:

§ 2.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails, within a seven-day period after receipt of written notice from the Owner, to provide the resources needed to achieve correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, proceed to correct such deficiencies. In such case an appropriate Change Directive shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the A/E's additional services made necessary by such default, neglect or failure. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor or its Surety shall pay the difference to the Owner.

Add the following Subparagraph 2.4.2:

§ 2.4.2 If, after achieving Substantial Completion, the Contractor then defaults, or neglects to complete or fails to provide resources adequate to complete the Project within the adjusted Contract Time for Final Completion as defined in Subparagraph 8.2.5, the Owner may carry out the work after giving the Contractor a single seven-day written notice of the Contractor's default or neglect. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the A/E's additional services made necessary by such default, neglect or failure. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor or its Surety shall pay the difference to the Owner.

ARTICLE 3: CONTRACTOR

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

Add the following Section 3.2.5 to Section 3.2:

§ 3.2.5 The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for the Architect to evaluate and respond to the Contractor's requests for information, where such information was available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

Change the last sentence of Subparagraph 3.3.1 to read as follows:

§ 3.3.1 If the Contractor is then instructed by the Owner in writing to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any resulting loss or damage.

§ 3.4 LABOR AND MATERIALS

Add the following clauses to Subparagraph 3.4.1:

§ 3.4.1.1 The Contractor shall not allow the use of asbestos containing products, whether temporary or permanent and whether or not incorporated or to be incorporated in the work, even if the products are nonfriable and/or contain minimal amounts of asbestos, and even though such products may still be legally installed.

§ 3.4.1.2 The Contractor shall not allow the use of lead materials in public water applications. Lead free solder, flux and pipe must be used in all public drinking water and waste water applications. Lead free solder and flux are defined as containing less than 0.2% lead, while valves, pipes and appurtenances must contain less than 8.0% lead.

Delete Section 3.4.2 and substitute the following:

§ 3.4.2 After the Contract has been executed, the Owner and Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in

the General Requirements (Division 1 of the Specifications). By making requests for substitutions, the Contractor:

1. represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified.
2. represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified.
3. certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and
4. will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

Add the following Section 3.4.4 to Section 3.4:

§ 3.4.4 The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect to evaluate the Contractor's proposed substitutions and to make agreed-upon changes in the Drawings and Specifications made necessary by the Owner's acceptance of such substitutions.

§ 3.5 WARRANTY

Delete Subparagraph 3.5.1 and substitute the following:

§ 3.5.1 The Contractor warrants to the Owner and the A/E that all materials and equipment furnished under the Contract shall be in first class condition, and new unless otherwise required or permitted by the Contract Documents; that the Work will be free from defects not inherent in the quality required or permitted; and that the Work will conform to the requirements of the Contract Documents. If required by the Owner or the A/E, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. The Contractor further warrants that all workmanship shall be of the highest quality and in accordance with the Contract Documents, and shall be performed by persons well-qualified at their respective trades.

Unless caused by the Contractor, the Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not performed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Owner or the A/E, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment provided.

§ 3.6 TAXES

Add the following Subparagraph 3.6.2:

§ 3.6.2 The Contractor's attention is directed to NCGS 105-164.13, as amended, concerning withholding tax for nonresidents, employees, contractors and subcontractors.

§ 3.6.3 Upon completion of the project and before final payment is made, Contractor shall furnish the Owner a notarized statement of the amount of sales tax paid and certifying that said items were incorporated into this project.

§ 3.8 ALLOWANCES

Delete the last sentence of Clause 3.8.2.3 and substitute the following:

§ 3.8.2.3 The amount of the Change Order shall reflect the difference between actual costs under Clause 3.8.2.1, as documented by invoices, and the allowance amounts.

§ 3.8.3 Insert the word "...unreasonable ..." between "...avoid..." and "...delay..." in Subparagraph 3.8.3.

§ 3.9 SUPERINTENDENT

Add the following Section 3.9.4 to 3.9:

§ 3.9.4 The Contractor shall employ a superintendent or an assistant to the superintendent who will perform as a coordinator for mechanical and electrical Work. The coordinator shall be knowledgeable in mechanical and electrical systems and capable of reading, interpreting and coordinating Drawings, Specifications, and shop drawings pertaining to such systems. The coordinator shall assist the Subcontractors in arranging space conditions to eliminate interference between the mechanical and electrical systems and other Work and shall supervise the preparation of coordination drawings documenting the spatial arrangements for such systems within restricted spaces. The coordinator shall assist in planning and expediting the proper sequence of delivery of mechanical and electrical equipment to the site.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

Add the following Clauses to Subparagraph 3.10.1:

This schedule shall:

- § 3.10.1.1 indicate the dates for the start and completion of the various elements of the Work, and shall be affirmed or revised monthly as required by the conditions of the Work and upon execution of a Change Order that affects time.
- § 3.10.1.2 provide a graphic representation of activities and events that will occur during performance of the Work in sufficient detail, and as acceptable to the Owner, to show the sequencing of the various trades for each floor level, wing or work area;
- § 3.10.1.3 identify each phase of construction and occupancy; and,
- § 3.10.1.4 set forth dates that are critical in ensuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents (hereinafter referred to as "Milestone Dates").

Delete Subparagraphs 3.10.3 and insert the following:

- § 3.10.3 The Contractor shall perform the Work in accordance with the most recent schedules submitted to and approved by the Owner.
- § 3.10.3.1 If the Contractor submits a schedule or schedule progress report indicating, or otherwise expresses an intention to achieve Substantial or Final Completion of the Work or any portion thereof, prior to any completion date required by the Contract Documents or to the expiration of the Contract Time, no liability to the Owner for any failure of the Contractor to do so complete the Work shall be created or implied. The Contractor shall not be entitled to an adjustment in the Contract Sum or the Contract Time for failure to achieve such early completion dates.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

Add the following sentence to Subparagraph 3.11.1:

Prompt delivery to the A/E of the materials and items specified above, in good order, shall be a condition precedent to the Contractor receiving a Certificate of Substantial Completion.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- § 3.12.2: After the word "...instruction..." insert "...installation, training and operations manuals..." in Subparagraph 3.12.2.

Add the following Clauses to Subparagraph 3.12.5:

§ 3.12.5.1 If the project requires automatic fire protection sprinklers systems, sprinkler shop drawings shall be prepared by the licensed sprinkler Contractor. The sprinkler shop drawings shall be reviewed and approved by the A/E's engineer of record before submittal to the State Fire Marshal or other authorities having jurisdiction.

§ 3.12.6.2 The Contractor shall submit a copy of the State Fire Marshal's approval letter to the A/E and the Owner.

Add Section 3.12.11 to Section 3.12:

§ 3.12.11 The Architect's review of Contractor's submittals will be limited to examination of an initial submittal and two (2) resubmittals. The Architect's review of additional submittals will be made only with the consent of the Owner after notification by the Architect. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for evaluation of such additional resubmittals.

§ 3.18 INDEMNIFICATION

§ 3.18.1: In the first sentence of Subparagraph 3.18.1 after the word "...itself)..." delete the phrase "...but only to the extent caused..." and insert "...including loss of use resulting therefrom, but only to the extent caused in whole or in part by...".

ARTICLE 4: ADMINISTRATION OF THE CONTRACT

§ 4.2 ARCHITECT'S ADMINISTRATION OF THE CONTRACT

Insert the following before the last sentence of Subparagraph 4.2.1: Notwithstanding these responsibilities, no act or omission by the A/E shall be considered a waiver of any of the Owner's rights or interests.

Add the following Clause to Subparagraph 4.2.1:

§ 4.2.1.1 Any reference in the Contract Documents to the A/E's taking action or rendering a decision within a "reasonable time" is understood to mean no more than fourteen (14) days, unless otherwise specified in the Contract Documents or otherwise agreed to by the parties.

Add Section 4.2.2.1 to Section 4.2.1.

§ 4.2.2.1 The Contractor shall reimburse the Owner for compensation paid to the Architect for additional site visits made necessary by the fault, neglect or request of the Contractor.

§ 4.2.5: After the word "...of..." insert the words "...the Work completed and correlated with the...".

Add the following Subparagraph 4.2.15:

§ 4.2.15 In the Contract Documents, where the words "as directed," "as required," "as approved," "as permitted" or words of like effect are used, it is to be understood that direction, requirement, approval or permission of the A/E is intended. Similar words, such as "approved," "acceptable," "satisfactory," or words of like import mean approved by, acceptable to, or satisfactory to the A/E.

ARTICLE 5: SUBCONTRACTORS

§ 5.3 SUBCONTRACTUAL RELATIONS

Delete all words after "...prejudice such rights ..." in the second sentence of Subparagraph 5.3.1.

Add the following Subparagraph 5.3.2:

§ 5.3.2 Without limitation on the generality of the foregoing, each Subcontract agreement and each Sub-subcontract agreement shall include, and shall be deemed to include, the following:

§ 5.3.2.1 An agreement that the Owner is a third-party beneficiary of the Subcontract (or Sub-subcontract), entitled to enforce any rights thereunder for its benefit, and that the Owner shall have the same rights and remedies against the Subcontractor (or Sub-subcontractor) as the Contractor (or Subcontractor) has, including but not limited to the right to be compensated for any loss, expense, or damage of any nature whatsoever incurred by the Owner resulting from any breach of representations and warranties, expressed or implied, if any, arising out of the agreement and any error, omission, or negligence of the Subcontractor (or Sub-subcontractor) in the performance of any of its obligations under the agreement; and,

§ 5.3.2.2 A requirement that the Subcontractor (or Sub-subcontractor) promptly disclose to the Contractor (or Subcontractor) any defect, omission, error, or deficiency in the Contract Documents or in the Work of which it has, or should have had, knowledge; and,

Insert the following Subparagraph 5.3.3:

§ 5.3.3 The Contractor shall assure the Owner, by affidavit or in such other manner as the Owner may approve, that all agreements between the Contractor and its Subcontractor incorporate the provisions of Subparagraph 5.3.1 as necessary to preserve and protect the rights of the Owner and the A/E under the Contract Documents with respect to the work to be performed by Subcontractors so that the subcontracting thereof will not prejudice such rights.

Insert the following Subparagraph 5.3.4:

§ 5.3.4 Upon request, the Contractor shall provide to the Owner copies of all executed or issued subcontracts, purchase orders and other documents related to the Work.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

Insert the following new Clause to Subparagraph 5.4.1:

§ 5.4.1.3 Subcontractors assigned to the Owner agree to perform assigned portions of the Work in accordance with the Contract Documents.

Add the following sentence to the end of Subparagraph 5.4.2: The equitable adjustment shall be limited to direct costs.

Insert the following new Subparagraph 5.4.4:

§ 5.4.4 Each subcontract shall specifically provide that the Owner shall only be responsible to the Subcontractor for those obligations of the Contractor that accrue subsequent to the Owner's exercise of any rights under this conditional assignment.

ARTICLE 7: CHANGES IN THE WORK

§ 7.2 CHANGE ORDERS

Add the following Clauses to Subparagraph 7.2.1:

§ 7.2.1.4 The Contractor shall not proceed with the Work of the Change Order until the Change Order is approved the Owner.

Add the following Subparagraph 7.2.3:

§ 7.2.3 Agreement on any Change Order shall constitute a release by the Contractor of the Owner for any and all liability under this Contract attributable to such facts or circumstances giving rise to the Change Order.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

Delete Subparagraph 7.3.7 and substitute the following:

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the A/E as provided in Clause 7.5.1.5, on the basis of reasonable expenditures and savings to those performing the Work attributable to the change, including allowances for reasonable overhead and profit.

Insert the following Subparagraph 7.3.11:

§ 7.3.11 If the Contractor defaults or neglects to execute a Change Directive, the Owner may carry out the Work in accordance with Paragraph 2.4 and Article 6.

Insert the following Paragraph 7.5:

§ 7.5 PRICE ADJUSTMENTS

§ 7.5.1 METHODS OF ADJUSTMENT. Any adjustment in the Contract Sum made pursuant to this Paragraph 7.5 shall be consistent with this Contract and shall be arrived at through whichever one of the following ways is the most valid approximation of the actual cost to the Contractor:

§ 7.5.1.1 by agreement on a fixed price adjustment;

§ 7.5.1.2 by unit prices specified in the Contract or subsequently agreed upon;

§ 7.5.1.3 by the costs attributable to the event or situation covered by the relevant clause, including profit if otherwise allowed, all as specified in the Contract; or subsequently agreed upon;

§ 7.5.1.4 in such other manner as the parties may mutually agree; or,

§ 7.5.1.5 in the absence of agreement by the parties, through a unilateral initial determination by the A/E of the costs attributable to the event or situation covered by the clause, including profit if otherwise allowed, all as computed by the A/E in accordance with Clause 7.5.3.2, and subject to review under the provisions of Paragraph 4.5 of this Contract.

§ 7.5.2 Final Agreement. When any adjustment in the Contract Sum made pursuant to clauses in this Contract becomes final (e.g., by agreement or dispute resolution), the adjustment shall be computed and documented on a "Construction Change Order."

§ 7.5.3 DOCUMENTATION OF COST REASONABLENESS

§ 7.5.3.1 CONTRACTOR'S CHANGE ORDER PROPOSAL. The Contractor shall submit a written proposal for review by the A/E and the Owner. The proposal shall be submitted to the Owner's representative within the time limits specified in Subparagraph 4.3.2. All costs claimed by the Contractor shall be justifiable compared with prevailing industry standards, as adjusted for local cost conditions. Costs shall be properly itemized and supported by substantiating data sufficient to permit evaluation before commencement of the pertinent performance or as soon thereafter as practicable.

§ 7.5.3.2 CONSTRUCTION CHANGE DIRECTIVES. For a Construction Change Directive wherein the proposed method of compensation is actual costs, and pending the collection and evaluation of actual costs as required by Clause 7.5.1.3, the Contractor shall estimate the value of the changed work. The Contractor shall itemize the estimated cost

into building components and shall use the labor, material and equipment unit direct costs as listed in the most current issue of the Construction Cost Data Book most applicable to the nature of the changed work, as published by R.S. Means, with a cost index adjusted for the project locale. The Contractor shall also be permitted to add overhead and profit as shown in Subparagraph 7.5.4. Where the Contractor does not properly itemize the proposed costs as requested, the A/E shall provide the Owner with the itemization and this amount shall be the initial basis for compensation under Subparagraph 7.3.8. Upon conversion of the Construction Change Directive to a Change Order, the A/E's cost for providing this itemization shall be deducted from the final adjustment in the Contract Sum as described in Clause 7.3.9.

§ 7.5.4 AGREED OVERHEAD AND PROFIT RATES

§ 7.5.4.1 For any adjustment to the Contract Sum for which overhead and profit may be recovered, other than those made pursuant to Subparagraph 4.3.9, the Contractor agrees to charge and accept, as full payment for overhead and profit, the following percentages of costs attributable to the change in the Work. The percentages cited below shall be considered to include all indirect costs including, but not limited to: field and office managers, supervisors and assistants, incidental job burdens, small tools, and general overhead allocations. "Commission" is defined as profit on work performed by others. The allowable percentages for overhead, profit, and commission are as follows:

- (1) To the Contractor or subcontractors on work performed by their own forces:
Overhead (10%) Profit (7%) Commission (10%)
- (2) To the Contractor on work performed by its subcontractors:
Overhead (10%) Profit (0%) Commission (3%)
- (3) To a first tier subcontractor on work performed by its subcontractors:
Overhead (10%) Profit (0%) Commission (3%)

§ 7.5.4.2 Not more than three levels of overhead, profit, and commission shall be allowed regardless of the number of subcontractor tiers.

§ 7.5.4.3 The Contractor or subcontractor shall not be allowed overhead or commission on the overhead, profit, and/or commission received by its subcontractors.

§ 7.5.4.4 Using the percentages stated in Clause 7.5.4.1, any adjustment to the Contract Sum for deleted work shall include any overhead, profit and/or commission attributable to the cost for the deleted Work.

§ 7.5.4.5 If the Contractor initiates a Change Order proposal and the Owner is not obligated to pay for all or any part of the proposal, then the Contractor shall be responsible for any A/E's fees to evaluate and process that Change Order proposal. Compensation shall be based on the Owner's contract with the A/E and the rates for Additional Services contained therein, and shall be withheld from the final payment to the Contractor.

§ 7.5.5 COST OR PRICING DATA

§ 7.5.5.1 The Contractor shall submit cost or pricing data for any element of changed work (other than Unit Price Work), and shall certify that, to the best of its knowledge and belief, the cost or pricing data submitted is accurate, complete, and current as of a mutually determined specified date prior to the date of the pricing. This data shall be itemized and supported by substantiating data sufficient to permit evaluation before commencement of the pertinent Work, or as soon thereafter as practicable, and shall be justifiably compared with prevailing industry standards. As requested by the A/E or the Owner, the Contractor's submittal shall provide an itemized breakdown of all increases and decreases in the Contract for the Contractor and each subcontractor (at any tier) in at least the following detail: material, equipment and supply quantities and costs; direct labor hours and rates for each trade; the associated FICA, FUTA, SUTA, and Worker's

Compensation Insurance; equipment hours and rates, and costs of premiums for bonds and insurance, permit fees and sales, use or similar taxes related to the Work.

§ 7.5.5.2 Any Change Order or Change Directive for which certification is required shall contain a provision that the price to the Owner, including profit or fee, shall be adjusted to exclude any significant sums by which the Owner finds that such price was increased because the cost or pricing data furnished by the Contractor was inaccurate, incomplete or not current as of the date agreed upon between parties. Notwithstanding Subparagraph 9.10.4, such adjustments may be made after final payment to the Contractor.

ARTICLE 8: TIME

§ 8.2 PROGRESS AND COMPLETION

Add the following Subparagraph 8.2.4:

§ 8.2.4 Failure by the Contractor to commence actual physical work on the project within seven (7) days from the Date of Commencement, as established in the Notice to Proceed, will entitle the Owner to consider the Contractor in substantial breach of its obligations under this Contract. In this event, the Owner may withdraw the Notice to Proceed and terminate the Contract in accordance with the Contract Documents.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

Insert the following new Subparagraph 8.3.4:

§ 8.3.4 The Contractor shall be permitted an adjustment in the Contract Sum, determined in accordance with Paragraph 7.5, only if the Delays, either individually or taken in the aggregate, cause the Contract Time to be increased by more than seven (7) days.

ARTICLE 9: PAYMENTS AND COMPLETION

§ 9.2 SCHEDULE OF VALUES

Insert the following new subparagraph 9.2.2:

§ 9.2.2 The Contractor and each Subcontractor shall prepare a trade payment breakdown for the Work for which each is responsible, such breakdown being submitted on a uniform standardized format approved by the A/E and Owner. The minimum breakdown detail shall be by each specification section title. The breakdown shall be divided in detail sufficient to exhibit areas, floors, and/or sections of the Work, and/or by convenient units and shall be updated as required by either the Owner or the A/E as necessary to reflect:

§ 9.2.2.1 the description of Work (listing labor and material separately);

§ 9.2.2.2 the total value;

§ 9.2.2.3 the percent and value of the Work completed to date;

§ 9.2.2.4 the percent and value of previous amounts billed; the current percent completed and amount billed; and,

9.2.2.5 the current percent completed and amount billed.

Any schedule of values or trade breakdown that fails to include sufficient detail, is unbalanced, or exhibits "front-loading" of the value of the Work, shall be rejected. If

either the schedule of values or trade breakdown had been initially approved and subsequently used, but later was found improper for any reason, then sufficient funds shall be withheld from future Applications for Payment to ensure an adequate reserve (exclusive of normal retainage) to complete the Work.

§ 9.3 APPLICATIONS FOR PAYMENT

In the first sentence of Subparagraph 9.3.1 change "... ten days..." to "...twenty-one (21) days...".

Add the following sentence to Section 9.3.1: Model Language: The form of Application for Payment, duly notarized, shall be a current authorized edition of AIA Document G702, Application and Certificate for Payment, supported by a current authorized edition of AIA Document G703, Continuation Sheet.

Add the following Section 9.3.1.3 to Section 9.3.1:

§ 9.3.1.3 Until Substantial Completion, the Owner shall pay ninety-percent (95%) of the amount due the Contractor on account of progress payments.

Add the following to Subparagraph 9.3.4: Rental equipment such as, but not limited to, mobile equipment, pans, forms, scaffolding, compressors, etc., shall not be considered material stored.

§ 9.6 PROGRESS PAYMENTS

Add the following Clauses to Subparagraph 9.6.1:

§ 9.6.2.1 Contractor's attention is directed to NCGS 22C, as amended, concerning laborers' liens.

§ 9.6.2.2 Contractor shall properly disburse money received from all payments to all laborers, subcontractors or material-men in accordance with NCGS 22C, as amended.

Delete Subparagraph 9.6.7 in its entirety.

§ 9.7 FAILURE OF PAYMENT

Delete Subparagraph 9.7.1 and substitute the following:

§ 9.7.1 If (a) the A/E does not issue a Certificate for Payment to the Owner, through no fault of the Contractor, within seven (7) days after receipt of the Contractor's Application for Payment, or (b) the Owner does not pay the Contractor within seven (7) days after the date established in the Contract Documents, the amount of the Contractor's Application for Payment certified by the A/E, or (c) the Owner does not pay the Contractor the amount awarded by a dispute resolution order within the time limit established by such order, or within seven (7) days if no time limit is stated in such order, then the Contractor may, upon seven (7) additional days' written notice to the Owner and A/E, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and startup, which shall be accomplished as provided in Paragraph 7.5. As used in this Subparagraph, the phrase "dispute resolution order" includes any decision rendered pursuant to Paragraph 4.4.

§ 9.8 SUBSTANTIAL COMPLETION

Add the following Clause to Subparagraph 9.8.2:

§ 9.8.2.1 The Contractor's list shall be in writing and attached to the "Contractor's Request for Certificate of Full or Partial Substantial Completion". The Contractor's Request for "Certificate of Full or Partial Substantial Completion" shall be submitted at least ten (10)

days in advance of the proposed date of inspection and shall be forwarded through the A/E, who will attach its written endorsement as to whether or not it concurs with the Contractor's statement that the Work will be ready for inspection and testing on the date given. The A/E's endorsement is a convenience to the Owner only and shall not relieve the Contractor of its responsibility in the matter, nor shall the A/E's endorsement be deemed to be evidence that the Work was substantially complete and ready for inspection and testing. In the event that the A/E does not concur with the Contractor's statement, the A/E shall inform the Contractor of the basis for the A/E's non-concurrence. The Contractor may then, at its sole option, (1) defer the inspection; or, (2) request the inspection be performed in accordance with Subparagraph 9.8.3.

Add the following Clauses to Subparagraph 9.8.3:

- § 9.8.3.1 Inspection and testing shall take place at a time(s) mutually agreeable to the Contractor, Owner and the A/E.
- § 9.8.3.2 The inspection shall include a demonstration by the Contractor that all equipment, systems and operable components of the Work function properly and in accordance with the Contract Documents. The Contractor shall furnish access for the inspection and testing as provided in this Contract. The inspection and testing shall determine whether Substantial Completion has been accomplished and shall result in the A/E's issuance of a written list of Unfinished Work and Defective Work, commonly referred to as a "punch list", each item of which must be finished and corrected prior to Final Completion.
- § 9.8.3.3 The A/E and its Consultants shall conduct all Substantial Completion inspections. The Owner may elect to have other persons of its choosing also participate in the inspections. Representatives of the State Fire Marshal's Office and other authorities having jurisdiction may be present, at their sole discretion, at the Substantial Completion inspection or otherwise inspect the completed Work and advise the Owner whether the Work meets their respective requirements.
- § 9.8.3.4 If the inspection discloses any item which is not in accordance with the requirements of the Contract Documents and will prevent the Owner from occupying or utilizing the Work for its intended use, the Contractor shall complete or correct such item upon notification by the A/E. The Contractor shall then submit a request for a follow-up inspection by the A/E to determine Substantial Completion.
- § 9.8.3.5 The Contractor shall proceed promptly and diligently to complete and correct items on the list of Unfinished or Defective Work. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.
- 9.8.3.6 If more than one Substantial Completion inspection is required, the Contractor shall reimburse the Owner for all costs of reinspection or, at the Owner's option, the costs may be deducted from payments due to the Contractor.

Delete the last sentence of Subparagraph 9.8.5 and add the following Clauses:

- § 9.8.5.1 Upon such acceptance of Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the A/E, the Owner shall make payment for such Work or portion thereof as provided in the Contract Documents. The balance payable shall include the retainage of five percent (5%) of the Contract Sum, less any retainage released under conditions of Subparagraph 9.6.2, plus an amount equal to the cost to complete or to correct, as determined by the A/E of the Uncompleted or Defective Work, plus the full amount of Liquidated Damages, if any. Retainage shall continue until Final Completion and Final Payment.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

Add the following Clauses to Subparagraph 9.10.1:

- § 9.10.1.1 Final Completion shall be achieved no later than thirty (30) days after Substantial Completion unless otherwise stated in the Contract Documents or modified by a Change Order. Failure of the Contractor to achieve Final Completion within the time allowed under this Subparagraph shall entitle to Owner to consider the Contractor in substantial breach of its obligations under this Contract.
- § 9.10.1.2 The Contractor shall notify the Owner, in writing on the Contractor' section of this "Certificate of Final Completion", of the date when the Work has reached or will reach Final Completion and will be ready for final inspection and testing. The notice shall be given at least ten (10) days in advance of said date and shall be forwarded through the A/E, who will attach its endorsement as to whether or not it concurs in the Contractor's statement that the Work will be ready for inspection and testing on the date stated. The A/E's endorsement is a convenience to the Owner only and shall not relieve the Contractor of its responsibility in the matter, nor shall the A/E's endorsement be deemed to be evidence that the Work was finally complete and ready for inspection and testing. In the event that the A/E does not concur with the Contractor's statement, the A/E shall inform the Contractor of the basis for the A/E's non-concurrence. The Contractor may then, at its sole option, (1) defer the inspection; or, (2) request the inspection be performed in accordance with this Subparagraph. The final inspection and testing shall be conducted in the same manner as the inspection for Substantial Completion, including, but not limited to, the requirements of Clauses 9.8.3.3, 9.8.3.4, 9.8.3.5 and 9.8.3.6 of this Contract.
- § 9.10.1.3 Representatives of the State Fire Marshal's Office and other authorities having jurisdiction may be present at the Final Completion inspection or otherwise inspect the completed Work and advise the Owner whether the Work meets their respective requirements for the Project.
- § 9.10.1.4 The Contractor shall then submit a request for a follow-up inspection to determine Final Completion. If more than one Final Completion inspection is required, the Contractor shall reimburse the Owner for all costs of re-inspection or, at the Owner's option, the costs may be deducted from payments otherwise due to the Contractor.
- § 9.10.1.5 Approval of Work at or as a result of any inspection required herein shall not release the Contractor or its surety from responsibility for complying with the Contract.

Add the following Clause to Subparagraph 9.10.4:

- § 9.10.4.4 faulty or defective Work appearing after the date of Substantial Completion.

In Subparagraph 9.10.5, after the word "...those..." insert the phrase "...specific claims in stated amounts that have been..."

Add the following Section 9.11 to Article 9:

§9.11 The Contractor and the Contractor's surety, if any, shall be liable for and shall pay the Owner the sums hereinafter stipulated as liquidated damages for each calendar day of delay after the date established for Substantial Completion in the Contract Documents until the Work is substantially complete: ****One Hundred Fifty Dollars (\$150.00).**

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

§ 10.3 HAZARDOUS MATERIALS

In Subparagraph 10.3.1 after the word "...persons ..." , insert the words "...or serious losses to real or personal property...".

Add the following Clause to Subparagraph 10.3. 1:

§ 10.3.1.1 The Owner and Contractor hereby agree that this Paragraph shall apply only to hazardous, toxic or radioactive materials or substances subject to the regulations of agencies having jurisdiction, such as, but not limited to, the NC Department of Environmental and Natural Resources (NCDENR), the U.S. Environmental Protection Owner (USEPA) and the U.S. Nuclear Regulatory Commission (USNRC).

Add the following Clauses to Subparagraph 10.3.2:

§ 10.3.2.1 Any adjustment in the Contract Sum, including reasonable overhead and profit, made pursuant to this Subparagraph shall be determined in accordance with Paragraph 7.5 of this Contract.

§ 10.3.2.2 The Work in the affected area shall be resumed immediately following the occurrence of any of the following events: (a) the Owner causes remedial work to be performed that results in the absence of materials or substances; or (b) the Owner and the Contractor, by written agreement, decide to resume performance of the Work; or (c) the Work may safely and lawfully proceed, as determined by an appropriate governmental authority or as evidenced by a written report to both the Owner and the Contractor, which is prepared by an environmental engineer reasonably satisfactory to both the Owner and the Contractor.

§ 10.3.2.3 For the purposes of this Contract, the term "rendered harmless" shall be interpreted to mean that measured levels of verified hazardous, toxic or radioactive materials or substances are less than the applicable standards established by authorities having jurisdiction. In no event, however, shall the Owner have any responsibility for any substance or material that is brought to the Project site by the Contractor, any Subcontractor, any material supplier, or any entity for whom any of them is responsible, unless such materials or substances were expressly required by the Contract Documents. The Contractor agrees not to use any fill or other materials to be incorporated into the Work that are hazardous, toxic, or radioactive, or made up of any items that are hazardous, toxic, or radioactive.

§ 10.4 EMERGENCIES

Add the following to Subparagraph 10.4.1: Written notice of the emergency, including an estimate of cost and probable effect of delay on the progress of the Work, must be given by the Contractor to the A/E as soon as possible, but in no case more than ten (10) days after the start of the emergency.

ARTICLE 11: INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

Change the second sentence of Subparagraph 11.1.2 to read:

Coverage shall be written on an occurrence basis and shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment.

Add the following Clauses to Subparagraph 11.1.2:

- 11.1.2.1 Liability Insurance shall include all major divisions of coverage and be on a Commercial basis including the following:
- (1) Premises - Operations.
 - (2) Independent Contractor's Protective.
 - (3) Products and Completed Operations.
 - (4) Personal and Advertising Injury.
 - (5) Contractual, including specified provision for Contractor's obligations under Paragraph 3.1 8.
 - (6) Broad Form Property Damage including Completed Operations.
 - (7) Owned, Non-Owned and Hired Motor Vehicles.

11.1.2.2 The insurance required by Subparagraph 11.1.1 shall be written for not less than the following limits, or greater if required by law or other provisions of this Contract:

- (1) COMMERCIAL GENERAL LIABILITY:

(a) General Aggregate (per project)	\$ 1,000,000
(b) Products/Completed Operations	\$ 1,000,000
(c) Personal and Advertising Injury	\$ 1,000,000
(d) Each Occurrence	\$ 1,000,000
(e) Fire Damage (Any one fire)	\$ 50,000
(f) Medical Expense (Any one person)	\$ 5,000

- (2) BUSINESS AUTO LIABILITY (including All Owned, Non-Owned, and Hired Vehicles):

(a) Combined Single Limit	\$ 1,000,000 OR
(b) Bodily Injury & Property Damage (each)	\$ 750,000

- (3) WORKER'S COMPENSATION:

(a) State	Statutory
(b) Employer's Liability	\$100,000 Per Accident
	\$500,000 Disease, Policy Limit
	\$100,000 Disease, Each Employee

Add the following Clause to Subparagraph 11.1.5:

§ 11.1.5.1 Certificates of Insurance shall be in the form of the latest edition of the ACORD 25S and shall be filed with the Owner prior to commencement of the Work. In addition to Certificates of Insurance, the Contractor shall supply a written endorsement to the Contractor's general liability insurance policy that names the Owner as an additional insured. The endorsement shall provide that the Contractor's liability insurance policy shall be primary, and that any liability insurance of the Owner shall be secondary and noncontributory.

Add the following Subparagraph 11.1.6:

§ 11.1.6 For informational purposes, the Contractor is advised that Worker's Compensation Insurance is required for all Owners and executive officers of entities incorporated in the State of North Carolina.

Add the following Subparagraph 11.1.7:

§ 11.1.7 The Aggregate Limits of Insurance required by Subparagraph 11.1.2 shall apply, in total, to this Contract only. This shall be indicated on the insurance certificate or an attached policy amendment.

- § 11.1.7.1 The insurance policies and Certificates of Insurance required by this Contract shall contain a provision that no material alteration, cancellation, nonrenewal, or expiration of the coverage contained in such policy or evidenced by such Certificates of Insurance shall have effect unless the Owner has been given at least thirty (30) days' prior written notice. The Contractor shall provide a minimum of thirty (30) days written notice to the Owner of any proposed reduction of coverage limits, including every coverage limit identified in Subparagraph 11.1.2, or any substitution of insurance carriers.
- § 11.1.7.2 In no event shall any failure of the Owner to receive certified copies or certificates of policies required under this Article or to demand receipt of such certified copies or certificates prior to the Contractor's commencing the Work be construed as a waiver by the Owner of the Contractor's obligations to obtain insurance pursuant to this Article 11. The obligation to procure and maintain any insurance required by this Article 11 is a separate responsibility of the Contractor and independent of the duty to furnish a certified copy or certificate of such insurance policies.

§ 11.3 PROPERTY INSURANCE

Delete Paragraph 11.3 and substitute the following:

§ 11.3 PROPERTY INSURANCE

- § 11.3.1 The Contractor shall purchase and maintain property insurance in the amount of the initial Contract Sum as well as subsequent modifications thereto for the entire Work at the site on a replacement cost basis. Such property insurance shall be maintained until final payment has been made as provided in Paragraph 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Paragraph 11.4 to be covered, whichever is earlier. This insurance shall only cover the work owned by the Owner at the time of loss.
- § 11.3.2 Property Insurance shall be written using a 'Builders Risk Coverage Form' with the following attached forms and endorsements:
- § 11.3.2.1 Causes of Loss - Special Form; (Risks of Direct Physical Loss unless the loss is excluded or limited by the Form)
- § 11.3.2.2 Causes of Loss - Earthquake Form; and
- § 11.3.2.3 Flood Insurance.
- § 11.3.3 Covered Property is the Building Under Construction described in the Policy Declarations owned by the Owner at the time of loss and includes:
- § 11.3.3.1 Foundations;
- § 11.3.3.2 If intended to become a permanent part of the building or structure described in the Declarations, the following property located in or on the building or structure or within 100 feet of its premises:
- (1) Fixtures, machinery and equipment used to service the building; and
 - (2) Building materials and supplies used for construction;
- § 11.3.3.3 If not covered by other insurance, temporary structures built or assembled on site, including cribbing, scaffolding and construction forms.

- § 11.3.4 Replacement of insured damaged work shall be covered by an appropriate Change Order. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.
- § 11.3.5 The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.
- § 11.3.6 The Contractor shall provide adequate insurance to protect the interests of the Contractor, Subcontractors, and Sub-subcontractors in the work.
- § 11.3.7 The Contractor shall be responsible for the deductible. The policy shall be written with a deductible of \$250 for each occurrence.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

Delete Subparagraph 11.5.1 and substitute the following:

- § 11.4.1 The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder. Bonds may be obtained through the Contractor's usual source and the cost thereof shall be included in the Contract Sum. The amount of each bond shall be equal to 100 percent (100%) of the Contract Sum.
- § 11.4.1.1 The Surety shall have, at a minimum, a "Best Rating" of "A" as stated in the most current publication of "Best's Key Rating Guide, Property-Casualty". In addition, the Surety shall have a minimum "Best Financial Strength Category" of "Class V", and in no case less than five (5) times the contract amount.
- § 11.4.1.2 The Performance Bond and the Payment Bond shall be written on standard forms of the Bonding Company, "Labor and Material Payment Bond", and both shall be made payable to the Owner.
- § 11.4.1.3 The Contractor shall deliver the required bonds to the Owner not later than three (3) days following the date the Agreement is entered into, or if the Work is to be commenced prior thereto in response to a letter of intent, the Contractor shall, prior to the commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished.
- § 11.4.1.4 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.
- § 11.4.1.5 The Performance and Labor and Material Payment Bonds shall:
- (1) be issued by a surety company licensed to do business in North Carolina; and,
 - (2) be accompanied by a current power of attorney and certified by the attorney-in-fact who executes the bond on the behalf of the surety company; and,
 - (3) remain in effect for a period not less than one (1) year following the date of Substantial Completion or the time required to resolve any items of incomplete Work and the payment of any disputed amounts, whichever time period is longer; and,
 - (4) display the Surety's Bond Number. A rider including the following provisions

shall be attached to each Bond stating that:

- (a) The Surety hereby agrees that it consents to and waives notice of any addition, alteration, omission, change, or other modification of the Contract Documents. Any addition, alteration, change, extension of time, or other modification of the Contract Documents, or a forbearance on the part of either the Owner or the Contractor to the other, shall not release the Surety of its obligations hereunder, and notice to the Surety of such matters is hereby waived.
- (b) The Surety agrees that it is obligated under the bonds to any successor, grantee, or assignee of the Owner.
- (c) Notwithstanding the foregoing, any bonds required by this Contract shall meet the requirements of the NC Code of Laws, as amended.

Add Subparagraph 11.4.3 as follows:

§ 11.4.3 The Contractor shall furnish the required bonds to the Owner before execution of the Contract.

Add Subparagraph 11.4.4 as follows:

§ 11.4.4 The Contractor shall keep the Surety informed of the progress of the Work, and, where necessary, obtain the Surety's consent to, or waiver of:

§ 11.4.4.1 notices of changes in the Work;

§ 11.4.4.2 requests for reduction or release of retention;

§ 11.4.4.3 requests for final payment; and

§ 11.4.4.4 any other item required by the Surety.

The Owner may, in the Owner's sole discretion, inform the Surety of the progress of the Work and obtain consents as necessary to protect the Owner's rights, interest, privileges, and benefits under and pursuant to any bond issued in connection with the Work.

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

Delete Subparagraph 12.1.1 and insert the following:

§ 12.1.1 If a portion of the Work is covered contrary to the requirements specifically expressed in the Contract Documents, including, inspections of work-in-progress required by all authorities having jurisdiction over the Project, then the portion of Work so covered shall, upon demand of the A/E or the authority having jurisdiction, be uncovered for observation and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.2 CORRECTION OF WORK

Add the following to Clause 12.2.1.1: If, prior to the date of Substantial Completion, the Contractor, a Subcontractor, or anyone for whom either is responsible, uses or damages any portion of the Work, including, without limitation, mechanical, electrical, plumbing, and other building systems, machinery, equipment, or other mechanical device, the Contractor shall cause such item to be restored to "like new" condition at no expense to the Owner.

At the beginning of Clause 12.2.2.1 insert the title "CONTRACTOR'S WARRANTY PERIOD."

In the third sentence of Clause 12.2.2.1, delete the phrase "...and to make a claim for breach of warranty...".

At the end of Clause 12.2.2.3, add the phrase "...unless otherwise provided in the Contract Documents."

Add the following Section 12.2.2.4 to Section 12.2.2:

§12.2.2.4 Upon request by the Owner and prior to the expiration of one year from the date of Substantial Completion, the Architect will conduct and the Contractor shall attend a meeting with the Owner to review the facility operations and performance.

ARTICLE 13: MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

Delete Subparagraph 13.1.1 and substitute the following:

§ 13.1.1 The Contract shall be governed by and construed in accordance with the laws of the State of North Carolina, and any suit, action or proceeding arising out of or relating to the Contract shall be governed by the laws of the State of North Carolina.

§ 13.3 WRITTEN NOTICE

Delete Subparagraph 13.3.1 and substitute the following:

§ 13.3.1 All notices contemplated by the Contract Documents shall be in writing and shall be deemed duly given:

§ 13.3.1.1 upon actual delivery to the person identified in the A101, if delivery by hand; or,

§ 13.3.1.2 upon receipt by the transmitting party of confirmation or reply, if delivery is by facsimile, telex or telegram; or,

§ 13.3.1.3 upon receipt by the person identified in the A101, if delivery is by deposit into the United States mail, certified mail, return receipt requested.

Add Subparagraph 13.3.2 as follows:

§ 13.3.2 Each such notice shall be sent to the respective party at the address provided in the A101, or to any other address as the respective party may designate by notice delivered pursuant hereto.

§ 13.4 RIGHTS AND REMEDIES

Add Subparagraph 13.4.3 as follows:

§ 13.4.3 Termination of the Contract by either party for any reason shall not relieve the parties of any obligation theretofore accorded under this Contract. Notwithstanding Subparagraph 9.10.4, and without limiting the foregoing sentence, the following provisions (as amended) of the Contract Documents shall survive termination for whatever cause, expiration or completion:

- 1.6 Ownership and Use of Drawings, Specifications and Other Instruments of Service;
- 3.5 Warranty
- 3.17 Royalties, Patents and Copyrights
- 3.18 Indemnification
- 3.10 Waiver of Listed Damages
- 3.11 Waiver of Claims Against the A/E
- 4.5 Dispute Resolution
- 7.5.5 Cost or Pricing Data
- 11.1 Contractor's Liability Insurance
- 11.5 Performance and Payment Bond
- 12.2 Correction of Work
- 13.1 Governing Law
- 13.4 Rights and Remedies
- 13.8 Y2K Compliance
- 13.12 Retention and Audit of Contractor's Records

§ 13.5 TESTS AND INSPECTIONS

Add the following to Subparagraph 13.5.5: The Contractor shall give the A/E timely notice in advance of tests, inspections or approvals.

Add the following Paragraph 13.8:

§ 13.8 DRUG-FREE WORKPLACE

The Contractor certifies to the Owner that Contractor will provide a Drug-Free Workplace, as required by Article 5 of Chapter 90 of the NC General Statutes.

Add the following Paragraph 13.9:

§ 13.9 BANKRUPTCY

In the event the Contractor enters into proceedings relating to bankruptcy, whether voluntary or involuntary, the Contractor agrees to furnish written notification of the bankruptcy to the Owner. This notification shall be furnished within five (5) days of the initiation of the proceedings relating to the bankruptcy filing. This notification shall include the date on which the bankruptcy petition was filed, the identity of the court in which the bankruptcy petition was filed, and a listing of all State contracts against which final payment has not been made. This obligation remains in effect until final payment under this Contract.

Add the following Paragraph 3.10:

§ 13.10 RETENTION AND AUDIT OF CONTRACTOR'S RECORDS

The Owner shall be entitled, at reasonable times and places, to audit the books and records of both the Contractor and any subcontractor who has submitted cost or pricing data pursuant to this Contract, to the extent that such books and records relate to such cost or pricing data. If any cost or pricing data is required for this Contract or any Modification, the Contractor and any subcontractor shall maintain such books and records that relate to such cost or pricing data for three (3) years from the date of final payment under the Contract, unless a shorter period is otherwise authorized in writing by the Owner; provided, however, that such records shall be retained for additional periods of time beyond this three-year period upon request of the Chief Procurement Officer. If this Contract or any Modification (other than a firm fixed price contract) is negotiated, the Owner shall be entitled to audit the books and records of the Contractor and any subcontractor to the extent that such books and records relate to the performance of the Contract or any Modification. Such books and records shall be maintained by the Contractor for a period of three years from the date of final payment under the prime contract and by any subcontractor for a period of three years from the date of final payment under the subcontract, unless a shorter

period is otherwise authorized in writing by the Owner.

Add the following Subparagraph 13.11:

§ 13.11 UNIT PRICE WORK

§ 13.11.1 Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, the initial Contract Sum will be deemed to include an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as identified in the Contract. The estimated quantity for each item of Work represents the Owner's best estimate of the amount of each item to be required of the Contractor, but the amounts are not guaranteed, and are solely for the purpose of comparison of Bids and determining an initial Contract Sum. Determinations of the actual quantities and classifications of Unit Price Work performed by the Contractor will be made by the A/E as described below.

§ 13.11.2 Subject to an adjustment pursuant to Subparagraph 4.3.9, each unit price will be deemed to include an amount considered by the Contractor to be adequate to cover the Contractor's total costs, including overhead and profit, for each separately identified item.

§ 13.11.3 The A/E will determine the actual quantities and classifications of Unit Price Work performed by the Contractor. The A/E will review with the Contractor its preliminary determinations on such matters before rendering a written decision or issuing a recommendation on the Contractor's Applications for Payment. The A/E's written decisions or recommendations will be final and binding on the Owner and the Contractor, except as modified by the A/E to reflect changed factual conditions or more accurate data, and subject to Paragraph 4.4. For purposes of Paragraph 4.4, the A/E's written decisions or recommendations shall serve as the A/E's initial decision.

Add the following Subparagraph 13.12:

§ 13.12 PROCUREMENT OF MATERIALS BY OWNER.

The Contractor accepts assignment of, and liability for, all purchase orders and other agreements for procurement of materials and equipment that are identified as part of the Contract Documents. The Contractor shall be responsible for such pre-purchased items, if any, as if the Contractor were the original purchaser. The Contract Sum includes, without limitation, all costs and expenses in connection with delivery, storage, insurance, installation, and testing of items covered in any assigned purchase orders or agreements. All warranty and correction of the Work obligations under the Contract Documents shall also apply to any pre-purchased items, unless the Contract Documents specifically provide otherwise.

ARTICLE 14: TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

In Subparagraph 14.1, change "...30..." to "...sixty (60)".

Delete Clauses 14.1.1.3 and 14.1.1.4.

In Subparagraph 14.1.3, delete all words after "...Work executed..." and add "...Any adjustment to the Contract Sum made pursuant to this Subparagraph shall be made in accordance with the requirements of Paragraph 7.5."

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

Delete Subparagraph 14.2.1 and substitute the following:

- § 14.2.1 The Owner may terminate the Contract, or any separable part of it, if the Contractor:
 - § 14.2.1.1 fails to complete the Work within the time specified in the Contract Documents, including any authorized adjustments; or,
 - § 14.2.1.2 fails to prosecute the Work, or any separable part of the Work, with the diligence, resources and skill that will ensure its completion within the time specified in the Contract Documents, including any authorized adjustments; or,
 - § 14.2.1.3 fails to make payment to Subcontractors for materials or labor in accordance with NCGS 22C, as amended, and the respective agreements between the Contractor and the Subcontractors; or,
 - § 14.2.1.4 persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or,
 - § 14.2.1.5 fails to proceed as required by Subparagraph 4.3.3 pending final resolution of a Claim; or,
 - § 14.2.1.6 fails to comply with any of the other material provisions of this Contract.

Delete Subparagraph 14.2.2, but not the subordinate Clauses and substitute the following:

- § 14.2.2 The Owner's right to terminate this Contract under Subparagraph 14.2.1 may be exercised if the Contractor does not cure such failure within seven (7) days (or more if authorized in writing by the Owner) after receipt of the notice from the Owner specifying the general nature of the failure. The Owner shall notify the Contractor's surety within a reasonable time. When terminating pursuant to Paragraph 14.2, the Owner may, without prejudice to any other rights or remedies of the Owner, and subject to any prior rights of the surety:

Insert "...including Liquidated Damages, if any,..." after the phrase "...other damages..." in the first sentence of Subparagraph 14.2.4.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

Insert the following to Subparagraph 14.3.2 after the second sentence: Any adjustment to the Contract Sum made pursuant to this Subparagraph shall be made in accordance with the requirements of Paragraph 7.5.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

Delete Subparagraph 14.4.1 and substitute the following:

- § 14.4.1 The Owner may, at any time, terminate the Contract, or the Contract Work, in whole or in part, for the Owner's convenience and without cause.
 - § 14.4.1.1 Upon written consent of the Contractor, the Owner may reinstate the terminated portion of this Contract or Contract Work in whole or in part by amending the notice of termination if it has been determined that

§ 14.4.1.2 circumstances clearly indicate a requirement for the terminated work; and,

§ 14.4.1.3 reinstatement of the terminated work is advantageous to the Owner.

Add the following Clause to Subparagraph 14.4.2:

§ 14.4.2.4 complete the performance of the Work not terminated, if any.

In Subparagraph 14.4.3 delete the phrase "...along with reasonable overhead and profit on the Work not executed.", and substitute "Any adjustment to the Contract Sum made pursuant to this Subparagraph shall be made in accordance with the requirements of Paragraph 7.5."

END OF DOCUMENT

REFERENCE IS MADE TO AIA DOCUMENTS AND ARE HEREBY MADE A PART OF THE CONTRACT DOCUMENTS:

INSTRUCTIONS TO BIDDERS	(AIA DOCUMENT A701-1997 EDITION)
APPLICATION AND CERTIFICATE FOR PAYMENT	(AIA DOCUMENT G702/703)
CERTIFICATE OF SUBSTANTIAL COMPLETION	(AIA DOCUMENT G704)
CONTRACTORS AFFIDAVIT OF PAYMENTS AND DEBTS AND CLAIMS	(AIA DOCUMENT G706)
CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS	(AIA DOCUMENT G706A)
CONSENT OF SURETY COMPANY TO FINAL PAYMENT	(AIA DOCUMENT G707)
CHANGE ORDER	(AIA DOCUMENT G701)

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

Section includes:

- Project information.
- Work covered by Contract Documents.
- Work by Owner.
- Purchase contracts.
- Access to site.
- Work restrictions.
- Specification and drawing conventions.

1.3 PROJECT INFORMATION

Project Identification: PHS INTENSIVE INTERVENTION CLASSROOMS RENOVATION

Project Location: Canton, North Carolina.

Owner: Haywood Consolidated School System

401 Farmview Drive Waynesville NC 28786.

Owner's Representative: Joe Buchanan, Facilities Director.

Architect: Mark Lusk Architecture PLLC

128 Woodburn Drive, Swannanoa, NC 28778

1.4 WORK COVERED BY CONTRACT DOCUMENTS

The Work of the Project is defined by the Contract Documents and consists of the following:

Renovate 2 existing classrooms to create 2 Intervention Classrooms.

Type of Contract

Project will be constructed under a single prime contract.

1.5 WORK BY OWNER

General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract.

1.6 ACCESS TO SITE

General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

Schedule deliveries to minimize use of driveways and entrances by construction operations.

Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weather-tight condition throughout construction period. Repair damage caused by construction operations.

1.7 COORDINATION WITH OCCUPANTS

Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.

Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

Work Restrictions, General: Comply with restrictions on construction operations.

Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.

Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

Controlled Substances: Use of tobacco products and other controlled substances within the existing

building and on the Project site is not permitted.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

Specification requirements are to be performed by Contractor unless specifically stated otherwise.

Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:

Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.

Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.

Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION **011000**

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.3 MINOR CHANGES IN THE WORK

Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

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

Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.

Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

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

Include costs of labor and supervision directly attributable to the change.

Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

Quotation Form: Use forms acceptable to Architect.

Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

Include a statement outlining reasons for the change and the effect of the change on the Work.

Provide a complete description of the proposed change. Indicate the effect of the

proposed change on the Contract Sum and the Contract Time.
Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts. Include costs of labor and supervision directly attributable to the change.
Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
Proposal Request Form: Use form acceptable to Architect.

1.5 CHANGE ORDER PROCEDURES

On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 .

1.6 CONSTRUCTION CHANGE DIRECTIVE

Change Directive: Architect may issue a Change Directive on AIA Document G714 . Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

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

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

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION **012600**

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

DEFINITIONS

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

1.3 SCHEDULE OF VALUES

Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

Correlate line items in the schedule of values with other required administrative forms and schedules, including the following:

Application for Payment forms with continuation sheets.

Submittal schedule.

Items required to be indicated as separate activities in Contractor's construction schedule.

Submit the schedule of values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

Arrange schedule of values consistent with format of AIA Document G703.

Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of Contract Sum.

Include separate line items under Contractor and principal subcontracts for project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.

Round amounts to nearest whole dollar; total shall equal the Contract Sum.

Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.

Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.

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

1.4 APPLICATIONS FOR PAYMENT

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

Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

Entries shall match data on the schedule of values and Contractor's construction schedule.

Use updated schedules if revisions were made.

Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.

Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

Indicate separate amounts for work being carried out under Owner-requested project acceleration.

Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.

Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.

Provide summary documentation for stored materials indicating the following:

Materials previously stored and included in previous Applications for Payment.

Work completed for this Application utilizing previously stored materials.
Additional materials stored with this Application.
Total materials remaining stored, including materials with this Application.

Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION **012900**

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.3 USE CHARGES

Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 PROJECT CONDITIONS

Temporary Use of Permanent Facilities: Engage installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

EQUIPMENT

Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 TEMPORARY UTILITY INSTALLATION

Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

3.2 SUPPORT FACILITIES INSTALLATION

Parking: Use designated areas of Owner's existing parking areas for construction personnel.

Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements.

Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

Prohibit smoking in construction areas.

Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.

Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.4 MOISTURE AND MOLD CONTROL

Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.

Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

Protect porous materials from water damage.

Protect stored and installed material from flowing or standing water.

Keep porous and organic materials from coming into prolonged contact with concrete.
Remove standing water from decks.
Keep deck openings covered or dammed.

END OF SECTION **015000**

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

- Substantial Completion procedures.
- Final completion procedures.
- Warranties.
- Final cleaning.

Related Sections:

Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete with request.

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

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

1.4 FINAL COMPLETION

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

Reinspection: Request reinspection when the Work identified in previous inspections as

incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1.6 WARRANTIES

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

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

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

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

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

Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide table of contents at beginning of document.

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

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 FINAL CLEANING

General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each

surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls." and Division 01 Section "Construction Waste Management and Disposal."

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

Section includes administrative and procedural requirements for project record documents, including the following:

- Record Drawings.
- Record Specifications.
- Record Product Data.
- Miscellaneous record submittals.

Related Sections:

Divisions 02 through 49 Sections for specific requirements for project record documents of the Work in those Sections.

1.3 CLOSEOUT SUBMITTALS

Record Drawings: Comply with the following:

Number of Copies: Submit one set(s) of marked-up record prints.

Record Specifications: Submit one paper copy or annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.

Record Product Data: Submit one paper copy or annotated PDF electronic files and directories of each submittal.

Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings.

Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether

individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.

Accurately record information in an acceptable drawing technique.

Record data as soon as possible after obtaining it.

Record and check the markup before enclosing concealed installations.

Cross-reference record prints to corresponding archive photographic documentation.

Mark the Contract Drawings and Shop Drawings completely and accurately. Utilize personnel proficient at recording graphic information in production of marked-up record prints.

Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

Mark important additional information that was either shown schematically or omitted from original Drawings.

Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

Format: Annotated PDF electronic file with comment function enabled.

Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

Format: Annotated PDF electronic file with comment function enabled.

Identification: As follows:

Project name.

Date.

Designation "PROJECT RECORD DRAWINGS."

Name of Architect.

Name of Contractor.

2.2 RECORD SPECIFICATIONS

Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

Format: Submit record Specifications as scanned PDF electronic file(s) of marked up paper copy of Specifications.

2.3 RECORD PRODUCT DATA

Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

Include significant changes in the product delivered to Project site and changes in

manufacturer's written instructions for installation.

If Note related Change Orders, record Specifications, and record Drawings where applicable.

Format: Submit record Product Data as scanned PDF electronic file(s) of marked up paper copy of Product Data.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and modifications to project record documents as they occur; do not wait until the end of Project.

END OF SECTION **017839**

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

Footings.
Slabs-on-grade.

1.3 DEFINITIONS

Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 ACTION SUBMITTALS

Product Data: For each type of product indicated.

1.5 QUALITY ASSURANCE

Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

Formulate form-release agent with rust inhibitor for steel form-facing materials.

Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.

Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.

Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCEMENT

Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

2.3 REINFORCEMENT ACCESSORIES

Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete.

2.4 CONCRETE MATERIALS

Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

Portland Cement: ASTM C 150, Type I, gray .

Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.

Maximum Coarse-Aggregate Size: 3/4 inch nominal.

Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

Water: ASTM C 94/C 94M.

2.5 CURING MATERIALS

Water: Potable.

2.6 CONCRETE MIXTURES, GENERAL

Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

2.7 FABRICATING REINFORCEMENT

Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

PART 3 - EXECUTION

3.1 FORMWORK

Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

Construct forms tight enough to prevent loss of concrete mortar.

Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 STEEL REINFORCEMENT

General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.4 CONCRETE PLACEMENT

Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.

Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.

Maintain reinforcement in position on chairs during concrete placement.

Screed slab surfaces with a straightedge and strike off to correct elevations.

Slope surfaces uniformly to drains where required.

Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature

range required by ACI 301.

Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

Hot-Weather Placement: Comply with ACI 301 and as follows:

Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.5 FINISHING FORMED SURFACES

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.

3.6 FINISHING SLABS

Broom Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

Apply a light broom finish to walking surfaces exposed to view.

3.7 MISCELLANEOUS CONCRETE ITEMS

Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

3.8 CONCRETE PROTECTING AND CURING

General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

END OF SECTION 033000

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 INFORMATIONAL SUBMITTALS

Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.

1.3 QUALITY ASSURANCE

Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

1.4 PROJECT CONDITIONS

Do not proceed with installation of joint sealants under the following conditions:

When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.

When joint substrates are wet.

Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.

Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.5 WARRANTY

Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.

Disintegration of joint substrates from natural causes exceeding design specifications.

Mechanical damage caused by individuals, tools, or other outside agents.

Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

Colors of Exposed Joint Sealants: Match adjacent materials.

General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated
MISCELLANEOUS MATERIALS

Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

- Concrete.
- Masonry.

Remove laitance and form-release agents from concrete.

Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

- Metal.
- Glass.

Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

Do not leave gaps between ends of sealant backings.

Do not stretch, twist, puncture, or tear sealant backings.

Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

Install sealants using proven techniques that comply with the following and at the same time backings are installed:

Place sealants so they directly contact and fully wet joint substrates.
Completely fill recesses in each joint configuration.
Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

Remove excess sealant from surfaces adjacent to joints.
Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.

Use masking tape to protect surfaces adjacent to recessed tooled joints.

Installation of Preformed Silicone-Sealant System: Comply with the following requirements:

Apply masking tape to each side of joint, outside of area to be covered by sealant system.
Apply silicone sealant to each side of joint to produce a bead of size complying with preformed silicone-sealant system manufacturer's written instructions and covering a bonding area of not less than 3/8 inch. Hold edge of sealant bead 1/4 inch inside masking tape.
Within 10 minutes of sealant application, press silicone extrusion into sealant to wet extrusion and substrate. Use a roller to apply consistent pressure and ensure uniform contact between sealant and both extrusion and substrate.
Complete installation of sealant system in horizontal joints before installing in vertical joints.
Lap vertical joints over horizontal joints. At ends of joints, cut silicone extrusion with a razor knife.

Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping. Do not pull or stretch material. Produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures, apply heat to sealant in compliance with sealant manufacturer's written instructions.

Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations.

3.4 CLEANING

Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Standard hollow metal doors and frames.

- B. Related Sections:

- 1. Division 08 Section "Door Hardware" for door hardware for hollow metal doors
 - 2. Division 09 Sections " Painting" for field painting hollow metal doors and frames

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings.

Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SDI A250.8.

Custom Hollow Metal Work: Hollow metal work fabricated according to ANSI/NAAMM-HMMA 861.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, fire-resistance rating, temperature-rise ratings, and finishes.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of hollow metal door and frame assembly.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.

Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
 - 1. Provide additional protection to prevent damage to finish of factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum ~~4-inch~~ high wood blocking. Do not store in a manner that traps excess humidity.

- 1. Provide minimum ~~1/4-inch~~ space between each stacked door to permit air circulation.

1.8 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.9 COORDINATION

- A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Amweld Building Products, LLC.
Benchmark; a division of Therma-Tru Corporation.
Ceco Door Products; an Assa Abloy Group company.
Curries Company; an Assa Abloy Group company.
Deansteel Manufacturing Company, Inc.
Firedoor Corporation.
Fleming Door Products Ltd.; an Assa Abloy Group company.

Habersham Metal Products Company.
Karpen Steel Custom Doors & Frames.
Kewanee Corporation (The).
Security Metal Products Corp.
Steelcraft; an Ingersoll-Rand company.
Windsor Republic Doors.

2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum **G60** or **A60** metallic coating.

Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), **40Z** coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

- B. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow metal frames of type indicated.

Grout: ASTM C 476, except with a maximum slump of **4 inches**, as measured according to ASTM C 143/C 143M.

Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with **6- to 12-lb/cu. ft.** density; with maximum flame-spread and smoke-development indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

Glazing: Comply with requirements in Division 08 Section "Glazing."

Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for **15-mil** dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.3 STANDARD HOLLOW METAL DOORS

- A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8.

1. Design: Flush panel.

Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.

- a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.

Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value (R-value) of not less than **12.3 deg F x h x sq. ft./Btu** when tested according to ASTM C 1363.

- 1) Locations: Exterior doors.

2. Vertical Edges for Single-Acting Doors: Square edge.

Vertical Edges for Double-Acting Doors: Round vertical edges with **2-1/8-inch** radius.

Top and Bottom Edges: Closed with flush or inverted **0.042-inch-** thick, end closures or channels of same material as face sheets.

Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

- B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

- 1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).

- C. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.4 STANDARD HOLLOW METAL FRAMES

- A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.

Exterior Frames: Fabricated from metallic-coated steel sheet.

- 1. Fabricate frames with mitered or coped corners.

Fabricate frames as full profile welded unless otherwise indicated.

Frames for Level 2 Steel Doors: **0.053-inch-** thick steel sheet.

- B. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

- A. Jamb Anchors:

- 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than **0.042 inch** thick, with corrugated or perforated straps not less than **2 inches** wide by **10 inches** long; or wire anchors not less than **0.177 inch** thick.

Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.

B. Floor Anchors: Formed from same material as frames, not less than **0.042 inch** thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.6 STOPS AND MOLDINGS

A. Moldings for Glazed Lites in Doors: Minimum **0.032 inch** thick, fabricated from same material as door face sheet in which they are installed.

Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of **5/8 inch** high unless otherwise indicated.

Terminated Stops: Where indicated on interior door frames, terminate stops **6 inches** above finish floor with a 90-degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.

1. Provide terminated stops unless otherwise indicated.

2.7 ACCESSORIES

A. Grout Guards: Formed from same material as frames, not less than **0.016 inch** thick.

2.8 FABRICATION

A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/NAAMM-HMMA 861.

Hollow Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.

B. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.

Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.

Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot

welds per anchor.

Jamb Anchors: Provide number and spacing of anchors as follows:

- a. Masonry Type: Locate anchors not more than **18 inches** from top and bottom of frame. Space anchors not more than **32 inches** o.c. and as follows:
 - 1) Two anchors per jamb up to **60 inches** high.
Three anchors per jamb from **60 to 90 inches** high.
Four anchors per jamb from **90 to 120 inches** high.
 2. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
- C. Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold- or hot-rolled steel sheet.

Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to ANSI/NAAMM-HMMA 861.
Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.
- D. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
1. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.9 STEEL FINISHES

- A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.
 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.

For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness to the following tolerances:

- 1. Squareness: Plus or minus **1/16 inch**, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
Alignment: Plus or minus **1/16 inch**, measured at jambs on a horizontal line parallel to plane of wall.
Twist: Plus or minus **1/16 inch**, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
Plumbness: Plus or minus **1/16 inch**, measured at jambs on a perpendicular line from head to floor.

- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with HMMA 840.

- 1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint

continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.

Install frames with removable glazing stops located on secure side of opening.

Install door silencers in frames before grouting.

Remove temporary braces necessary for installation only after frames have been properly set and secured.

Check plumbness, squareness, and twist of frames as walls are constructed.

Shim as necessary to comply with installation tolerances.

Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

B. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

Smoke-Control Doors: Install doors according to NFPA 105.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

Remove grout and other bonding material from hollow metal work immediately after installation.

Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Solid-core doors with wood-veneer faces.
Factory fitting flush wood doors to frames and factory machining for hardware.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of door indicated. Include details of core and edge construction[, louvers,] and trim for openings. Include factory-finishing specifications.

Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.

- 1. Indicate dimensions and locations of mortises and holes for hardware.
Indicate dimensions and locations of cutouts.
Indicate requirements for veneer matching.
Indicate doors to be factory finished and finish requirements.
Indicate fire-protection ratings for fire-rated doors.

- B. Samples for Initial Selection: For factory-finished doors.

Samples for Verification:

- 1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.
Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used.
 - a. Provide samples for each species of veneer and solid lumber required. Finish veneer-faced door samples with same materials proposed for factory-finished doors.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain flush wood doors from single manufacturer.

Quality Standard: In addition to requirements specified, comply with AWI's "Architectural Woodwork Quality Standards Illustrated."

1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.

Package doors individually in plastic bags or cardboard cartons.

Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.

2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.

Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Algoma Hardwoods, Inc.
Ampco, Inc.
Eagle Plywood & Door Manufacturing, Inc.
Graham; an Assa Abloy Group company.
Ideal Architectural Doors & Plywood.

Marlite.
Mohawk Flush Doors, Inc.; a Masonite company.
Oshkosh Architectural Door Company.
VT Industries Inc.

2.2 DOOR CONSTRUCTION, GENERAL

Structural-Composite-Lumber-Core Doors:

1. Structural Composite Lumber: WDMA I.S.10.
 - a. Screw Withdrawal, Face: 700 lbf.
Screw Withdrawal, Edge: 400 lbf.

2.3 VENEERED-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Solid-Core Doors :

1. Grade: Custom (Grade A faces).
Species: Select white birch.
Cut: Rotary cut.
Match between Veneer Leaves: Pleasing match.
Assembly of Veneer Leaves on Door Faces: Center-balance match.
Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
Room Match: Match door faces within each separate room or area of building.
Corridor-door faces do not need to match where they are separated by 10 feet or more.
Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
Exposed Vertical and Top Edges: Same species as faces or a compatible species.
Core: Structural composite lumber.
Construction: Five or seven plies. Stiles and rails are bonded to core, and then entire unit abrasive planed before veneering. Faces are bonded to core using a hot press.

2.4 LIGHT FRAMES

- A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads as follows unless otherwise indicated.
 1. Wood Species: Same species as door faces.
Profile: Flush rectangular beads.
- B. Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire-protection rating indicated. Include concealed metal glazing clips where required for opening size and fire-protection rating indicated.

2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
 - 1. Comply with requirements in NFPA 80 for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
 - 1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
- C. Openings: Cut and trim openings through doors in factory.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Division 08 Section "Glazing."

2.6 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 - 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.

- B. Finish doors at factory.

Finish doors at factory that are indicated to receive transparent finish. Field finish doors indicated to receive opaque finish.

Finish doors at factory where indicated in schedules or on Drawings as factory finished.

Transparent Finish:

- 1. Grade: Custom.
Finish: AWI conversion varnish or catalyzed polyurethane system.
Staining: As selected by Architect from manufacturer's full range.
Effect: Filled finish.
Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames before hanging doors.
 - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.

Reject doors with defects.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Division 08 Section "Door Hardware."

Installation Instructions: Install doors to comply with manufacturer's written instructions and the referenced quality standard, and as indicated.

1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.

- B. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.

Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081416

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - Mechanical door hardware.
 - Cylinders for door hardware.
- B. Related Sections:
 - Division 08 Section "Hollow Metal Doors and Frames".

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.

Samples for Verification: For exposed door hardware of each type required, in each finish specified, prepared on Samples of size indicated below. Tag Samples with full description for coordination with the door hardware schedule. Submit Samples before, or concurrent with, submission of door hardware schedule.

Other Action Submittals:

1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - a. Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.
 - Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule." Double space entries, and number and date each page.
 - Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
 - Content: Include the following information:

- 1) Identification number, location, hand, fire rating, size, and material of each door and frame.
Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
Fastenings and other pertinent information.
Explanation of abbreviations, symbols, and codes contained in schedule.
Mounting locations for door hardware.
List of related door devices specified in other Sections for each door and frame.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and Architectural Hardware Consultant.

Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for door hardware on doors located in accessible routes.

Warranty: Special warranty specified in this Section.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and an Architectural Hardware Consultant who is available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.

Architectural Hardware Consultant Qualifications: A person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as follows:

Source Limitations: Obtain each type of door hardware from a single manufacturer.

Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise

indicated.

Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meet requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.

Accessibility Requirements: For door hardware on doors in an accessible route, comply with the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.

Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.

1.9 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete. Concrete, reinforcement, and formwork requirements are specified in Division 03.

Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.

1.10 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

- 1. Failures include, but are not limited to, the following:

- a. Structural failures including excessive deflection, cracking, or breakage. Faulty operation of doors and door hardware. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.

- 2. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.

- a. Exit Devices: Two years from date of Substantial Completion.
Manual Closers: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. Provide door hardware for each door as scheduled on Drawings to comply with requirements in this Section.
 - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products complying with BHMA designations referenced.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:
 - 1. References to BHMA Designations: Provide products complying with these designations and requirements for description, quality, and function.

2.2 HINGES

- A. Hinges: BHMA A156.1. Heavy Duty. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - Baldwin Hardware Corporation.
 - Cal-Royal Products, Inc.
 - PBB, Inc.
 - Stanley Commercial Hardware; Div. of The Stanley Works.

2.3 MECHANICAL LOCKS AND LATCHES

- A. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
 - 1. Bored Locks: Minimum 1/2-inch latchbolt throw.
Deadbolts: Minimum 1-inch bolt throw.
- B. Lock Trim:
Dummy Trim: Match lever lock trim and escutcheons.

2.4 EXIT DEVICES AND AUXILIARY ITEMS

- A. Exit Devices and Auxiliary Items: BHMA A156.3.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

ASSA ABLOY

Corbin Russwin Architectural Hardware; an ASSA ABLOY Group company.

Dor-O-Matic; an Ingersoll-Rand company.

Von Duprin; an Ingersoll-Rand company.

Yale Security Inc.; an ASSA ABLOY Group company.

- B. Outside : Pull with Keyed Lock

2.5 LOCK CYLINDERS

- A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.

1. Manufacturer: Same manufacturer as for locking devices.

- B. Standard Lock Cylinders: BHMA A156.5; Grade 1; permanent cores that are interchangeable; face finished to match lockset.

High-Security Lock Cylinders: BHMA A156.30; Grade 1; Type M, mechanical; permanent cores that are removable; face finished to match lockset.

2.6 KEYING –Provided by Owner

2.7 OPERATING TRIM

- A. Operating Trim: BHMA A156.6; stainless steel, unless otherwise indicated.

2.8 SURFACE CLOSERS

- A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

2.9 DOOR GASKETING

- A. Door Gasketing: BHMA A156.22; air leakage not to exceed **0.50 cfm per foot** of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Hager Companies.
National Guard Products.
Pemko Manufacturing Co.; an ASSA ABLOY Group company.
Reese Enterprises, Inc.

2.10 THRESHOLDS

- A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Hager Companies.
National Guard Products.
Pemko Manufacturing Co.; an ASSA ABLOY Group company.
Reese Enterprises, Inc.

2.11 MECHANICAL STOPS AND HOLDERS

- 1. Wall- and Floor-Mounted Stops: BHMA A156.16; polished cast brass, bronze, or aluminum base metal.

2.12 METAL PROTECTIVE TRIM UNITS

- A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch- thick stainless steel; with manufacturer's standard machine or self-tapping screw fasteners.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - Baldwin Hardware Corporation.
 - Burns Manufacturing Incorporated.
 - Don-Jo Mfg., Inc.
 - IVES Hardware; an Ingersoll-Rand company.
 - Trimco.

2.13 FABRICATION

- A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by Architect.
 - 1. Manufacturer's identification is permitted on rim of lock cylinders only.
- B. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.

Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.

1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
2. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."
Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

2.14 FINISHES - Match existing hardware finishes in building

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.

Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."

3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights indicated on Drawings unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
Custom Steel Doors and Frames: HMMA 831.
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 09 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
 - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

Lock Cylinders: Install construction cores to secure building and areas during construction period.

Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."

Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.

Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.4 FIELD QUALITY CONTROL

- A. Independent Architectural Hardware Consultant: Owner will engage a qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
 - 1. Independent Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be

adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

B. Occupancy Adjustment: Approximately three months after date of Substantial Completion, Installer's Architectural Hardware Consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

3.6 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

Clean operating items as necessary to restore proper function and finish.

Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

HARDWARE SETS:

HW SET: A

3 EA HINGE
1 EA LOCKSET
1 EA LEAVER HAND GRIP
1 EA WALL STOP
1 EA KICK PLATE

HW SET: B

2 EA HINGE
1 EA LOCKSET
1 EA LEAVER HAND GRIP
1 EA WALL STOP
1 EA KICK PLATE

HW SET: C

3 EA HINGE
1 EA LOCKSET
1 EA EXIT HARDWARE
1 EA WALL STOP
1 EA WEATHER STRIPPING
1 EA KICK PLATE

END OF SECTION 087100

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:

1. Windows.
2. Doors.

1.3 DEFINITIONS

- A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.

QUALITY ASSURANCE

- B. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved and certified by coated-glass manufacturer.

Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.

Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.

Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.

Source Limitations for Glass: Obtain from single source from single manufacturer for each glass type.

Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are

indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA Publications: GANA's "Laminated Glazing Reference Manual" and GANA's "Glazing Manual."
AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR-A7, "Sloped Glazing Guidelines."
IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

- C. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

Comply with insulating-glass manufacturer's written recommendations for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

PART 2 - PRODUCTS

2.1 GLASS PRODUCTS, GENERAL

- A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.

1. Minimum Glass Thickness for Exterior Lites: Not less than 6.0 mm.
Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.

- B. Strength: Where float glass is indicated, provide annealed float glass, Kind HS heat-treated float glass, or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened glass is indicated, provide Kind HS heat-treated float glass or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.

2.2 GLASS PRODUCTS

- A. Float Glass: ASTM C 1036, Type I, Quality-Q3, Class I (clear) unless otherwise indicated.

Ultraclear Float Glass: ASTM C 1036, Type I, Quality-Q3, Class I, complying with other

requirements specified and with visible light transmission not less than 91 percent and solar heat gain coefficient not less than 0.87.

1. Products: Subject to compliance with requirements, [provide the following] [provide one of the following] [available products that may be incorporated into the Work include, but are not limited to, the following]:

- a. AFG Industries, Inc.; Krystal Klear.
Guardian Industries Corp.; Ultrawhite.
Pilkington North America; Optiwhite.
PPG Industries, Inc.; Starphire.

2.3 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

Grind smooth and polish exposed glass edges and corners.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
Presence and functioning of weep systems.
Minimum required face and edge clearances.
Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

3.4 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.

Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.

Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.

Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION 088000

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes non-load-bearing steel framing members for the following applications:
 - 1. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).
- B. Related Sections include the following:
 - 1. None

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

Framing Members, General: Comply with ASTM C 754 for conditions indicated.

- 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
Protective Coating: ASTM A 653/A 653M, G60, hot-dip galvanized, unless otherwise indicated.

2.2 STEEL FRAMING FOR FRAMED ASSEMBLIES

- A. Steel Studs and Runners: ASTM C 645.
 - 1. Minimum Base-Metal Thickness: 0.0312 inch.
Depth: As indicated on Drawings.
- B. Slip-Type Head Joints: Where indicated, provide one of the following:
 - 1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
Products: Subject to compliance with requirements, provide one of the following:
 - 1) Steel Network Inc. (The); VertiClip SLD Series.
Superior Metal Trim; Superior Flex Track System (SFT).
- C. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 - 1. Minimum Base-Metal Thickness: 0.0312 inch.
- D. Cold-Rolled Channel Bridging: 0.0538-inch bare-steel thickness, with minimum 1/2-inch wide flanges.
 - 1. Depth: As indicated on Drawings.
Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch thick, galvanized steel.

2.3 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
 - 1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
 - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.
- B. Coordination with Sprayed Fire-Resistive Materials:
 - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754, except comply with framing sizes and spacing indicated.
- B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

Install bracing at terminations in assemblies.

Do not bridge building control and expansion joints with non-load-bearing steel

framing members. Frame both sides of joints independently.

Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.4 INSTALLING FRAMED ASSEMBLIES

- A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

Install studs so flanges within framing system point in same direction.

1. Space studs as follows:

- a. Single-Layer Application: 16 inches o.c., unless otherwise indicated.

Multilayer Application: 16 inches o.c., unless otherwise indicated.

Tile backing panels: 16 inches o.c., unless otherwise indicated.

- B. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.

Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

- a. Install two studs at each jamb, unless otherwise indicated.

Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.

Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

2. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.

Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

- a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

- C. Direct Furring:
Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- D. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Interior gypsum board.
 - 2. Tile backing panels.
- B. Related Sections include the following:
 - Division 09 Section "Non Structural Metal Framing" for metal stud framing.
 - Division 09 painting Sections for primers applied to gypsum board surfaces.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

1.5 STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

Do not install interior products until installation areas are enclosed and conditioned.

Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PANELS, GENERAL

Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 INTERIOR GYPSUM BOARD

- A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.
Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Gypsum Co.
BPB America Inc.
G-P Gypsum.
Lafarge North America Inc.
National Gypsum Company.
USG Corporation.
Temple-Inland.
- B. Gypsum Board, Type X: ASTM C 1396/C 1396M.
 1. Basis-of-Design Product: Georgia-Pacific Gypsum; "ToughRock Fireguard Gypsum Board."
 2. Thickness: 5/8 inch (15.9 mm).
 3. Long Edges: Tapered
- C. Abuse-Resistant Type: Manufactured to produce greater resistance to surface indentation, through-penetration (impact resistance), and abrasion than standard, regular-type and Type X gypsum board.
 1. Core: 5/8 inch.
Long Edges: Tapered.

2.3 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
Shapes:

a. Cornerbead.

Bullnose bead.

LC-Bead: J-shaped; exposed long flange receives joint compound.

L-Bead: L-shaped; exposed long flange receives joint compound.

U-Bead: J-shaped; exposed short flange does not receive joint compound.

Expansion (control) joint.

2.4 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

Joint Tape:

1. Interior Gypsum Wallboard: Paper.

Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.

Tile Backing Panels: As recommended by panel manufacturer.

B. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.

Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.

a. Use setting-type compound for installing paper-faced metal trim accessories.

2. Fill Coat: For second coat, use drying-type, all-purpose compound.

Finish Coat: For third coat, use drying-type, all-purpose compound.

2.5 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

For fastening cementitious backer units, use screws of type and size

recommended by panel manufacturer.

- C. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- D. Thermal Insulation: As specified in Division 07 Section "Thermal Insulation."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance.

Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.

Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

Form control and expansion joints with space between edges of adjoining gypsum panels.

Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

- 1. Unless concealed application is indicated or required for sound, fire, air,

or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.

Fit gypsum panels around ducts, pipes, and conduits.

Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch wide joints to install sealant.

- B. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Single-Layer Application:

- 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.

On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

- a. Stagger abutting end joints not less than one framing member in alternate courses of panels.

At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.

- 2. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

Install with 1/4-inch gap where panels abut other construction or penetrations.

3.4 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners, unless otherwise indicated.
- LC-Bead: Use at exposed panel edges.
- U-Bead: Use at exposed panel edges.

3.5 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

Prefill open joints, rounded or beveled edges, and damaged surface areas.

Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
- Level 4: At panel surfaces that will be exposed to view, unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in other Division 09 Sections.

3.6 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 093013 - CERAMIC TILING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Ceramic mosaic tile.
 - 2. Glazed wall tile.
 - 3. Tile backing panels.
 - 4. Waterproof membrane[for thinset applications].
 - 5. Metal edge strips.
- B. Related Requirements:
 - 1. Section 092900 "Gypsum Board" for cementitious backer units.

1.3 DEFINITIONS

- A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.
- B. ANSI A108 Series: ANSI A108.01, ANSI A108.02, ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.4, ANSI A108.5, ANSI A108.6, ANSI A108.8, ANSI A108.9, ANSI A108.10, ANSI A108.11, ANSI A108.12, ANSI A108.13, ANSI A108.14, ANSI A108.15, ANSI A108.16, and ANSI A108.17, which are contained in its "Specifications for Installation of Ceramic Tile."
- C. Module Size: Actual tile size plus joint width indicated.
- D. Face Size: Actual tile size, excluding spacer lugs.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site
 - 1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
- C. Samples for Verification:
 - 1. Full-size units of each type and composition of tile and for each color and finish required
 - 2. Assembled samples mounted on a rigid panel, with grouted joints, for each type and composition of tile and for each color and finish required.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.
- C. Product Certificates: For each type of product.
- D. Product Test Reports: For tile-setting and -grouting products

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.
 - 2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Installer is a five-star member of the National Tile Contractors Association
 - 2. Installer's supervisor for Project holds the International Masonry Institute's Foreman Certification.
 - 3. Installer employs Ceramic Tile Education Foundation Certified Installers

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

- D. Store liquid materials in unopened containers and protected from freezing.

1.10 FIELD CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Tile: Obtain tile from single source or producer.
 - 1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from single manufacturer and each aggregate from single source or producer.
 - 1. Obtain setting and grouting materials, except for unmodified Portland cement and aggregate, from single manufacturer.
 - 2. Obtain waterproof membrane, except for sheet products, from manufacturer of setting and grouting materials.
- C. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer:
 - 1. Waterproof membrane.
 - 2. Cementitious backer units.

2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
 - 1. Provide tile complying with Standard grade requirements.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA installation methods specified in tile installation schedules, and other requirements specified.
- C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
- D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

2.3 TILE PRODUCTS

A. Ceramic Tile Type: Factory-mounted glazed ceramic mosaic tile.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Marazzi Tile, Inc.
 - b. American Olean; a division of Dal-Tile Corporation.
 - c. Crossville, Inc.
 - d. Daltile.
 - e. Deutsche Steinzeug America, Inc.
 - f. Grupo Porcelanite.
 - g. Interceramic.
 - h. Iris US.
 - i. Jeffrey Court Inc.
 - j. Lone Star Ceramics; Elgin Butler.
 - k. Portobello America, Inc.
 - l. Seneca Tiles, Inc.
2. Composition: Porcelain.
3. Certification: Porcelain tile certified by the Porcelain Tile Certification Agency.
4. Module Size: TBD
5. Thickness: 1/4 inch (6.4 mm).
6. Face: Plain with cushion edges.
7. Surface: Smooth, without abrasive admixture.
8. Dynamic Coefficient of Friction: Not less than 0.42.
9. Finish: Bright, opaque glaze.
10. Tile Color and Pattern: As indicated by manufacturer's designations
11. Grout Color: As indicated by manufacturer's designations.
12. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
 - a. Base Cove: Cove, module size TBD
 - b. Base Cap for Thinset Mortar Installations: Surface bullnose, module size 1 by 1 inch (25.4 by 25.4 mm)
 - c. Wainscot Cap for Thinset Mortar Installations: Surface bullnose, module size 1 by 1 inch (25.4 by 25.4 mm)
 - d. External Corners for Thinset Mortar Installations: Surface bullnose, module size 1 by 1 inch (25.4 by 25.4 mm) .
 - e. Internal Corners: Cove, module size 1 by 1 inch (25.4 by 25.4 mm).
 - f. Internal Corners: Field-buttet square corners. For coved base and cap, use angle pieces designed to fit with stretcher shapes.
 - g. Tapered Transition Tile: Shape designed to effect transition between thickness of tile floor and adjoining floor finishes of different thickness, tapered to provide reduction in thickness from 1/2 to 1/4 inch (12.7 to 6.4 mm) across nominal 4-inch (100-mm) dimension.

B. Ceramic Tile Type : Glazed wall tile.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Marazzi Tile, Inc.
 - b. American Olean; a division of Dal-Tile Corporation.
 - c. Daltile.
 - d. Grupo Porcelanite.
 - e. Jeffrey Court Inc.
 - f. Seneca Tiles, Inc.
 - g. <Insert manufacturer's name>.
2. Module Size: TBD.
3. Face Size Variation: Rectified.
4. Thickness: 5/16 inch (8 mm).
5. Face: Plain with modified square edges or cushion edges.
6. Finish: Bright, opaque glaze.
7. Tile Color and Pattern: As indicated by manufacturer's.
8. Grout Color: As indicated by manufacturer's designations.
9. Mounting: Factory, back mounted.
10. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
 - a. External Corners for Thinset Mortar Installations: Surface bullnose, same size as adjoining flat tile.
 - b. Internal Corners: Field-buttet square corners. For coved base and cap use angle pieces designed to fit with stretcher shapes.

2.4 THRESHOLDS

- A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.
 1. Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to 1/16 inch (1.5 mm) above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 1/2 inch (12.7 mm) or less above adjacent floor surface.
- B. Granite Thresholds: ASTM C 615/C 615M, with polished finish.
 1. Description: Match Architect's sample.

2.5 TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A118.9 or ASTM C 1325, Type A, in maximum lengths available to minimize end-to-end butt joints.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide USG Corporation; USG Durock® or a comparable product by one of the following:
 - a. C-Cure.
 - b. Custom Building Products.
 - c. FinPan, Inc.
 - d. Georgia-Pacific Building Products.
 2. Thickness: 1/2 inch (12.7 mm).

2.6 WATERPROOF MEMBRANE

- A. General: Manufacturer's standard product that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and continuous fabric reinforcement.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Boiardi Products Corporation; a QEP company.
 - b. Bonsal American, an Oldcastle company.
 - c. Bostik, Inc.
 - d. Custom Building Products.
 - e. H.B. Fuller Construction Products Inc. / TEC.
 - f. LATICRETE SUPERCAP, LLC.
 - g. MAPEI Corporation.
 - h. Merkrete by Parex USA, Inc.
 - i. Southern Grouts & Mortars, Inc.
 - j. Summitville Tiles, Inc.

2.7 SETTING MATERIALS

- A. Standard Dry-Set Mortar (Thinset): ANSI A118.1.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Boiardi Products Corporation; a QEP company.
 - b. Bonsal American, an Oldcastle company.
 - c. Bostik, Inc.
 - d. C-Cure.
 - e. Custom Building Products.
 - f. H.B. Fuller Construction Products Inc. / TEC.
 - g. Jamo Inc.
 - h. LATICRETE SUPERCAP, LLC.
 - i. MAPEI Corporation.
 - j. Southern Grouts & Mortars, Inc.
 - k. Summitville Tiles, Inc.
 - 2. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.1.

2.8 GROUT MATERIALS

- A. Water-Cleanable Epoxy Grout: ANSI A118.3.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ARDEX Americas.

- b. Atlas Minerals & Chemicals, Inc.
 - c. Boiardi Products Corporation; a QEP company.
 - d. Bonsal American, an Oldcastle company.
 - e. Bostik, Inc.
 - f. C-Cure.
 - g. Custom Building Products.
 - h. H.B. Fuller Construction Products Inc. / TEC.
 - i. Jamo Inc.
 - j. LATICRETE SUPERCAP, LLC.
 - k. MAPEI Corporation.
 - l. Merkrete by Parex USA, Inc.
 - m. Sauereisen.
 - n. Southern Grouts & Mortars, Inc.
 - o. Summitville Tiles, Inc.
2. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 and 212 deg F (60 and 100 deg C), respectively, and certified by manufacturer for intended use.
 3. 100% Solids epoxy grout

2.9 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Vapor-Retarder Membrane: Polyethylene sheeting, ASTM D 4397, 4.0 mils (0.1 mm) thick.
- C. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
- D. Floor Sealer: Manufacturer's standard product for sealing grout joints and that does not change color or appearance of grout.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bonsal American, an Oldcastle company.
 - b. Custom Building Products.
 - c. Jamo Inc.
 - d. Southern Grouts & Mortars, Inc.
 - e. Summitville Tiles, Inc.

2.10 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.

- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
 - 2. Verify that concrete substrates for tile floors installed with thinset mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
 - a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
 - b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
 - 3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
 - 4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thinset mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot (1:50) toward drains.
- C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 CERAMIC TILE INSTALLATION

- A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation

methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.

1. For the following installations, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:
 - a. Tile floors in wet areas.
 - b. Tile floors in laundries.
 - B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
 - C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
 - D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
 - E. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
 - F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 1. Ceramic Mosaic Tile: 1/8 inch (3.2 mm).
 2. Glazed Wall Tile: 1/8 inch (3.2 mm).
 - G. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.
 - H. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
 - I. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.
 - J. Floor Sealer: Apply floor sealer to cementitious grout joints in tile floors according to floor-sealer manufacturer's written instructions. As soon as floor sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.
- 3.4 TILE BACKING PANEL INSTALLATION
- A. Install panels and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated

3.5 WATERPROOFING INSTALLATION

- A. Install waterproofing to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.
- B. Allow waterproofing to cure and verify by testing that it is watertight before installing tile or setting materials over it.

3.6 CRACK ISOLATION MEMBRANE INSTALLATION

- A. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.
- B. Allow crack isolation membrane to cure before installing tile or setting materials over it.

3.7 ADJUSTING AND CLEANING

- A. Remove and replace tile that is damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.
- B. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove grout residue from tile as soon as possible.
 - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

3.8 PROTECTION

- A. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.
- B. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- C. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

3.9 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE

- A. Interior Floor Installations, Concrete Subfloor:
 - 1. Ceramic Tile Installation : TCNA F113; thinset mortar.
 - a. Thinset Mortar: Standard dry-set mortar.
 - b. Grout: Water-cleanable epoxy grout.

2. Ceramic Tile Installation <Insert designation>: TCNA F122; thinset mortar on waterproof membrane.
 - a. Thinset Mortar: Modified dry-set mortar.
 - b. Grout: Water cleanable epoxy grout.

B. Bathtub/Shower Wall Installations, Wood or Metal Studs or Furring:

1. Ceramic Tile Installation : TCNA W245 or TCNA W248; thinset mortar on glass-mat, water-resistant gypsum backer board.
 - a. Thinset Mortar: Standard dry-set mortar.
 - b. Grout: Water-cleanable epoxy grout.

END OF SECTION 093013

SECTION 096613.16 MONOLITHIC TERRAZZO FLOORING

PART 1 - GENERAL

1.01 SUMMARY

A. Related Documents

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

B. Section includes:

1. Portland cement terrazzo, monolithic installation with divider and accessory strips.

C. Related Requirements:

1. Provide floor drains at Portland cement terrazzo flooring,.
2. Set architectural reveals or metal base beads requiring installation prior to wall surface, Section
3. Concrete subfloor, Section

1.02 DEFINITIONS

- ##### A. NTMA: National Terrazzo and Mosaic Association, Inc.

1.03 PREINSTALLATION MEETINGS

- ##### A. Pre installation Conference: The General Contractor shall conduct a conference at project site before Terrazzo Contractor begins installation.

1. The General Contractor shall invite Terrazzo Contractor, the Architect and representatives of the Owner.
2. Review methods and procedures related to terrazzo including, but not limited to, the following:
 - a. Inspect and discuss condition of substrate and other preparatory work performed by other trades.
 - b. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
 - c. Review terrazzo mixes and patterns.
 - d. Review custom terrazzo mixes, designs and patterns.
 - e. Coordination with the work of other installers.

1.04 ACTION SUBMITTALS

- ##### A. Shop Drawings: Terrazzo Contractor shall prepare and submit Shop Drawings that include plans, elevations, sections, component details and attachments to other work. Include terrazzo installation requirements. Show layout of the following:

1. Divider strips.
2. Expansion joint strips.
3. Accessory strips.

1.05 INFORMATIONAL SUBMITTALS

- A. Qualification Data: Terrazzo Contractor shall submit two copies of qualification data.
 - 1. Include list of projects indicating name and location of project, name of Owner, name and contact information for General Contractor, and name and contact information for Architect.
 - 2. Include letter from NTMA with the name of the Project and name of member, stating current member status.

1.06 CLOSEOUT SUBMITTALS

- A. Maintenance Literature: Terrazzo Contractor shall submit two copies of NTMA maintenance recommendations.

1.07 QUALITY ASSURANCE

- A. Acceptable Suppliers: A firm experienced in manufacturing products in accordance with NTMA standards and with a record of successful in-service performance, as well as sufficient production capacity to produce required materials.
- B. Acceptable Terrazzo Contractor: A Contractor Member of NTMA whose work has resulted in construction with a record of successful in-service performance.
 - 1. Installer shall have completed terrazzo installations within the past 5 years of scale and complexity similar to the proposed installation.
- C. Source Limitations for Aggregates: Terrazzo Contractor shall obtain each color, grade, type, and variety of granular materials from sources capable of providing materials of consistent quality in appearance and physical properties.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Materials shall be delivered to Project site in supplier's original wrappings and containers, labeled with source or manufacturer's name, material or product brand name and lot number if any.
- B. Materials shall be stored in their original, undamaged packages and containers.

1.09 PROJECT CONDITIONS

- A. General Contractor shall provide sufficient water, temporary heat and light, and adequate electric power with suitable outlets connected and distributed for use within 100 feet of any working space.
- B. General Contractor shall provide temporary enclosures and other suitable methods to protect adjacent spaces from damage during installation.
 - 1. Maintain ambient temperatures in the area to receive terrazzo at not less than 50 deg. F.
 - 2. Maintain adequate ventilation in the area to receive terrazzo.
- C. Terrazzo Contractor shall protect other adjacent work from water and dust generated by grinding operations.

1.10 GUARANTEE

- A. One year from date of completion of terrazzo installation.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Portland Cement: ASTM C 150, Type 1, white.
- B. Water: Potable
- C. Sand: ASTM C 33/C33M, clean, washed, and locally available
- D. Marble Chips:
 - 1. Size: NTMA gradation standards
 - 2. Abrasion and Impact Resistance: Not more than 40 percent loss when tested in accordance with ASTM C 131
 - 3. Chips shall contain no deleterious or foreign matter
- E. Divider Strips:
 - 1. Material: Brass.
 - 2. Strip Thickness: 16 gauge
 - 3. Type: "L" Strips, 1/2 inch
- F. Colorants: Alkali-resistant color stable pigments
- G. Steel Wire Lath: ASTM A 185, galvanized welded wire mesh, 2 by 2 by 16 ga.
- H. Curing Materials: Water or polyethylene sheeting

2.02 MISCELLANEOUS ACCESSORIES

- A. Sealer: Terrazzo Contractor shall provide a non-ambering, clear sealer that is chemically neutral; does not impair terrazzo aesthetics or physical properties; is recommended by terrazzo matrix manufacturer. Sealers shall comply with the following:
 - 1. Comply with requirements of authorities having jurisdiction.
 - 2. Comply with ASTM D 2047.
 - 3. Water Based Sealer Properties: With pH factor between 7 and 10.

2.03 MIXES

- A. Terrazzo Selection: Terrazzo Contractor shall provide standard terrazzo mix(es) according to the following:
 - 1. Mix Color: As selected by Architect from NTMA standard-terrazzo plates
- B. Proportions for Terrazzo Topping: One 94-lb. bag of Portland cement per 150 lb. of marble chips, [color pigment] and sufficient potable water to produce a workable mix
- C. Mixing of Terrazzo Topping:

1. Charge and mix marble chips, portland cement, and color pigment if required.
2. Add water and mix to a uniform workable consistency.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. The General Contractor and Architect shall examine substrates and areas, with Terrazzo Contractor present, for compliance with requirements for installation tolerances and other conditions affecting performance of the work.
 1. Verify that concrete surfaces to receive monolithic terrazzo flooring are sound, free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil and other contaminants incompatible with terrazzo flooring materials.
- B. Terrazzo Contractor shall proceed with installation only after unsatisfactory conditions, including levelness tolerances, have been corrected.

3.02 PREPARATION

- A. General Contractor shall broom clean area to receive terrazzo to remove loose chips and all foreign matter.
- B. Terrazzo Contractor shall mechanically abrade concrete surface.

3.03 POURED-IN-PLACE TERRAZZO INSTALLATION

- A. Strip Materials: Terrazzo Contractor shall install strip materials as follows:
 1. Divider and Control Joint Strips:
 - a. Locate divider strips in locations indicated.
 - b. Install control-joint strips back to back in locations indicated.
 - c. Install strips in adhesive setting bed without voids below strips.
 2. Accessory Strips: Install as required to provide a complete installation.
- B. Placing Terrazzo:
 1. Place terrazzo mixture in panels formed by divider strips and trowel mixture to top of strips.
 2. Seeding of additional marble chips is optional.
 3. Roll and compact surface until all excess cement and water has been extracted.
 4. Trowel to a dense uniform flat surface disclosing lines of divider strips.
- C. Curing: Terrazzo Contractor shall cure the terrazzo topping as follows:
 1. After placing terrazzo and composition has sufficiently set, cover with water or polyethylene sheeting.
 2. Cure until topping develops sufficient strength to prevent lifting or pulling of terrazzo chips during grinding.
- D. Poured in Place Terrazzo Base: Terrazzo Contractor shall provide mix color for terrazzo base to match approved sample.

1. Terrazzo Contractor shall place and finish terrazzo base at the same time the terrazzo floor is being installed.

E. Finishing: Terrazzo Contractor shall finish the terrazzo topping as follows:

1. Rough Grinding: Grind with 24 or finer grit stones or with comparable diamond plates.
2. Grouting:
 - a. Cleanse floor with clean water and rinse.
 - b. Remove excess rinse water and machine or hand-apply grout, taking care to fill voids.
3. Cure Grout: Cure until grout is ready for fine grinding.
4. Fine Grinding/Polishing: Grind with 120 grit stones or comparable diamond abrasives until all grout is removed from surface.

F. Terrazzo Cleaning: Terrazzo Contractor shall clean finished terrazzo as follows:

1. Remove grinding residue from terrazzo surface.
2. Wash terrazzo surfaces immediately after final grinding of terrazzo flooring with water and allow surfaces to dry thoroughly.

G. Sealing: Terrazzo Contractor shall seal terrazzo according to sealer manufacturer's written instructions.

3.04 REPAIR

A. Terrazzo Contractor shall repair terrazzo areas that evidence lack of bond between topping and underbed according to NTMA's written recommendations.

3.05 PROTECTION

A. After application of the sealer, the Work shall be ready for final inspection and acceptance by the Owner or his agent.

B. The General Contractor shall protect the finished floor after the Terrazzo Contractor has completed final grinding and applied sealer to terrazzo surfaces.

END OF SECTION

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:
Steel Doors and Windows

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue. Remove rags and waste from storage areas daily.

1.4 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.5 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 - 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Benjamin Moore & Co.
Duron, Inc.
ICI Paints.
PPG Architectural Finishes, Inc.
Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: As selected by Architect from manufacturer's full range.

2.3 METAL PRIMERS

A. Alkyd Anticorrosive Metal Primer

2.4 EXTERIOR LATEX PAINTS

A. Exterior Latex Semigloss

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 1. Use applicators and techniques suited for paint and substrate indicated. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

A. Steel Substrates:

1. Alkyd System: MPI EXT 5.1D.

- a. Prime Coat: Alkyd anticorrosive metal primer.
- Intermediate Coat: Exterior alkyd enamel matching topcoat.
- Topcoat: Exterior alkyd enamel (semigloss).

END OF SECTION 099113

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Concrete.
 - Steel.
 - Galvanized metal.
 - Gypsum board.
- B. Related Sections include the following:
 - Division 09 Section "Exterior Painting" for surface preparation and the application of paint systems on exterior substrates.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.Remove rags and waste from storage areas daily.

1.4 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.5 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and

identified with labels describing contents.

1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Benjamin Moore & Co.
Color Wheel Paints & Coatings.
ICI Paints.
PPG Architectural Finishes, Inc.
Sherwin-Williams Company (The).
Rose Talbot

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:

1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).

Restricted Components: Paints and coatings shall not contain any of the following:

- a. Acrolein.
Acrylonitrile.
Antimony.
Benzene.
Butyl benzyl phthalate.
Cadmium.

Di (2-ethylhexyl) phthalate.
Di-n-butyl phthalate.
Di-n-octyl phthalate.
1,2-dichlorobenzene.
Diethyl phthalate.
Dimethyl phthalate.
Ethylbenzene.
Formaldehyde.
Hexavalent chromium.
Isophorone.
Lead.
Mercury.
Methyl ethyl ketone.
Methyl isobutyl ketone.
Methylene chloride.
Naphthalene.
Toluene (methylbenzene).
1,1,1-trichloroethane.
Vinyl chloride.

- C. Colors: As selected by Architect from manufacturer's full range.

2.3 PRIMERS/SEALERS

- A. Interior Latex Primer/Sealer: MPI #50.
- B. Interior Alkyd Primer/Sealer: MPI #45.

2.4 METAL PRIMERS

- A. Alkyd Anticorrosive Metal Primer: MPI #79.
- B. Waterborne Galvanized-Metal Primer: MPI #134.
- C. Quick-Drying Primer for Aluminum: MPI #95.

2.5 LATEX PAINTS

- A. Interior Latex (Eggshell): MPI #52 (Gloss Level 3).
- B. Interior Latex (Semigloss): MPI #54 (Gloss Level 5).
- C. High-Performance Architectural Latex (Semigloss): MPI #141 (Gloss Level 5).

2.6 ALKYD PAINTS

- A. Interior Alkyd (Semigloss): MPI #47 (Gloss Level 5).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

- 1. Concrete: Gypsum Board: 12 percent

- B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

- 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

- 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

- B. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

- 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

- C. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.

Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

D. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:

1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor. Testing agency will perform tests for compliance with product requirements. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements.

Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

- A. Steel Substrates:

- 1. Alkyd System: MPI INT 5.1E.
 - a. Prime Coat: Alkyd anticorrosive metal primer.
 - Intermediate Coat: Interior alkyd matching topcoat.
 - Topcoat: Interior alkyd (semigloss).

- B. Gypsum Board Substrates:

- 1. Latex System: MPI INT 9.2A.
 - a. Prime Coat: Interior latex primer/sealer.
 - Intermediate Coat: Interior latex matching topcoat.
 - Topcoat: Interior latex (eggshell).

END OF SECTION 099123