

PROJECT MANUAL



CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

Newton, North Carolina

Date: June 23, 2025



CBSA PROJECT NO. 2024.008

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NEWTON, NORTH CAROLINA
CBSA PROJECT NO. 2024.008

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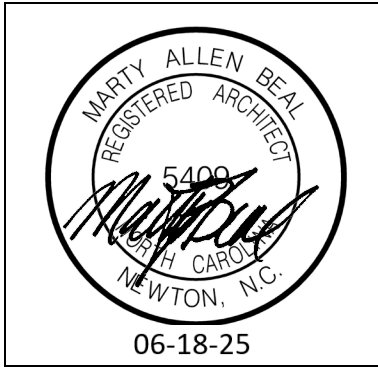
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ARCHITECTURAL SEAL

PROJECT NAME	CATAWBA COUNTY CATTLEMEN'S ASSOCIATION
	EDUCATION CENTER
PROJECT LOCATION	NEWTON, NORTH CAROLINA
PROJECT NUMBERS	2024.008

The undersigned is responsible for the following specifications divisions and/or sections:	
	Divisions 0,1,3,4,5,6,7,8,9,10, 12 and 13

ARCHITECT OF RECORD	
Company Name	CBSA Architects, Inc.
Company Address	226 Second Street NW
	P O Box 1239
	Hickory NC 28603
Company Phone	828-322-3403
Company Fax	828-322-1802
Individual's Name	MARTY A. BEAL, AIA, LEED AP BD+C

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**ADVERTISEMENT FOR BIDS
CATAWBA COUNTY
CATTLEMEN'S ASSOCIATION EDUCATION CENTER
Issued: June 23, 2025**

Catawba County is soliciting **Sealed Bids** from qualified contractors for the construction of a new Catawba Cattlemen's Association Education Center project which is located at 2894 Mt. Olive Church Road, Newton, North Carolina 28658. Sealed bids will be received at the Catawba County Government Center in the 2nd Floor Meeting Room, Rm 238 (25 Government Dr. Newton, NC 28658) on **Wednesday, July 22nd, 2025 until 3:00 PM** and thereafter publicly opened and read aloud.

Bids will be received for a Single-Prime, Lump Sum contract. The extent of the Work is shown on the drawings and specified in the project manual. Bids must be submitted in a sealed envelope and plainly labeled on the outer most package "**Catawba County Cattlemen's Association Education Center BID ENCLOSED**". The inside and outside packages for each Bid shall include the Bidder's name, address and license number. No responsibility shall be attached to Catawba County for the premature opening of any Bid not properly addressed or identified.

If submitting Bid by mail or other delivery method, the Bid must be submitted sealed and plainly marked on the outside for "**Catawba County Cattlemen's Association Education Center BID ENCLOSED**" and the envelope should bear on the outside the Bidder's name, address, and license number. The delivery information is as follows:

Mailing address for delivery of Bid via US Postal Service:	Office address for delivery by any other method (hand delivery if delivered prior to bid opening, overnight, or any other carrier):
Catawba County Government Center Attn: Purchasing Department Post Office Box 389 Newton, North Carolina 28658	Catawba County Government Center Attn: Purchasing Department 25 Government Drive Newton, North Carolina 28658

Bid documents can be downloaded at no charge from the following designated County website: <https://www.catawbacountync.gov/county-services/purchasing/bid-notices/> This website will be updated periodically with addenda and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only as detailed in this Advertisement. Neither Owner nor Architect will be responsible for full or partial sets of Bidding Documents, including Addenda if any, obtained from sources other than the Issuing Office.

Bidding Documents will be available for inspection, **by appointment**, at the Catawba County Purchasing Department, 25 Government Drive, Newton, North Carolina 28658, Phone: 828-465-8224.

The table below shows the intended bid schedule for this Project. Owner will make every effort to adhere to this schedule:

Event	Responsibility	Date and Time
Advertisement Issued	Owner	June 23, 2025
Pre-Bid Conference	Owner/Contractor	July 8, 2025 at 10:00 AM ET
Submit Written Questions	Contractor	July 15, 2025 at 5:00 PM ET
Bid Opening	Contractor	July 22, 2025 at 3:00 PM ET
Contract Award	Owner	TBA
Contract Effective Date	Owner	Upon Execution

Questions about the Bid documents should be sent in writing to Marty Beal, Architect at mbeal@cbsa-architects.com no later than **July 15, 2025 at 5:00 PM**. All questions received before the deadline will be addressed in an Addendum. Any questions received after the deadline may not be addressed prior to the Bid Opening.

There will be a **Mandatory Pre-Bid Conference at 10:00 AM on Tuesday, July 8th, 2025**, on-site which is located at 2894 Mt. Olive Church Road, Newton, North Carolina 28658. Bids will not be accepted from Bidders who do not attend the mandatory pre-bid conference. The purpose of the mandatory conference and site visit is for prospective Contractors to apprise themselves of the conditions and requirements that will affect the performance of work called for in the Bid Documents. Any Bidders who are not present by 10:00 AM will not be able to participate in the pre-bid conference.

Each bid proposal must be accompanied by a cashier's check issued by or a certified check drawn on a bank of trust company insured by the Federal Deposit Insurance Corporation payable to Catawba County in an amount of five percent (5%) of the gross amount of the bid proposal or by a bond in the above amount executed in accordance with and conditioned as prescribed by G.S. 143-129, State of North Carolina. If the successful bidder fails to give satisfactory surety as required by law, the Owner will retain the above deposit. All contractors are hereby notified that they shall be properly licensed under the state laws governing their trades.

Bidding General Contractor to include Performance Bond and Payment Bond for 100% of Contract Amount in the base bid. All bidders are hereby notified that they shall be properly qualified under the state laws governing their respective trades. Contractors must be licensed for the work in the state of the project's jurisdiction.

All bidders are notified that Catawba County has a verifiable five percent (5%) goal for participation by minority owned and women owned businesses in the total value of Work for which prime contractors are awarded pursuant to North Carolina General Statutes Section 143-128.

Catawba County reserves the right to reject all bids, to waive informalities and technicalities, and to cancel the Bid Process at any time.

END OF ADVERTISEMENT FOR BIDS

NOTICE TO BIDDERS
CATAWBA COUNTY CATTLEMEN'S ASSOCIATION
EDUCATION CENTER
NEWTON, NORTH CAROLINA

Sealed bids will be received by Catawba County in the **Catawba County Government Center**, 2nd Floor Meeting Room, Room 238 (25 Government Center Drive, Newton, NC 28658) until **3:00 PM, Wednesday, July 22, 2025** at which time and place bids will be publicly opened and read for the furnishing of labor, materials and equipment for the construction of Catawba County Cattlemen's Association Education Center to be located at 2894 Mt. Olive Church Road, Newton, North Carolina 28658. Provided a sufficient number of bids have been received, the Architect will commence with opening of all received bids immediately at 3:00 PM.

Mailed proposals shall be sent to the office of the Owner. Sealed proposals shall be mailed inside a cover envelope. The cover envelope shall be addressed as follows:

Catawba County Government Center
Attn: Purchasing Department
Post Office Box 389
Newton, North Carolina 28658

Proposals delivered by any other method (hand delivery if delivered prior to bid opening, overnight, or any other carrier shall be delivered to the office of the Owner. Sealed proposals shall be delivered inside a cover envelope. The cover envelope shall be addressed as follows:

Catawba County Government Center
Attn: Purchasing Department
25 Government Drive
Newton, North Carolina 28658

All cover envelopes and sealed inner envelopes shall be labeled as follows:

ENVELOPE CONTAINS SEALED BID FOR:
CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

Clearly mark on the sealed Bid envelope inside the mailing envelope Single Prime General Construction. Do not send or deliver bids to the office of the Architect or Engineer. The Architect or Engineer will not be responsible for delivery of bids to the bid opening. It is the bidding contractor's sole responsibility to deliver bids to the specific place and time for the bid opening. It is the bidding contractor's sole responsibility that the bid be delivered to the proper party designated to open the bids.

Distribution of Documents:

Complete electronic plans, specifications and contract documents for this project can be downloaded at no charge from the following designated Catawba County website: <https://www.catawbacountync.gov/county-services/purchasing/bid-notice/> This website will be updated periodically with addenda and other information relevant to submitting a Bid for the Project.

Bid documents will also be open for inspection, by appointment, in the Catawba County Purchasing Department and CBSA Architects, Inc., 226 Second Street, NW, Hickory, North Carolina. Neither the Owner nor the Architect will be responsible for full or partial sets of Bidding Documents, including Addenda if any, obtained from sources other than the Issuing Office.

Bid documents can be downloaded at no charge from the following designated County website:

<https://www.catawbacountync.gov/county-services/purchasing/bid-notices/>

This website will be updated periodically with addenda and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only as detailed in this Advertisement. Neither Owner nor Architect will be responsible for full or partial sets of Bidding Documents, including Addenda if any, obtained from sources other than the Issuing Office.

Scope of the Project:

The Work generally includes construction of a new one story pre-engineered metal building Education Center (approximately 5,225 gross square feet) and a load bearing masonry Storage Building (approximately 384 gross square feet). The Education Center is approximately 2,750 square feet of enclosed building and includes a Lobby, Office, Restrooms, Storage, Warming Kitchen, and Multi-purpose Meeting Room. The remaining area is 2,475 square feet outdoor area with a roof cover and partial concrete slab for livestock demonstration area. The scope of work includes but is not limited to site work, asphalt paving, concrete paving, masonry, thermal and moisture protection, pre-engineered metal building, interior metal stud partitions, standing seam metal roof, interior finishes, electrical, mechanical, and plumbing. The project site is located at 2894 Mt. Olive Church Road, Newton, NC 28658.

The project includes one Alternate Bid.

Method of Bidding:

The Owner will accept bids under the single-prime contract system only. All single-prime bidders must identify on their bid the sub-contractors they have selected for the subdivisions or branches of work for:

- (1) Plumbing;
- (2) Mechanical;
- (3) Electrical.

Bid Qualification:

The Owner may make such investigations as deemed necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Agreement and to complete the work contemplated therein.

Form of Proposal:

Submit bids on an identical copy of the form bound in the specifications. Make an exact copy of the Form by means of photocopy or other electronic method and submit bid on copy. Bidders unable to obtain a photocopy directly from their Project Manual should contact the Architect's office for a copy.

Clarification of Bidder's Questions:

Questions shall be directed to the office of CBSA Architects, PO Box 1239, Hickory, NC 28603, Phone (828) 322-3403. Do not contact the Owner with questions.

Deadline for Interpretations and Clarifications:

Refer to AIA Document A701 "Instructions To Bidders" paragraph 3.2 - Interpretation or Correction of Bidding Documents.

All questions pertaining to apparent discrepancies, intent and correct interpretation of the plans and specifications or other bidding documents shall be submitted to and received by the Architect not later than seven (7) days prior to the established date for receipt of bids.

All questions received by the Architect up to and including the 7-day deadline will be answered by Addenda, issued to all prime bidders within not less than four days prior to the established date for receipt of bids. Addenda will be forwarded to Bidders by electronic transmission.

It is the sole responsibility of the Bidder to ascertain that he has received all Addenda prior to submitting his Bid.

Substitutions:

Refer to AIA Document A701 "Instructions To Bidders", paragraph 3.3 – Substitutions. Only requests for substitutions made by Single Prime Bidders will be considered for inclusion in the project. Request made by subcontractors, manufacturers, vendors, etc. shall not be considered by the Architect.

Each product submitted as a substitute by the Prime Bidder shall be accompanied by the completed and signed copy of the Substitution Request Form bound in the specifications booklet. The manufacturer/vendor must sign the Substitution Request Form.

Pre-Bid Conference:

A **mandatory** Pre-Bid Conference for all qualified bidders will be held at 10:00 am on **Tuesday, July 8, 2025** on site at 2894 Mt. Olive Church Road, Newton, North Carolina 28658. Single Prime Bidders are required to attend and subcontractors and vendors are invited to this Conference. Attendance at this meeting is a mandatory requirement for submitting a bid. Bidder's questions regarding the scope and nature of the work, the contents

of the bidding documents and Minority Participation will be addressed by the Architect and Engineers at this meeting. Following the Pre-Bid Conference, the Architect shall issue, if necessary, addenda to include clarification for items discussed, to respond to any questions which could not be answered directly at the meeting, and to correct any deficiencies in the contract documents which were identified at the Pre-Bid Conference.

Inspection of Project Site:

All Bidders are required to visit the project site prior to submitting bids. This is a mandatory requirement.

License:

All contractors are hereby notified that they must have proper license as required under the state laws governing their respective trades.

General contractors are notified that Chapter 87, Article 1, General Statutes of North Carolina, will be observed in receiving and awarding general contracts. General contractors submitting bids on this project must have license classification for Building Contractor, Unlimited.

Bid Security:

In accordance with North Carolina State Statute 143-129, each proposal shall be accompanied by a cash deposit or a certified check drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation, of an amount equal to not less than five per cent (5%) of the proposal or in lieu thereof, a Bidder may offer a bid bond of five per cent (5%) of the bid executed by a surety company licensed under the laws of North Carolina to execute such bonds, conditioned that the surety will upon demand forthwith make payment to the obligee upon said bond if the bidder fails to execute the contract in accordance with the specifications. No other type of bid security shall be acceptable. Said deposit shall be retained by the Owner as liquidated damages in event of failure of the successful bidder to execute the contract within ten days after the award or to give satisfactory surety as required by law. Bids opened and not containing the proper security shall be rejected and shall not be read. Bond Form may be either AIA Document A310 or that provided by the Bidders surety.

Performance and Payment Bonds:

Performance Bond and Payment Bond will be required from the General Contractor for one hundred percent (100%) each of the contract price.

Minority Participation:

In accordance with Senate Bill 914 and NC State Statutes, Bidders shall follow written guidelines included in these Contract Documents for minority participation in Public Construction Contracts. "Affidavit A" or "Affidavit B", with corresponding "Identification of Minority Business Participation" must be included in the Bid submittal. Failure to include the appropriate document with the Bid Proposal may be considered grounds for rejection of the bid. (GS 143-128.26 Effective 1/1/2002)

GS 133-3: Specifications to Carry Competitive Items; Substitution of Materials:

The Bidder is notified that requirements of GS 133-3 are applicable to this project. Substitutions of material which

are included in the Bidder's Proposal shall be approved by addenda prior to opening of bids.

Property Insurance (Builder's Risk):

The General Contractor will be required to furnish Property Insurance in the form of an "All Risk" policy on this project as described in the Construction Contract.

Supplementary General Conditions:

There are no Supplementary General Conditions for this project.

Liquidated Damages:

Refer to Construction Contract and General Conditions of the Contract for any liquidated damages that are applicable to this project.

Withdrawal of Bids:

Except as provided by G.S. 143-129.1 no bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of sixty (60) days without forfeiture of bid security.

E-Verify Compliance:

Employers and their subcontractors with 25 or more employees as defined in Article 2 of Chapter 64 of the North Carolina General Statutes must comply with North Carolina Session Law 2013-418's E-Verify requirements to contract with local governments. E-Verify is a federal program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law. A completed E-Verify compliance statement is required to enter any contract with Caldwell County. GC shall submit completed form with executed contract.

Reference Disclosure Form:

Please complete and submit with your bid the Reference Disclosure Form included in this Project Binder.

Miscellaneous:

Payment will be made on the basis of ninety-five per cent (95%) of monthly estimates and final payment made upon completion and acceptance of work.

Bids not properly signed on the Bid Proposal Form will be rejected as invalid.

Except for unit prices included in the bid, all prices shall be lump-sum.

The Owner reserves the right to reject any or all bids and to waive informalities and to accept the bid which appears to be to the best interest of the Owner.

SIGNED: Marty A. Beal, LEED AP BD+C, AIA for
Catawba County
Newton, North Carolina

This 19th day of June 2025.

CBSA Architects, Inc.
226 Second Street, N. W.
Post Office Box 1239
Hickory, North Carolina 28603
Telephone: (828) 322-3403

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AIA[®] Document A701[™] – 1997

Instructions to Bidders

for the following PROJECT:
(Name and location or address)

THE OWNER:
(Name, legal status and address)

THE ARCHITECT:
(Name, legal status and address)

TABLE OF ARTICLES

- 1 DEFINITIONS
- 2 BIDDER'S REPRESENTATIONS
- 3 BIDDING DOCUMENTS
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- 6 POST-BID INFORMATION
- 7 PERFORMANCE BOND AND PAYMENT BOND
- 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement or Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders, the bid form, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 The Bidder by making a Bid represents that:

§ 2.1.1 The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.

§ 2.1.2 The Bid is made in compliance with the Bidding Documents.

§ 2.1.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.

§ 2.1.4 The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 COPIES

§ 3.1.1 Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein. The deposit will be refunded to Bidders who submit a bona fide Bid and return the Bidding Documents in good condition within ten days after receipt of Bids. The cost of replacement of missing or damaged documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the Bidding Documents and the Bidder's deposit will be refunded.

§ 3.1.2 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the Advertisement or Invitation to Bid, or in supplementary instructions to bidders.

§ 3.1.3 Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

§ 3.1.4 The Owner and Architect may make copies of the Bidding Documents available 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.

§ 3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

§ 3.2.1 The 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 is submitted, shall examine the site and local conditions, and shall at once report to the Architect errors, inconsistencies or ambiguities discovered.

§ 3.2.2 Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least seven days prior to the date for receipt of Bids.

§ 3.2.3 Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, corrections and changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

§ 3.3 SUBSTITUTIONS

§ 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.

§ 3.3.2 No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.3 If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

§ 3.3.4 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 ADDENDA

§ 3.4.1 Addenda will be transmitted to all who are known by the issuing office to have received a complete set of Bidding Documents.

§ 3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 PREPARATION OF BIDS

§ 4.1.1 Bids shall be submitted on the forms included with the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.

§ 4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change."

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the Work. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

§ 4.2 BID SECURITY

§ 4.2.1 Each Bid shall be accompanied by a bid security in the form and amount required if so stipulated in the Instructions to Bidders. The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and will, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. The amount of the bid security shall not be forfeited to the Owner in the event the Owner fails to comply with Section 6.2.

§ 4.2.2 If a surety bond is required, it shall be written on AIA Document A310, Bid Bond, unless otherwise provided in the Bidding Documents, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.

§ 4.2.3 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn or (c) all Bids have been rejected.

§ 4.3 SUBMISSION OF BIDS

§ 4.3.1 All copies of the Bid, the bid security, if any, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall 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. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.2 Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will be returned unopened.

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

§ 4.3.4 Oral, telephonic, telegraphic, facsimile or other electronically transmitted bids will not be considered.

§ 4.4 MODIFICATION OR WITHDRAWAL OF BID

§ 4.4.1 A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

§ 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 notice shall be in writing over the

signature of the Bidder. Written confirmation over the signature of the Bidder shall be received, and date- and time-stamped by the receiving party on or before the date and time set for receipt of Bids. A change shall be so worded as not to reveal the amount of the original Bid.

§ 4.4.3 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

§ 4.4.4 Bid security, if required, shall be in an amount sufficient for the Bid as resubmitted.

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 OPENING OF BIDS

At the discretion of the Owner, if stipulated in the Advertisement or Invitation to Bid, the properly identified Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids may be made available to Bidders.

§ 5.2 REJECTION OF BIDS

The Owner shall have the right to reject any or all Bids. A Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

§ 5.3 ACCEPTANCE OF BID (AWARD)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest qualified Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's own best interests.

§ 5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 CONTRACTOR'S QUALIFICATION STATEMENT

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request, a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted as a prerequisite to the issuance of Bidding Documents.

§ 6.2 OWNER'S FINANCIAL CAPABILITY

The Owner shall, at the request of the Bidder to whom award of a Contract is under consideration and no later than seven days prior to the expiration of the time for withdrawal of Bids, furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. Unless such reasonable evidence is furnished, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 SUBMITTALS

§ 6.3.1 The Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, after notification of selection for the award of a Contract, furnish to the Owner through the Architect in writing:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the manufacturers, products, and the suppliers of principal items or systems of materials and equipment proposed for the Work; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder in writing if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, (1)

withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 BOND REQUIREMENTS

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Bonds may be secured through the Bidder's usual sources.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 If the Owner requires that bonds be secured from other than the Bidder's usual sources, changes in cost will be adjusted as provided in the Contract Documents.

§ 7.2 TIME OF DELIVERY AND FORM OF BONDS

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond. Both bonds shall be written in the amount of the Contract Sum.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder 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.

ARTICLE 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum.

BID PROPOSAL FORM

This Bid Form shall be used for Single-Prime Contract Bids. Single Prime Bids shall be submitted in sealed envelopes.

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER NEWTON, NORTH CAROLINA CBSA PROJECT NO. 2024.008

NAME OF BIDDER:	
BUSINESS ADDRESS:	
PHONE NUMBER:	
LICENSE NO.:	

The undersigned, as bidder, hereby declares that the only person or persons interested in this proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud. The bidder further declares that he has examined the site of the work and the contract documents relative thereto and has read all special provisions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed.

The Bidder proposes and agrees if this proposal is accepted to contract with Owner in the form of contract specified below, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction of the above titled project in full and complete accordance with the plans, specifications and contract documents, to the full and entire satisfaction of the Owner and CBSA Architects, Hickory, North Carolina with a definite understanding that no money will be allowed for extra work except as set forth in the General Conditions and the contract documents, for the sum as hereinafter listed.

Place an "X" in the appropriate right hand box to indicate the form of Contract for which this bid is made.

FORM OF PROPOSAL FOR:	SINGLE PRIME BID	
------------------------------	-------------------------	--

BID:
Write Bid amounts in both written and numerical forms.

ITEM NO. 1: BASE BID	\$	
		DOLLARS

For Single Prime Bids - List information for subcontracts below.

	NAME	SUB-CONTRACTOR'S BID AMOUNT
Plumbing Sub-Contractor		\$ _____
Mechanical Sub-Contractor		\$ _____
Electrical Sub-Contractor		\$ _____

ALTERNATE BIDS: State the lump sum amount to be added to the Base Bid if the following alternate bids are accepted.

NOTE: Single Prime Alternates include Alternate Bid Work of Plumbing, Mechanical and Electrical Contractors.			
SINGLE PRIME ALTERNATES	(+) ADD (-) DEDUCT	WRITTEN AMOUNT	NUMERICAL
N/A	()	DOLLARS	\$

The Owner will have the option of selecting the most suitable combination of bids for the entire project.

UNIT PRICES: Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the scope of work all in accordance with the contract documents. (Fill in all blank amounts which apply.)

ITEM	DESCRIPTION	UNIT OF MEASURE	COST PER UNIT
1	Remove unsuitable soil material	CY	\$ _____
2	Off-site structural fill in place	CY	\$ _____
3	Remove bulk rock material	CY	\$ _____
4	Remove trench road material	CY	\$ _____
5	Off-site topsoil place	CY	\$ _____

TIME FOR COMPLETION: The undersigned hereby agrees to complete all work, within Three Hundred (300) days after issuance of a Notice to Proceed, as prescribed in the Construction Contract, and understands that no extension of time will be allowed, including any extension of time because of the acceptance of any alternate, unit price, or substitution.

CONTRACTOR'S GENERAL WARRANTY: The undersigned Bidder hereby certifies that he is not currently suspended by any state agency from bidding, nor is he a majority-owned subsidiary or affiliate of a firm currently suspended by any state agency, and that, within 10 days after award of the Contract, this contractor shall furnish to the Architect for approval, the names, addresses, telephone numbers and amounts of contracts of subcontractors and material suppliers he proposes to use on this project; together with an Affidavit signed, sworn, and notarized to the effect that no subcontractor or material supplier involved in this project is currently suspended from bidding by any state agency, nor are they a majority-owned subsidiary or affiliate of a firm currently suspended by any state agency. Contractor shall not have previously defaulted from any project resulting in completion by his bonding company.

MINORITY PARTICIPATION: In accordance with Senate Bill 914 and NC State Statutes, Bidders shall include "Identification of Minority Business Participation" and "Affidavit A" or "Affidavit B" as appropriate in the Bid submittal. Failure to include the appropriate document with the Bid Proposal shall be considered grounds for rejection of the bid. (GS 143-128.26 Effective 1/1/2002). Indicate below Affidavit(s) attached herewith.

1.	AFFIDAVIT A	
2.	AFFIDAVIT B	
3.	IDENTIFICATION OF PERCENTAGE OF MINORITY BUSINESS PARTICIPATION	

The following forms must be returned with your bid response:

- a. Bid Form (Addendum must be acknowledged on the Bid Form.)
- b. Bid Deposit (5% of total bid amount)
- c. E-Verify Affidavit
- d. Non-Collusive Affidavit
- e. Reference Disclosure Form
- d. Minority Participation Affidavits

AGREEMENT:

The bidder further proposes and agrees hereby to commence work under his contract on a date to be specified in a written order of the Architect and shall fully complete all work thereunder on or before the dates for the various phases as specified in Section 01011 "Summary of Work. Applicable liquidated damages shall be as stated in the Owner's Construction Contract or General Conditions of the Contract for Construction.

The undersigned further agrees that in the case of failure on his part to execute the said contract and bond within fifteen (15) consecutive calendar days after receipt of contractors from the Architect, the check, cash, or bid bond accompanying this bid shall be paid into the funds of the Owner's account set aside for the project, as liquidated damages for such failure; otherwise the check, cash or bid bond accompanying this Proposal shall be returned to the undersigned.

Attach certified check, cash or bid bond to this Proposal.

Respectfully submitted this _____ day of _____, 20_____.

(Name of firm or corporation making bid)

WITNESS:

By: _____

(Proprietorship or Partnership)

Title: _____
(Owner, Partner, or Corp. Pres. or Vice-Pres.)

Address: _____

License No: _____

ATTEST:

By: _____

Title: _____
(Corp. Sec. or Ass't. Sec. Only)

(CORPORATE SEAL)

Indicate below by initialing the appropriate blank, all Addenda received and used in computing bid. Failure to indicate that Addenda were received may result in disqualification of bid.

Addendum No. 1 _____ Addendum No. 3 _____ Addendum No. 5 _____

Addendum No. 2 _____ Addendum No. 4 _____ Addendum No. 6 _____

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BID BOND

KNOW ALL MEN BY THESE PRESENTS, THAT WE, _____
as Principal and _____ as Surety, who is duly licensed to
act as Surety in North Carolina are held and firmly bound unto Catawba County, North Carolina
as Oblige, in the penal sum of _____
Dollars, (\$_____) lawful money of the United States of America, for the payment of
which, well and truly to be made, we bind ourselves, or heirs, executors, administrators,
successors and assigns, jointly and severally, firmly by these presents.

SIGNED, sealed and dated this _____ day of _____, 20____.

WHEREAS, the said Principal is herewith submitting proposal for _____

and the Principal desires to file this Bid Bond in lieu of making the cash deposit as required by
N.C.G.S. § 143-129:

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such that if the Principal shall
be awarded the Contract for which the Bid is submitted and shall, within 10 days after award of
same is made to the Principal; execute and deliver to the Obligee the Contract and Contract Bond
in the form, amount and with Surety as required and approved by the Obligee, then this
obligation shall be null and void, otherwise to remain in full force and effect; and if the Principal
fails or refuses to so execute and deliver said contract or furnish the said contract performance
bond as required by N.C.G.S. § 143-129, as amended, the Surety shall, upon demand, forthwith
pay to the Obligee the amount set forth in the first paragraph hereof, and upon failure to
forthwith make such payment, the Surety shall pay the Obligee an amount equal to the amount
of the Bid Bond as set forth in the first paragraph hereof.

IN WITNESS WHEREOF, the undersigned Principal and Surety have caused this bond to be sealed
and executed by their duly authorized officers this the _____ day of _____, 20____.

BIDDER

SURETY

(SEAL) _____

(SEAL) _____

Bidder's and Corporate Seal

Surety's Name and Corporate Seal

Signature: _____

Signature: _____

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

ATTEST:

Signature and Title

Signature and Title

STATE OF NORTH CAROLINA

E-VERIFY AFFIDAVIT

COUNTY OF CATAWBA

I, _____(the individual attesting below), being duly authorized by and on behalf of _____ (the entity bidding on project hereinafter "Employer") after first being duly sworn hereby swear or affirm as follows:

1. Employer understands that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25(5).

2. Employer is a person, business entity, or other organization that transacts business in this State and that employs 25 or more employees in this State. (mark Yes or No)

a. YES _____, or

b. NO _____

3. Employer understands that employers employing 25 or more employees in this State must use E-Verify. Each employer, after hiring an employee to work in the United States, must verify the work authorization of the employee through E-Verify in accordance with Article 2, Chapter 64 of the North Carolina General Statutes.

4. Employer's subcontractors comply with E-Verify, and if Employer is the winning bidder on this project Employer will ensure compliance with E-Verify by any subcontractors subsequently hired by Employer.

This ____ day of _____, 20_____.

Signature of Affiant

Print or Type Name: _____

Title:_____

State of _____ County of _____

Signed and sworn to (or affirmed) before me, this the ____ day of _____, 20_____.

My Commission Expires:_____

Notary Public
Notary Printed Name: _____

||
||
(Affix Official/Notarial Seal)

END OF SECTION

E-Verify Affidavit

STATE OF NORTH CAROLINA
COUNTY OF CATAWBA

NON-COLLUSIVE AFFIDAVIT

_____ being first duly sworn, deposes and says that:

- (1) He/She is the _____, (Owner, Partner, Officer, Representative or Agent) of _____ the Bidder that has submitted the attached Bid;
- (2) He/She is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
- (3) Such Bid is genuine and is not a collusive or sham Bid;
- (4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, have in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm, or person to submit a collusive or sham Bid in connection with the Work for which the attached Bid has been submitted; or to refrain from bidding in connection with such Work; or have in any manner, directly or indirectly, sought by agreement or collusion, or communication, or conference with any Bidder, firm, or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit, or cost elements of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against (Recipient), or any person interested in the proposed Work;
- (5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any other of its agents, representatives, owners, employees or parties in interest, including this affidavit.

This ____ day of _____, 20 ____.

Signature of Affiant

Print or Type Name: _____

Title: _____

State of _____ County of _____

Signed and sworn to (or affirmed) before me, this the ____
day of _____, 20 ____.

My Commission Expires: _____

Notary Public
Notary Printed Name: _____

(Affix Official/Notarial Seal)

END OF SECTION

REFERENCE DISCLOSURE FORM

Contractor shall provide information regarding experience in work similar to this scope of work by listing THREE (3) RECENT CLIENTS, ONLY ONE OF WHICH MAY BE A CATAWBA COUNTY GOVERNMENT LISTING. References should be clients of a similar scale as the services requested in this project.

1. COMPANY NAME: _____

PERSON TO CONTACT: _____

TELEPHONE NUMBER: _____

EMAIL ADDRESS: _____

TYPE OF SERVICE PROVIDED: _____

JOB DATES:
BEGINNING _____ END _____

2. COMPANY NAME: _____

PERSON TO CONTACT: _____

TELEPHONE NUMBER: _____

EMAIL ADDRESS: _____

TYPE OF SERVICE PROVIDED: _____

JOB DATES:
BEGINNING _____ END _____

3. COMPANY NAME: _____

PERSON TO CONTACT: _____

TELEPHONE NUMBER: _____

EMAIL ADDRESS: _____

TYPE OF SERVICE PROVIDED: _____

JOB DATES:
BEGINNING _____ END _____

Catawba County

Minority-owned, Woman-owned, Disadvantaged-owned Outreach Plan and Guidelines

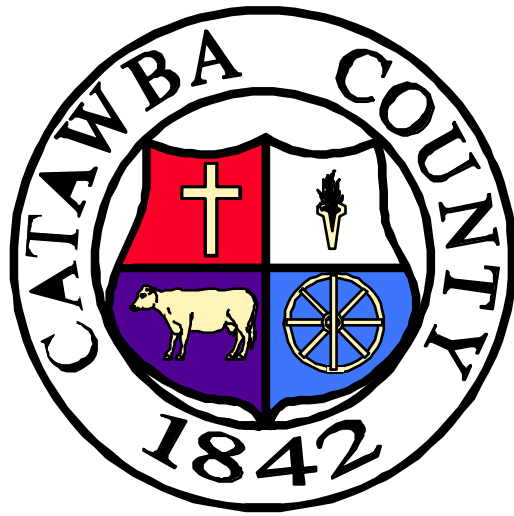


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OUTREACH PLAN AND GUIDELINES FOR RECRUITMENT AND SELECTION OF MINORITY BUSINESSES FOR PARTICIPATION IN CATAWBA COUNTY BUILDING CONSTRUCTION CONTRACTS

In accordance with G.S. 143-128.2 (effective January 1, 2002) these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, Construction Manager-at-Risk, and alternative contracting methods on Catawba County building construction projects in the amount of \$300,000 or more. The Outreach Plan shall also be applicable to the selection process of architectural, engineering and Construction Manager-at-Risk services.

Catawba County's current goal for minority participation for public building construction is five percent (5%). The overall goal will be reviewed annually or as soon as relevant data is available.

INTENT

The intent of these guidelines is that Catawba County, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded, shall cooperate and in good faith do all things, legal, proper and reasonable to achieve the statutory goal of five percent (5%) for participation by minority businesses in each construction project as mandated by GS 143-128.2. Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from minority-business contractors or minority-business subcontractors who do not submit the lowest responsible responsive bid or bids.

DEFINITION

1. Minority – a person who is a citizen or lawful permanent resident of the United States and who is:
 - a. Black, that is, a person having origins in any of the black racial groups in Africa;
 - b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central American, or the Caribbean Islands, regardless of race;
 - c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, or the Pacific Islands;
 - d. American Indian, that is, a person having origins in any of the original peoples of North America; or
 - e. Female
2. Minority Business – means a business
 - a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more

minority persons or socially and economically disadvantaged individuals; and

- b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.
3. Socially and economically disadvantaged individual – means the same as defined in 15 U.S.C. 637. “Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities”. “Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged”.
4. Public Entity – means State and all public subdivisions and local government units.
5. Owner – Catawba County.
6. Designer – Any person, firm, partnership, or corporation, which has contracted with Catawba County to perform architectural or engineering work.
7. Bidder – Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.
8. Contract – A mutually binding legal relationship, or any modification thereof, obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.
9. Contractor – Any person, firm, partnership, corporation, association, or joint venture which has contracted with Catawba County to perform construction work or repair.
10. Subcontractor – A firm under contract with the prime contractor or Construction Manager-at-Risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in the subcontract.

MINORITY AND SMALL BUSINESS PARTICIPATION OUTREACH PLAN

1. Work with minority-focused and small business groups that support MBE and small business inclusion in the solicitation of bids. These groups

include the CVCC Small Business Development Center and the Small Business Technology Center.

2. Place more emphasis on the importance of soliciting certified MBE firms and small businesses for subcontracting opportunities at pre-bid conferences and in the bid documents. Examine specifications to identify special subcontracting opportunities and strongly encourage prime contractors to solicit bids for subcontracts from MBE firms.
3. Provide detailed information to majority contractors concerning the Guidelines for Recruitment and Selection of Minority Business and Outreach Plan and provide information on G.S. 143-129 by holding meetings with the contractors.
4. Assess the effectiveness of the MBE Program, and identify opportunities to enhance it, by evaluating MBE participation and compliance and reviewing the “good faith efforts” provided in bid packages.
5. Identify subcontracting opportunities unique to each construction contract and project and concentrate heavily on targeting certified MBE firms and small businesses that have expressed an interest in Catawba County projects. Identify these opportunities and contact interested businesses no later than 10 days prior to the bid opening and provide a list of prime contractors plan to participate in the project.
6. Build new business relationships through networking and continue networking with other North Carolina cities and counties to find out how their Outreach Program and MBE program is working and sharing “best practices” and ideas to improve the program.
7. Participate in education opportunities throughout the community as they become available and offer training sessions to share the County’s Outreach Plan with interested businesses and organizations.
8. Be visible through participation in trade shows and business organizations of interest to MBE firms, majority contractors and small businesses, and provide information to the general public about the MBE Program, and continue outreach efforts to the business community.
9. Enhance the County’s web page by including the Outreach Plan and Guidelines, listing good faith efforts, and creating links to MBE resources, and creating awareness of specific subcontracting opportunities.
10. Make available to minority-focused agencies, a list of subcontracting opportunities when they are identified, no later than 10 days prior to the

bid opening, and a list of prime bidders that subcontractors may wish to contact for subcontracting consideration.

11. Continue to maintain a database specifically for MBE firms and majority contractors to ensure those firms wishing to do business with Catawba County have access to up to date information.
12. Advertise upcoming bid opportunities in minority-focused media.
13. Work with architects and engineers to make subcontracting opportunities more noticeable and more easily understood by potential contractors and subcontractors.

DESIGNER

Under the single-prime bidding, separate prime bidding, dual bidding, Construction Manager-at-Risk, or alternative contracting method, the designer must do all of the following:

- a. Attend the scheduled prebid conference to explain minority business requirements to the prospective bidders.
- b. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
- c. Maintain documentation of any contacts, correspondence, or conversations with minority business firms made in an attempt to meet the goals.
- d. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. bidders’ proposal for identification of the minority businesses that will be utilized with corresponding dollar value of the bid and affidavit listing Good Faith Efforts or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) – prior to recommendation of an award.
- e. During the construction phase of the project, review “MBE Documentation for Contract Payment” form with monthly pay applications to the owner and forward copies to the Catawba County.

PRIME CONTRACTOR(S) CONSTRUCTION MANAGER-AT RISK, AND ITS FIRST-TIER SUBCONTRACTORS

Under the single-prime bidding, the separate-prime bidding, dual bidding, Construction Manager-at-Risk and alternative contracting methods, contractor(s) must do all of the following:

- a. Attend the scheduled prebid conference.
- b. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.
- c. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification must include all of the following:

- (1) A description of the work for which the subbid is being solicited.
 - (2) The date, time and location where subbids are to be submitted.
 - (3) The name of the individual within the company who will be available to answer questions about the project.
 - (4) Where bid documents may be reviewed.
 - (5) Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.
- d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
 - e. Identify on the bid the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f) or Intent to Perform Contract with Own Workforce affidavit.
 - f. Make documentation showing evidence of implementation of Prime Contractor, Construction Manager-at-Risk and First Tier Subcontractor responsibilities available for review by Catawba County upon request.
 - g. Provide one of the following upon being named the apparent low bidder:
 - (1) an affidavit that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal. This affidavit shall give rise to a presumption that the bidder has made the required good faith effort; or
 - (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. The documentation must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations, and evidence of other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.
 - h. Identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values.
 - i. Submit with each monthly pay requests(s) and final payment(s), "MBE Documentation for Contract Payment" for designer's review.
 - j. If at any time during the construction of a project, it becomes necessary to replace a minority business subcontractor, immediately advise the owner in writing of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.
 - k. Make a good faith effort to solicit subbids from minority businesses during the construction of a project if additional subcontracting opportunities become available.

MINORITY BUSINESS RESPONSIBILITIES

Catawba County does not certify minority, disadvantaged or woman-owned businesses. Any business which desires to participate as an MBE will be required to complete and submit for certification, documents required by the

agencies listed below. Only those firms holding current certification through at least one of the following agencies will be considered eligible for inclusion in meeting the MBE participation percentage goals:

North Carolina Administration Department Historically Underutilized Business (HUB) certification.

North Carolina Department of Transportation Minority/Disadvantage/Woman-owned Business certification.

Small Business Administration 8(a) certification.

Other governmental agencies on a case-by-case basis.

A copy of these guidelines will be issued with each bid package for Catawba County building construction projects. These guidelines shall apply to all contractors regardless of ownership.

MINIMUM COMPLIANCE REQUIREMENTS

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

In determining whether a contractor has made Good Faith Efforts, Catawba County will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts. Contractors are required to earn at least 50 points. Failure to file a required affidavit or documentation that demonstrates that the contractor made the required good faith effort is grounds for rejection of the bid.

- (1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed. Value = 10 points.
- (2) Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due. Value = 10 points.

- (3) Breaking down or combining elements of work in economically feasible units to facilitate minority participation. Value = 15 points.
- (4) Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and those included in the bid documents to provide assistance in recruitment of minority businesses. Value = 10 points.
- (5) Attending any prebid meetings scheduled by the public owner. Value = 10 points.
- (6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors. Value = 20 points.
- (7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing. Value = 15 points.
- (8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit. Value = 25 points.
- (9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public building construction or repair project when possible. Value = 20 points.
- (10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands. Value = 20 points.

State of North Carolina
County of _____

Affidavit A
Listing of Good Faith Efforts

Affidavit of _____
(Name of Bidder)

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

(A minimum of 50 points is required to have achieved a “good faith effort”)

(Y/N)

- ____ (1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.
Value = 10 points

- ____ (2) Making the construction plans, specifications and requirements available for review by prospective minority businesses or providing these documents to them at least 10 days before the bid or proposals are due.
Value = 10 points

- ____ (3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.
Value = 10 points

- ____ (4) Working with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
Value = 10 points

- ____ (5) Attending any probed meetings scheduled by the public owner.
Value = 10 points

- ____ (6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.
Value = 20 points

- ____ (7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of minority business based on lack of qualification should have the reasons documented writing.
Value = 15 points

- ____ (8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily is required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
Value = 25 points

____ (9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.

Value = 20 points

____ (10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

Value = 20 points

In accordance with GS143-128.2(d) the undersigned will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon execution of a contract with the Owner. Failure to abide by this statutory provision will constitute a breach of the contract.

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

Date: _____ Name of Authorized Officer: _____

Signature: _____

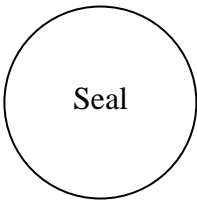
Title: _____

State of North Carolina, County of _____

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

Notary Public _____

My commission expires _____



State of North Carolina
County of _____

Affidavit B
Intent to Perform Contract with Own Workforce

Affidavit of _____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____ contract.
(Name of Project)

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

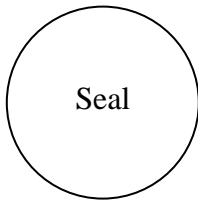
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

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

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



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

State of North Carolina
 County of _____

Affidavit C
Portion of the Work to be Performed by Minority Firms

If the portion of the work to be executed by minority businesses as defined in GS 143-128.2 (g) is equal to or greater than 5% of the bidder's total contract price, the bidder must complete this Affidavit. This Affidavit shall be provided by the apparent lowest responsible, responsive bidder within 72 hours after notification of being low bidder.

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

 (Project Name)

Project ID # _____ Amount of Bid \$ _____

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

Attach additional sheets if required.

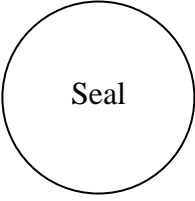
Name and Phone Number	*Minority Category	Work Description	Dollar Value

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

Pursuant to GS 143-128.2 (d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

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

Date: _____ Name of Authorized Officer: _____



Signature: _____

Title: _____

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

State of North Carolina
 County of _____

**Affidavit D
 Documentation of Good Faith Efforts**

If the goal of 5% participation by minority business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts.

Affidavit of: _____
 (Bidder)

I do certify the attached documentation as true and accurate representation of my good faith efforts.

(Attach additional sheets if required)

Name and Phone Number	*Minority Category	Work Description	Dollar Value

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

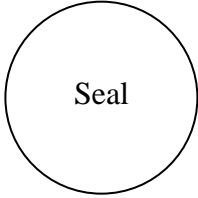
Documentation of the Bidder’s good faith efforts to meet the goals set forth in these provisions. Examples of documentation shall include the following evidence:

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

- I. Letter documenting proposed assistance offered to minority businesses in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

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

Date: _____ Name of Authorized Officer: _____



Signature: _____

Title: _____

State of _____, County of _____

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

Notary Public _____

My commission expires _____

AUTHORITY TO EXECUTE CONTRACT

If the Bidder is a Corporation, attach to this page a certified copy of corporate resolutions of the Board of Directors of the Corporation authorizing an officer of the Corporation to execute the Agreement contained within this document on behalf of the Corporation.

END OF SECTION

**CONSTRUCTION CONTRACT
FOR CATAWBA COUNTY
CATTLEMEN’S ASSOCIATION EDUCATION CENTER**

THIS AGREEMENT made as of the ___ day of _____, 2025, by and between Catawba County, a body politic and a political subdivision of the State of North Carolina, (hereinafter “County”) and _____, a North Carolina Corporation, (hereinafter “Contractor”). County and Contractor are referred to herein each as a “Party” and collectively as the “Parties”.

Project: Catawba County Cattlemen’s Association Education Center

Owner:

Catawba County
Attn: Mary Furtado
25 Government Drive
Newton, North Carolina 28658

Contractor:

NCGC License #: _____
Qualifier Name: _____

WITNESSETH:

Contractor and County, in consideration of the mutual covenants and agreements herein contained, agree as follows:

1. **SCOPE OF WORK:** Contractor shall furnish and deliver all of the materials and perform all of the work described in the Contract Documents (“Work”), except as specifically indicated in the Contract Documents to be the responsibility of others.

The Construction Agreement (“hereinafter Agreement”) consists of the Contract Documents which includes this Contract, the General Conditions of the Construction Contract, Specifications, Plans or Drawings, any Addenda issued prior to execution of this Contract or other documents listed in this Contract or incorporated herein by reference, and any Modifications executed by the Parties after execution of this Contract, all of which form the Agreement, and are as fully a part of this Agreement as if attached to this Contract or repeated herein. The Agreement represents the entire and integrated agreement between the Parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract Documents consist of this Contract and the following:

1. General Conditions to Construction Contract, attached as Exhibit A.
2. Project Manual bearing the general title “*Catawba County Cattlemen’s Association Education Center*” (“Specifications”).
3. Drawings bearing the general title “*Catawba County Cattlemen’s Association Education Center*” (“Plans”).
4. Addenda numbers [] to [], inclusive.
5. Completed Bid Form, attached as Exhibit B (“Bid”).
6. Insurance, attached as Exhibit C (“COI”).
7. Performance and Payment Bonds, attached as Exhibit D-E (“Bonds”).
8. Change Orders or Modifications Subsequently Executed by the Parties (“Modifications”).

2. TIME OF COMPLETION: The Contractor shall commence Work to be performed under this Agreement on or about _____, and shall fully complete all work hereunder on or before _____, or within approximately Three Hundred (300) consecutive calendar days from issuance of the Notice to Proceed (“Time of Completion”). “Substantial Completion” as used herein shall have the meaning assigned to it in Exhibit A, attached.

Where Contractor is prevented from completing any part of the Work within the Time of Completion due to delay beyond the control of Contractor, the Time of Completion may be extended in an amount equal to the time lost due to the delay if a Claim is made as provided in Section 4.2 of the of the General Conditions and if the performance of the Work is not, was not, or would not have been delayed by any other cause for which the Contractor is not entitled to an extension of the Time of Completion under the Contract Documents. Delays beyond the control of Contractor include, but are not limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work, fires, floods, epidemics, abnormal weather conditions, or acts of God. Contractor acknowledges and agrees that adjustments in the Time of Completion will be permitted for a delay only to the extent such delay (i) is not caused, or could not have been anticipated, by Contractor; (ii) could not be limited or avoided by the Contractor’s timely notice to Owner of the delay or reasonable likelihood that a delay will occur; and (iii) is of a duration not less than one day. In no event will claims for delay be allowed where alleged delays do not impact the critical path of the Contractor as demonstrated on the relevant schedule provided by the Contractor for the period of time in which the delay allegedly occurred.

If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, supply chain disruptions, material or labor shortages, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor is entitled to an equitable adjustment in Time of Completion, if the adjustment is essential to Contractor’s ability to complete the Work within the Time of Completion. An adjustment in the Time of Completion is Contractor’s sole and exclusive remedy for the delays described in this Section.

Furthermore, to the fullest extent permitted by law, and notwithstanding anything to the contrary in the Contract Documents, an extension of the Time of Completion pursuant to Section 8.3 of the General Conditions, shall be the sole remedy of Contractor for any (i) delay in the commencement, prosecution, or completion of the Work, (ii) hindrance or obstruction in the performance of the Work, (iii) loss of productivity, or (iv) other similar claims (collectively referred to in this Section as “Delays”) whether or not such Delays are foreseeable, unless a Delay is caused by acts of Owner constituting active interference with Contractor’s performance of the Work, and only to the extent such acts continue after Contractor furnishes Owner with notice of such interference. In no event shall Contractor be entitled to any compensation with any Delay, including, without limitation, consequential damages, lost opportunity costs, impact damages, or other similar remuneration. Owner’s exercise of any of its rights under the Contract Documents (including, without limitation, ordering changes in the Work, or directing suspension, rescheduling, or correction of the Work), regardless of the extent or frequency of Owner’s exercise of such rights or remedies, shall not be construed as active interference with Contractor’s performance of the Work.

If the Time of Completion is not adjusted, then for each day in excess of the Time of Completion in which the Work is not complete, the Contractor shall pay the Owner the amount of One Hundred Dollars (\$100.00) as liquidated damages, the rate of which is reasonably estimated and

mutually agreed upon in advance, to cover the losses to be incurred by the Owner should the Contractor fail to complete the Work within the time specified.

3. CONTRACT ADMINISTRATOR: Marty Beal, CBSA Designs, Inc., shall serve as the Contract Administrator for this Project.

Owner's Point of Contact for Project: Bryan Morales, Construction Coordinator
Contractor's Point of Contact for Project: _____
This Project was designed by: CBSA Designs, Inc.
226 2nd Street, NW
Hickory, North Carolina 28603

4. CONTRACT SUM: The Contract Sum is for an amount not to exceed _____ (\$_____). The Contract Sum includes a Fifty Thousand Dollars (\$50,000) project contingency, of which any unused funds will be returned to the County. The Contractor agrees to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction of the above titled Project in full and complete accordance with the plans, specifications and Contract Documents to the full and entire satisfaction of Catawba County with a definite understanding that no money will be allowed for extra work without written consent of the Owner.

5. PAYMENT:

- A. Submittal and Processing of Payments. Contractor shall submit Applications for Payment in accordance with Article 9 of the General Conditions. Applications for Payment will be processed by Designer as provided in the General Conditions.
- B. Progress Payments; Retainage. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the 30th day of each month during performance of the Work as provided below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to Liquidated Damages, in accordance with the Contract.
 - a. 95 percent of the value of the Work completed (with the balance being retainage).
 - b. 95 percent of cost of materials (excluding soil) and equipment not incorporated in the Work but delivered and suitable stored (with the balance being retainage).
 2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less Retainage as provided in Paragraph 9.4, such amounts set off by Owner as Liquidated Damages, and less 200 percent of Architect's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.
- C. Final Payment. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price less any such amounts set off by Owner as Liquidated Damages.

- D. Consent of Surety. Notwithstanding the foregoing, Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the Surety to such payment, return, or release.
6. BID SECURITY: Each Bid must be accompanied by bid security made payable to Owner in an amount of five percent (5%) of the Bidder's Bid Price and in the form of cash, cashier's check, certified check on some bank or trust company insured by the Federal Deposit Insurance Corporation, or a bid bond issued by a surety meeting the requirements of the Owner. The Owner will only select one Bid for contract award.
7. PAYMENT BOND: The Contractor is required to submit a Payment Bond in the amount of 100% of the Contract Sum, conditioned upon the prompt payment for all labor or materials for which Contractor or a subcontractor is liable.
8. PERFORMANCE BOND: The Contractor is required to submit a Performance Bond in the amount of 100% of the Contract Sum, conditioned upon the faithful performance of this Agreement in accordance with the Plans, Specifications and conditions of the Bid and Contract Documents.
9. CONTRACTOR REPRESENTATIONS: In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 - B. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site with respect to the Technical Data in such reports and drawings, if any.
 - E. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site.
 - F. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
 - G. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 - H. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
 - I. Contractor has given Contract Administrator written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Architect is acceptable to Contractor.

- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- K. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

10. **CONTRACTOR'S CERTIFICATIONS:** Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10:

- A. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
- B. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
- C. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
- D. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

11. **NOTICES:** Any notice required by this Agreement shall be in writing and delivered by certified or registered mail, return receipt requested to the following:

Owner:

Catawba County
Attn: Mary Furtado
25 Government Drive
Post Office Box 389
Newton, NC 28658

Contractor:

Designer:

CBSA Designs, Inc.
Attn: Marty Beal
226 2nd Street, NW
Hickory, North Carolina 28603

12. **UTILITIES:** Owner may provide certain utilities such as power or water, with connections and extensions by the Contractor.

13. **ACCESS CONTROL:** Owner will provide Contractor access to the Project site as reasonably necessary to perform the Work. The Contractor will be issued construction badges that will allow access to building / departments. These badges will be required to be turned back in to Owner before final payment is issued.

14. **POINT OF CONTACT:** The Contractor's Point of Contact ("POC") for this Project is the Catawba County Construction Coordinator, Bryan Morales, (828) 320-1606. Any questions regarding the Project shall be directed to him.

15. **HOURS OF OPERATION:** The normal hours of operation are Monday through Friday, 8:00 a.m. to 5:00 p.m. If Contractor anticipates working outside of those normal hours for any reason, Contractor must coordinate that with the Catawba County Construction Coordinator, Bryan Morales, (828) 320-1606.

16. NO SMOKING POLICY: All Catawba County grounds and buildings are smoke and tobacco free. During the performance of the Work under this Agreement, Contractor agrees to enforce this policy and to require all employees and any subcontractors or material providers to abide by this policy when on County property.
17. E-VERIFY: Contractor shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. Further, if Contractor utilizes a subcontractor, Contractor shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the North Carolina Statutes.
18. TIME OF THE ESSENCE: Time is of the essence in the performance of this Agreement.
19. COMPLIANCE WITH LAWS: Contractor represents that it is qualified and possesses the necessary skill and experience to perform the Work under this Agreement and that it will complete the Work in compliance with all applicable laws, ordinances, codes, rules and regulations. Contractor shall comply with all laws, ordinances, codes, rules, regulations, and licensing requirements that are applicable to the conduct of its business, including those of federal, state, and local agencies having jurisdiction and/or authority, during the term of this Agreement.
20. WAIVER OF DEFAULT: Waiver by the County of any default or breach in compliance with the terms of this Agreement by Contractor shall not be deemed a waiver of any subsequent default or breach and shall not be construed to be a modification of the terms of this Agreement unless stated to be such in writing, signed by an authorized representative of the County and the Contractor and attached to the Agreement, and then only to the extent expressly stated.
21. CHOICE OF LAW: This Agreement shall be governed and construed in accordance with the laws of the State of North Carolina. Venue for any adversarial proceeding shall be set in Catawba County.
22. ENTIRE AGREEMENT: This Agreement constitutes the entire agreement and understanding between the Parties respecting the subjects covered herein, and shall not be modified in any respect except in a writing that is signed by both Parties. The Parties may enter into additional agreements to the extent they are not inconsistent with the terms hereof. In the event there is an inconsistency, the terms of this Agreement shall prevail.
23. EXECUTION: This Agreement may be executed electronically and in multiple counterparts, with each part so executed being deemed an original, however, collectively constituting but a single document.
24. HEADINGS: The Section and Paragraph headings in this Agreement are not material parts of the agreement and should not be used to construe the meaning thereof.
25. SEVERABILITY: In the event that a court of competent jurisdiction holds that a provision or requirement of this contract violates any applicable law, each such provision or requirement shall continue to be enforced to the extent it is not in violation of law or is not otherwise unenforceable and all other provisions and requirements of this contract shall remain in full force and effect.
26. FORCE MAJEURE: If Contractor's performance of Work is delayed by a force majeure, Contractor shall immediately, but in no case more than forty-eight (48) hours after such conditions become known, notify County of the delay, the reasons therefore and the anticipated

duration of any such delay. Contractor's delay in the performance of services shall be excused during the duration of such force majeure, provided Notice was timely given under this Section.

27. INDEMNIFICATION: The Work to be performed by Contractor under this Agreement shall be performed entirely at Contractor's own risk. Contractor shall indemnify and save harmless the County, its commissioners, employees, agents and representatives from any and all liabilities and claims of every kind, including attorney's fees, to which County may be subjected on account of loss, destruction or damage to property or injury to or death of persons, including Contractor and persons employed by Contractor, arising out of or in connection with performance of this Agreement. The provisions of this paragraph shall not be applicable to loss or damage caused by the negligent act of omission of County or its employees.
28. INSURANCE: Contractor will carry and maintain, throughout the period of this Agreement, at Contractor's sole expense, professional and general liability insurance of no less than \$1,000,000 per occurrence and \$2,000,000 annual aggregate; and worker's compensation insurance providing statutory limit coverage, plus Employer's Liability coverage with limits of not less than \$1,000,000 per accident and \$1,000,000 for each employee for injury by disease. In addition, the workers' compensation policy must contain a waiver of subrogation in favor of the County. Defense costs shall be in excess of the limit of liability. Contractor shall also provide automobile insurance coverage, when applicable, for any owned, hired, or rented vehicle with a limit of not less than \$1,000,000 per occurrence combined single limit for bodily injury and property damage liability and a limit of not less than \$25,000 for medical payment coverage. If employees, agents or representatives of Contractor, including specifically independent contractors under contract to Contractor, transport County's clients in their personal vehicles, Contractor will ensure that any such transportation service is covered by insurance, whether it be the insurance of Contractor or of the vehicle owner, and that vehicles are maintained in a condition that imposes no apparent risk to the clients and/or to the public.

Contractor shall maintain an occurrence basis (as distinguished from a "claims made" basis) Umbrella Liability policy (true follow form) over the underlying General Liability, Automobile Liability, and Employer's Liability, with the following limits of liability: Each Occurrence \$2,000,000 / Aggregate \$2,000,000.

Contractor shall maintain Property Insurance in the form of an "All Risk" or equivalent policy form equal to the value of the Contract including any Change Orders added during the life of the contract.

Catawba County shall be named as an additional insured under Contractor's automobile and general liability insurance company. In the event of a loss arising out of, or related to the Contractor's services performed under this Agreement, Contractor's Liability insurance shall be primary (pay first) with respect to any other insurance which may be available to the County, regardless of how the "other insurance" provisions may read.

Contractor has provided a Certificate of Insurance ("COI") which is attached hereto as Exhibit C. Contractor agrees to indemnify County if the insurance policy referenced in the COI does not contain, at a minimum, the coverage amounts listed on the COI. All insurance policies put forth to satisfy the above requirements shall require the insurer issuing the underlying policy to provide County with a minimum of thirty (30) days' notice prior to modification or cancellation of said policy. The maintenance of such insurance will not in any manner affect Contractor's obligation to indemnify County as described herein.

29. ASSIGNMENT: This Agreement or any right hereunder, shall not be assigned by either party, nor shall any duty hereunder be delegated by either party, without the express written consent of the other party. Any attempt at assignment or delegation without such consent shall be void.
30. INDEPENDENT CONTRACTOR: This Agreement does not constitute Contractor an employee, agent, representative, joint venture or partner of County for any purpose whatsoever. Contractor is not authorized to make any contract, agreement, warranty or representation, express or implied, on behalf of County. Neither Contractor nor any employee or agent of Contractor has an employment status with County and are not entitled to participate in any benefits extended by County to its own employees. All persons employed by Contractor to perform Services hereunder shall be subject to the exclusive direction and control of Contractor, it being the intention of the parties that Contractor and its employees shall remain independent contractors, not subject to the control of County.
31. SIGNATURE WARRANTY: The undersigned represent and warrant that they are authorized to bind their principals to the terms of this Agreement.
32. NON-DISCRIMINATION: Neither Party nor its employees will discriminate against any person based on race, religion, creed, color, sex, gender identity and expression, pregnancy, childbirth, breastfeeding, medical conditions related to pregnancy, childbirth, or breastfeeding, sexual orientation, marital status, age, national origin, ancestry, genetic information, disability, veteran status, low income status or any class protected by local, state, or federal law in the performance of this Agreement.

[Signatures begin on next page]

This Contract entered into as of the day and year first written above.

OWNER:

CATAWBA COUNTY

Mary Furtado, County Manager

Date

CONTRACTOR:

CONTRACTOR NAME

Name, Title

Date

THIS INSTRUMENT has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act as amended.

Date: _____

Mary Morrison, Chief Financial Officer
Account Number:
Amount: \$
Source: Federal ___ State ___ Local X

APPROVED AS TO FORM

Date: _____

Jodi Stewart, County Attorney

Date: _____

Jake Robinson, Risk Management

Exhibit A

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

ARTICLE 1 GENERAL PROVISIONS

1.1. BASIC DEFINITIONS

1.1.1 Contract for Construction ("Agreement"). The Contract Documents form the Agreement. The Agreement represents the entire and integrated agreement between the Parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Agreement may be amended or modified only by a Modification.

1.1.2 Contract Documents. The Contract Documents consist of the Contract between Owner and Contractor (hereinafter the Contract), Conditions of the Contract (General, Supplementary and other Conditions as applicable), Drawings, Specifications, Addenda issued prior to execution of the Contract, advertisement or invitation to bid, Instructions to Bidders, other documents listed in the Agreement and Modifications issued after execution of the Contract. In the event of conflicts among the contract documents, the Specifications shall take precedence over the Drawings, and the Supplementary Conditions (if provided) shall take precedence over the General Conditions. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Owner and a Subcontractor or Sub-subcontractor.

1.1.3 Contractor. The person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. Unless otherwise stated, the term "Contractor" means the General Contractor or the General Contractor's authorized representative.

1.1.4 Drawings. The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

1.1.5 Designer. The Architect or Engineer registered in accordance with the provisions of Chapter 89C of the NC General Statutes, identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Designer" refers to the Designer or the Designer's authorized representative(s). The Designer shall be entitled to performance and enforcement of obligations under the Agreement intended to facilitate performance of the Designers' duties.

1.1.6 Modification. A Modification is (1) a written amendment to the Contract signed by the parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Designer.

1.1.7 Owner. The person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Owner" means the Owner or the Owner's authorized representative.

1.1.8 Project. The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.

1.1.9 Project Manual. The Project Manual is the volume usually assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract and Specifications.

1.1.10 Specifications. The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.

1.1.11 Work. The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the project.

1.2 EXECUTION, CORRELATION, AND INTENT

1.2.1 The Contract Documents shall be signed by the Owner and Contractor as provided in the Agreement. If either the Owner or Contractor or both do not sign all the Contract Documents, the Designer shall identify such unsigned Documents and insure that they are properly signed by the necessary Parties.

1.2.2 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, correlated personal observations with requirements of the Contract Documents, has checked and verified all site conditions, and hereby waives any and all claims, present or future, for misrepresentation on the part of the Owner or Designer.

1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

1.2.4 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any Subcontractor.

1.2.5 Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

1.3 OWNERSHIP AND USE OF DESIGNER'S DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS. The Drawings, Specifications and other documents prepared by the Designer are instruments of the Designer's service through which the Work to be executed by the Contractor is described. The Contractor may retain one contract record set. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Designer. The Owner will retain all common law, statutory and other reserved rights, in addition to the copyright of the drawings, specifications and other documents prepared by the Designer. All copies of them, except the Contractor's record set, shall be returned or suitably accounted for to the Designer, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Designer, and copies thereof furnished to the Contractor, are for use solely with respect to this Project; they are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects without the specific written consent of the Owner and Designer. The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Designer appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this license shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Designer. Submittal or distribution to meet official regulatory requirements or for other purposes in connection

with this Project is not to be construed as publication in derogation of the Owner's copyright or other reserved rights.

1.4 CAPITALIZATION. Terms capitalized in these General Conditions include those which are (1) specifically defined, (2) the titles of numbered articles and identified references to Paragraphs, Subparagraphs and Clauses in the document or (3) the titles of other documents.

1.5 INTERPRETATION. In the interest of brevity, the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

ARTICLE 2 OWNER

2.1 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.1.1 The Owner shall furnish plans and profiles of existing County utilities. The Contractor is responsible for locating all existing utilities prior to Work.

2.1.2 Except for permits and fees which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

2.1.3 Information or services under the Owner's control shall be furnished by the Owner with reasonable promptness to avoid delay in orderly progress of the Work.

2.1.4 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, such copies of Drawings and Project Manuals as are reasonably necessary for execution of the Work.

2.2 OWNER'S RIGHT TO CARRY OUT THE WORK. 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 commence and continue correction of such default or neglect with diligence and promptness, the Owner may after such seven-day period, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case, an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Designer's additional services and expenses 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 shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

3.1. REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.1.1 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner pursuant to Section 2.1, and shall at once report to the Designer and to the Owner errors, inconsistencies or omissions discovered. If the Contractor performs any construction activity knowing, or where Contractor should have known, it involves an error, inconsistency or omission in the Contract Documents without such notice to the Designer and Owner, the Contractor shall assume full responsibility for such performance and shall bear the full costs for correction.

3.1.2 The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Designer and Owner immediately.

3.1.3 The Contractor shall perform the Work in accordance with the Contract Documents and submittals approved pursuant to Section 3.11.

3.2 SUPERVISION AND CONSTRUCTION PROCEDURES

3.2.1 The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters.

3.2.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.

3.2.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Designer in the Designer's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.

3.2.4 The Contractor shall be responsible for inspection of portions of Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

3.3 LABOR AND MATERIALS

3.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

3.3.2 The Contractor shall enforce strict discipline, good order and compliance with all applicable laws, ordinances and County policies among the Contractor's employees and other persons carrying out the Work under the Agreement. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

3.3.3 Materials, equipment or items required for a complete job which are shown on the drawings but not mentioned in the specifications or materials, equipment or items required by the specifications but not shown on the drawings, shall be furnished and installed the same as though both shown on the drawings and required by the specifications.

3.4 WARRANTY

3.4.1 The Contractor warrants to the Owner and Designer that materials and equipment furnished under the Contract will be fit for their intended purpose, of good quality 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 with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and

authorized, may be considered defective. If required by the Owner or Designer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

3.4.2 Except as otherwise specifically stated below, the Contractor shall guarantee his materials and workmanship against defect due to faulty materials or faulty workmanship or negligence for a period of twelve (12) months following Substantial Completion of the Work, unless otherwise provided for by the Parties in the certificate of completion. Where the manufacturer's warranty on equipment or parts thereof exceeds twelve (12) months, the guarantee period on such equipment or parts thereof shall be extended to include the full warranty of the manufacturer. The Contractor shall repair or replace such defective materials, equipment or workmanship to the full satisfaction of the Owner within the stipulated guarantee period without cost to the Owner.

3.5 TAXES The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

3.6 PERMITS, FEES AND NOTICES

3.6.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Agreement and which are legally required when bids are received or negotiations concluded.

3.6.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work.

3.6.3 It is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Designer and Owner in writing, and necessary changes shall be accomplished by appropriate Modification.

3.6.4 If the Contractor performs Work the Contractor knows or should have known to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Designer and Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs.

3.7 ALLOWANCES

3.7.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities against which the Contractor makes reasonable objection.

3.7.2 Unless otherwise provided in the Contract Documents: (1) materials and equipment under an allowance shall be selected promptly by the Owner to avoid delay in the Work; (2) allowances shall cover the cost to the Contractor of materials and equipment delivered to the site and all required taxes, less applicable trade discounts; (3) Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum and not in the allowances; (4) whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by a Change Order. The amount of the Change Order shall reflect (a) the difference between actual costs and the allowances under Clause 3.7.2.(2) and (b) changes in Contractor's costs under Clause 3.7.2.(3).

3.8 SUPERINTENDENT. The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing upon request.

3.9 CONTRACTOR'S CONSTRUCTION SCHEDULES

3.9.1 Promptly after being awarded the Contract, the Contractor shall prepare and submit for the Designer's review and comment a construction schedule for the Work. The schedule shall not exceed time limits provided in the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work. If separate prime contracts are awarded by the Owner in connection with this Project, the Contractor shall additionally submit a Contractor's construction schedule for the Work to the General Contractor in order for the General Contractor to carry out its duties under Article 6.

3.9.2 The Contractor shall prepare and keep current, for the Designer's approval, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the Designer reasonable time to review submittals.

3.9.3 The Contractor shall conform to the most recent schedules.

3.10 DOCUMENTS AND SAMPLES AT THE SITE. The Contractor shall maintain at the site for the Owner one record copy of the Drawings, Specifications, addenda, Change Orders and other Modifications, in good order and marked currently to record changes and selections made during construction, and in addition approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Designer and shall be delivered to the Designer for submittal to the Owner upon completion of the Work.

3.11 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.11.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

3.11.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

3.11.3 Samples are physical examples, which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

3.11.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the Designer is subject to the limitations of Paragraph 4.1.6.

3.11.5 The Contractor shall review, approve and submit to the Designer Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.

3.11.6 The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been reviewed and approved or other appropriate action taken by the Designer. Such Work shall be in accordance with approved submittals.

3.11.7 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

3.11.8 The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Designer's review and approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Owner and Designer in writing of such deviation at the time of submittal and the Designer, after consultation with the Owner, has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Designer's approval thereof.

3.11.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, product Data, Samples or similar submittals, to revisions other than those requested by the Designer on previous submittals.

3.11.10 Informational submittals upon which the Designer is not expected to take responsive action may be so identified in the Contract Documents.

3.11.11 When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the Designer shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

3.12 USE OF SITE. The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

3.13 CUTTING AND PATCHING

3.13.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

3.13.2 The Contractor shall not damage or endanger a portion of the work or fully or partially completed construction of the Owner or separate contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

3.14 CLEANING UP

3.14.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials.

3.14.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor, or deducted from the next payment to the Contractor.

3.15 ACCESS TO WORK. The Contractor shall provide the Owner and Designer access to the Work in preparation and progress wherever located.

3.16 ROYALTIES AND PATENTS. The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of patent rights and shall hold the Owner and Designer harmless from loss unless a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents. However, if the Contractor has, or should have, reason to believe that the required design, process or product is an infringement of a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Designer.

3.17 INDEMNIFICATION

3.17.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Designer, Designer's consultants, and agents, commissioners and employees of any of them from and against claims, damages, economic losses and expenses of any kind (including but not limited to fees and charges of engineers, attorneys, and other professionals and costs related to court action or mediation), arising out of or resulting from performance of the Work under this Agreement, provided such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable unless caused in whole or part by the negligence of Owner. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 3.17.

3.17.2 In claims against any person or entity indemnified under this Section 3.17, by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Section 3.17, shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

3.17.3 The obligations of the Contractor under this Section 3.17, shall not extend to the liability of the Designer, the Designer's consultants, and agents and employees of any of them arising out of (a) the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications, or (b) the giving of or the failure to give directions or instructions by the Designer, the Designer's consultants, and agents and employees of any of them provided such giving or failure to give is the primary cause of the injury or damage.

ARTICLE 4 ADMINISTRATION OF THE CONTRACT

4.1 ADMINISTRATION OF THE CONTRACT

4.1.1 The Designer, in consultation with the Owner's Construction Manager ("Construction Manager"), will provide administration of the Contract as described in the Contract Documents, and will be the Owner's representative during construction through final payment, and with the Owner's concurrence, from time to time during the correction period described in Paragraph 11.2. The Designer will advise and consult with the Owner. The Designer will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with other provisions of the Contract.

4.1.2 The Designer will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in Paragraph 3.2. The Designer will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Designer will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work.

4.1.3 Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate through the Designer. Communications by and with the Designer's consultants shall be through the Designer. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Designer.

4.1.4 Based on the Designer's inspections, observations and evaluations of the Contractor's Applications for Payment, the Designer will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

4.1.5 The Designer will have authority to reject Work which does not conform to the Contract Documents. Whenever the Designer considers it necessary or advisable for implementation of the intent of the Contract Documents, the Designer will have authority to require additional inspection or testing of the Work in accordance with Paragraphs 12.7.2 and 12.7.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Designer nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Designer to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.

4.1.6 The Designer will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Designer's action will be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Owner, Contractor or separate contractors, while allowing sufficient time in the Designer's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Designer's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Article 3. The Designer's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Designer, of any construction means, methods, techniques, sequences or procedures. The Designer's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

4.1.7 The Designer, in consultation with the Construction Manager, will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Paragraph 7.4.

4.1.8 The Designer will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, will receive and forward to the Owner for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents.

4.1.9 The Designer will interpret and decide matters concerning performance under and requirements of the Contract documents on written request of either the Owner or Contractor. The Designer's response to such requests will be made with reasonable promptness and within any time limits agreed upon. If no agreement is made concerning the time within which interpretations required of the Designer shall be furnished in compliance with this Paragraph 4.1.9, then delay shall not be recognized on account of failure by the Designer to furnish such interpretations until 15 days after written request is made for them.

4.1.10 Interpretations and decisions of the Designer will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Designer will endeavor to secure faithful performance by both Owner and Contractor, and will not show partiality to either.

4.1.11 The Designer's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

4.1.12 If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Article 11.2 or persistently fails to carry out Work in accordance with the Contract Documents, the Designer may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Designer to stop the Work shall not give rise to a duty on the part of the Designer to exercise this right for the benefit of the Contractor or any other person or entity.

4.2 CLAIMS AND DISPUTES

4.2.1 A Claim is a demand or assertion by one of the Parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Agreement. Claims must be made pursuant to the Dispute Resolution Procedure set forth in Paragraph 4.4. The responsibility to substantiate Claims shall rest with the party making the Claim.

4.2.2 DECISION OF DESIGNER. Claims, including those alleging an error or omission by the Designer, shall be referred initially to the Designer for action as provided in Paragraph 4.4. A decision by the Designer shall be required as a condition precedent to mediation and litigation of a Claim between any Party involved in this construction Project as to all such matters arising prior to the date final payment is due, regardless of whether such matters relate to execution and progress of the Work or the extent to which the Work has been completed. The decision by the Designer in response to a Claim shall not be a condition precedent to litigation in the event (1) the position of Designer is vacant, (2) the Designer has not received evidence or has failed to render a decision within agreed time limits, or (3) 45 days have passed after the Claim has been referred to the Designer.

4.2.3 TIME LIMITS ON CLAIMS. Claims by the Contractor must be made within 10 days after occurrence of the event giving rise to such Claim or within 10 days after the Contractor first recognizes the condition giving rise to the Claim, whichever is later. Claims must be made by written notice. An additional Claim made after the initial Claim has been implemented by Change Order will not be considered.

4.2.4 CONTINUING CONTRACT PERFORMANCE. Pending final resolution of a Claim, unless otherwise agreed in writing, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

4.2.5 WAIVER OF CLAIMS: FINAL PAYMENT. The making of final payment shall constitute a waiver of Claims by the Owner except those arising from: (1) unsettled claims arising out of the Agreement; or (2) failure of the Work to comply with the requirements of the Contract Documents; or (3) terms of special warranties required by the Contract Documents.

4.2.6 CLAIMS FOR CONCEALED OR UNKNOWN CONDITIONS. If conditions are encountered at the site which are (a) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (b) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then notice by the observing party shall be given to the other party promptly before conditions are disturbed and in no event later than ten (10) days after first observance of the conditions. The Designer will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Designer determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Designer shall so notify the Owner and Contractor in writing stating the reasons. Claims by either party in opposition to such determination must be made within twenty-one (21) days after the Designer has given notice of the decision. If the Owner and Contractor cannot agree on an adjustment in the Contract Sum or Contract Time, the adjustment shall be referred to the Designer for initial determination, subject to further proceedings pursuant to Paragraph 4.4.

4.2.7 CLAIMS FOR ADDITIONAL COST. If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Paragraph 10.3. If the Contractor believes additional cost is involved for reasons including but not limited to (a) a written interpretation from the Designer, (b) a written order for a minor change in the Work issued by the Designer, (c) termination of the Contract by the Owner, Claim shall be filed in accordance with the procedure established herein. This Article and Article 7, shall be the exclusive means by which the Contractor may claim additional cost or damages from the Owner, and the Contractor hereby waives any and all right to claim additional cost or damages by any other remedy including, without limitation, *quantum meruit*, subrogation, or implied contract.

4.2.8 CLAIMS FOR ADDITIONAL TIME. If the Contractor wishes to make Claim for an increase in the Time of Completion, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary. Adverse weather conditions shall not be a basis for a Claim for additional time nor costs.

4.3 INJURY OR DAMAGE TO PERSON OR PROPERTY. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or of others for whose acts such party is legally liable, written notice as such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not

exceeding ten (10) days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for additional cost or time related to this Claim is to be asserted, it shall be filed as provided in Subparagraphs 4.2.7 or 4.2.8.

4.4 DISPUTE RESOLUTION PROCEDURE

4.4.1 To prevent disputes and litigation, it is agreed by the Parties that any claim, question, difficulty or dispute arising from this Agreement or the construction process shall be first submitted to the Designer to address the issue. Upon review of the Claim, the Designer shall take one or more of the following preliminary actions within ten (10) days of receipt of a Claim: (1) request additional supporting data from the claimant, (2) submit a schedule to the parties indicating when the Designer expects to take action, (3) reject the Claim in whole or in part stating reasons for rejection, (4) recommend approval of the Claim by the other Party, or (5) suggest a compromise. The Designer may also, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim.

4.4.2 If a Claim has been resolved, the Designer will prepare or obtain appropriate documentation.

4.4.3 The laws of the State of North Carolina shall apply to the interpretation and enforcement of this Agreement. Prior to initiating a legal action, any Party to this Agreement shall initiate the mediation process as provided in **Appendix A** to these General Conditions. Mediation, pursuant to this Section, shall be a pre-condition to initiating litigation concerning the dispute. During the pendency of any dispute and after a determination thereof, the Parties to the dispute shall act in good faith to mitigate any potential damages including utilization of construction schedule changes and alternate means of construction. All mediation sessions shall be held in Catawba County, North Carolina.

4.4.4 If the disputed issue cannot be resolved in mediation, the parties may seek resolution in the exclusive venue of the General Court of Justice in the County of Catawba and the State of North Carolina.

4.4.5 The dispute resolution procedure set forth in this Section shall be made available to any party involved in this construction Project including County, Contractor, Designer, Subcontractors as well as Sub-subcontractors and is a precondition to initiation of litigation concerning the dispute.

ARTICLE 5 SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Designer the names of persons or entities (including those who are to furnish materials or equipment fabricated to

a special design) proposed for each principal portion of the Work, including (1) Heating, ventilating, and air conditioning, (2) Plumbing, (3) Electrical, and (4) General. The Designer will promptly reply to the Contractor in writing stating whether or not the Owner or the Designer, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Designer to reply promptly shall constitute notice of no reasonable objection.

5.2.2 The Contractor shall NOT substitute any person or company listed in the Contractor's original Bid Proposal, except (1) if the listed subcontractor's bid is later determined by the Contractor to be non-responsible or non-responsive or the listed subcontractor refuses to enter into a contract for the complete performance of the work, or (2) with the approval of the Owner for good cause shown by the Contractor.

5.3 SUBCONTRACTUAL RELATIONS. By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms and conditions of the Contract Documents and this Agreement, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these documents, assumes toward the Owner and Designer. Each subcontract agreement shall incorporate by reference the applicable terms of this Agreement, and shall preserve and protect the rights of the Owner and Designer under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site.

6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

6.1.3 The General Contractor shall provide for coordination of the activities of each separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate Contractors and the General Contractor in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor and separate contractors until subsequently revised.

6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights which apply to the Contractor under the Conditions

of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10 and 11.

6.1.5 The General Contractor shall be responsible for scheduling the work of all contractors; the maintenance of the progress schedule for all prime contractors for this Project; and for the notification of the Designer of any changes in the progress schedule.

6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Construction Manager and Designer apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor to so report shall constitute an acknowledgment that the Owner's or separate Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

6.2.3 Costs caused by delays, by improperly timed activities, defective construction, or any other damages shall be borne by the Party responsible therefor. The Owner shall not be liable nor responsible for any delays or damages to the Contractor caused by separate Contractors or the Designer.

6.2.4 The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate Contractors as provided in Paragraph 10.2.5.

6.2.5 Claims and other disputes and matters in question between the Contractor and a separate Contractor shall be subject to the provisions of Sections 4.2 and 4.4, provided the separate Contractor has reciprocal obligations.

6.2.6 The Owner and each separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Paragraph 3.13.

6.3 OWNER'S RIGHT TO CLEAN UP. If a dispute arises among the Contractor, separate Contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in Paragraph 3.14, the Owner may clean up and allocate the cost among those responsible as the Designer determines to be just.

ARTICLE 7 CHANGES IN THE WORK

7.1 CHANGES

7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive, or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Designer; a Construction Change Directive requires agreement by the Owner and Designer and may or may not be

agreed to by the Contractor; an order for a minor change in the Work may be issued by the Designer alone pursuant to Paragraph 7.4.

7.1.3 Changes in the work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

7.1.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are so changed in a proposed Change Order or Construction Change Directive that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

7.1.5 Overhead and profit shall not exceed 10% of the value of labor and material for work performed by any contractor or subcontractor.

7.2 CHANGE ORDERS

7.2.1 A Change Order is a written instrument prepared by the Designer and signed by the Owner, Contractor, and Designer, stating their agreement upon all of the following: (1) a change in the Work; (2) the amount of the adjustment in the Contract Sum, if any; and (3) the extent of the adjustment in the Time of Completion, if any.

7.2.2 Methods used in determining adjustments to the Contract Sum may include those listed in Paragraph 7.3.3.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.1 A Construction Change Directive is a written order prepared by the Designer and signed by the Owner and Designer, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Time of Completion, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Time of Completion being adjusted accordingly.

7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods: (1) mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation; (2) unit prices stated in the Contract Documents or subsequently agreed upon; (3) cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or (4) as provided in Paragraph 7.3.6.

7.3.4 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Designer of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Time of Completion.

7.3.5 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Time of Completion or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

7.3.6 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 Designer on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, a reasonable allowance for overhead and profit. In such case, and also under clause 7.3.3(3), the Contractor shall keep and present, in such form as the Designer may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Paragraph 7.3.6 shall be limited to the following: costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance; costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed; rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others; costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and additional costs of supervision and field office personnel directly attributable to the change.

7.3.7 Pending final determination of cost to the Owner, amounts not in dispute may be included in Applications for Payment. The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Designer. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

7.3.8 If the Owner and Contractor do not agree with the adjustment in Time of Completion or the method for determining it, the adjustment or the method shall be referred to the Designer for determination.

7.3.9 When the Owner and Contractor agree with the determination made by the Designer concerning the adjustments in the Contract Sum and Time of Completion, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.

7.4 MINOR CHANGES IN THE WORK. The Designer or Construction Manager will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Time of Completion and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

ARTICLE 8 TIME

8.1 DEFINITIONS

8.1.1 Unless otherwise provided, Time of Completion is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

8.1.2 The date of commencement of the Work is the date established in the Agreement. The date shall not be postponed by the failure to act of the Contractor or of persons or entities for whom the Contractor is responsible.

8.1.3 The date of Substantial Completion is the date certified by the Designer in accordance with Paragraph 9.9.

8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

8.2 PROGRESS AND COMPLETION

8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Time of Completion is a reasonable period for performing the Work. The Contractor and the Contractor's surety shall be liable for and shall pay the Owner such sums as shall be set forth in the Agreement between Owner and Contractor as liquidated damages each calendar day of delay until the work is substantially complete.

8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by the Agreement to be furnished by the Contractor. The date of commencement of the work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by a notice to proceed given by the Designer, the Contractor shall notify the Owner and Designer in writing not less than five days before commencing the Work.

8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Time of Completion.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 If the Contractor is delayed at any time in progress of the Work by an act or neglect of the Owner or Designer, or of an employee of either, or of a separate Contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidably casualties or other causes beyond the Contractor's control, or by delay authorized by the Owner pending litigation, or by other causes which the Designer determines may justify delay, then the Time of Completion shall be extended by Change Order for such reasonable time as the Designer may determine.

8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Paragraph 4.2.8.

8.3.3 Should the Work be interrupted or hindered by the Owner or Designer, the Contractor shall be entitled to an extension of time pursuant to Paragraph 4.2 in an amount equal to such interruption or hindrance but such interruption or hindrance shall not constitute a claim for damages nor for loss of anticipated profits by the Contractor.

8.3.4 Should the Work be delayed in whole by any act or acts of the Contractor, the Contractor shall not be entitled to an extension of time pursuant to Paragraph 4.2, nor shall such delay constitute a claim either for damages or for loss of anticipated profits by the Contractor. Should the Work be delayed in part by any act or acts of the Contractor and in part by any act or acts of the Owner or Designer, the Contractor shall be entitled to an extension of time pursuant to Paragraph 4.2 in an amount equal to that portion of the delay for which the Contractor is not responsible, but such delay shall not constitute a claim either for damages or for loss of anticipated profits by the Contractor.

8.3.5 Should the Work be delayed, interrupted or hindered, in whole or in part, by any act or acts of any separate prime contractors, the Contractor shall be entitled to an extension of time pursuant to Paragraph 4.2.8 in an amount equal to such delay, interruption or hindrance but such delay, interruption or hindrance shall not constitute a claim for damages nor for loss of anticipated profits by the Contractor.

ARTICLE 9 PAYMENTS AND COMPLETION

9.1 CONTRACT SUM. The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

9.2 SCHEDULE OF VALUES. Before the first Application for Payment, the Contractor shall submit to the Designer a Schedule of Values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Designer may require. This Schedule of Values, unless objected to by the Designer, shall be used as a basis for reviewing the Contractor's Applications for Payment.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 At least twenty (20) days before the date established for each progress payment, the Contractor shall submit to the Designer an itemized Application for Payment for operations completed in accordance with the schedule of values. Such application shall be notarized, supported by such data substantiating the Contractor's right to payment as the Owner or Designer may require, such as copies of requisitions from subcontractors and material suppliers and reflecting retainage if provided for elsewhere in the Contract Documents.

9.3.2 Such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives but not yet included in Change Orders.

9.3.3 Such applications may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.

9.3.4 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

9.3.5 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, and as represented by signed releases or lien waivers, be free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work.

9.3.6 Provided an Application for Payment is received by the Designer not later than the tenth (10th) day of a month, the Owner shall make payment to the Contractor not later than the thirtieth (30th) day of the month.

9.4 RETAINAGE. To ensure proper performance of this Contract, Owner shall retain five percent (5%) of the amount of each approved Application for Payment until the Project Work is 50% complete provided that the Contractor continues to perform satisfactorily and any non-conforming Work identified in writing prior to that date has been corrected by the Contractor and accepted by the Owner. Thereafter, if the Owner determines the Contractor's performance is unsatisfactory, the Owner may reinstate retainage in the amount of 5% for each subsequent periodic Application for Payment until the Contractor's performance becomes satisfactory. The Project shall be deemed fifty percent (50%) complete when the Contractor's gross Project invoices, excluding the value of materials stored off-site, equal or exceed fifty percent (50%) of the value of the Contract Sum, except the value of materials stored on-site shall not

exceed twenty percent (20%) of the Contractor's gross Project invoices for the purpose of determining whether the Project is fifty percent (50%) complete. Following 50% completion of the Project, the Owner may also withhold additional retainage from any subsequent periodic payment, not to exceed 5%, in order to allow the Owner to retain 2 ½% total retainage through the completion of the Project. Within sixty (60) days after the submission of a final pay application, the Owner with written consent of the Surety shall release to the Contractor all retainage on payments held by the Owner if (1) the Owner receives a certificate of substantial completion from the Designer or design consultant in charge of this Project, or (2) the Owner receives beneficial occupancy or use of the Project. However, the Owner may retain sufficient funds to secure completion of the Project or corrections to any Work. If the Owner retains funds, the amount retained shall not exceed two and one half times the estimated cost of the Work to be completed or corrected. Any reduction in the amount of retainage on payments shall be with the consent of the Contractor's Surety. Retainer provisions contained in Contractor's subcontracts may not exceed the terms and conditions for retainage provided herein. Contractor is further required to satisfy the retainage provisions of N.C.G.S. 143- 134.1(b2) with regard to subcontracts for early finishing trades (structural steel, piling, caisson, and demolition) and to coordinate the release of retainage for such trades from the retainage held by Owner from the Contractor pursuant to statute. Nothing herein shall prevent the Owner from withholding payment to the Contractor in addition to the amounts identified herein for unsatisfactory job progress, defective construction not remedied, disputed work, or third party claims filed against the owner or reasonable evidence that a third party claim will be filed.

9.5 CERTIFICATES FOR PAYMENT

9.5.1 The Designer will, within seven (7) days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Designer determines is properly due, or notify the Contractor and Owner in writing of the Designer's reasons for withholding certification in whole or in part as provided in Paragraph 9.6.1.

9.5.2 The Designer's certification for payment shall constitute a representation to the Owner, based on the Designer's inspections at the site and on the data comprising the Contractor's Application for Payment, that the Work has progressed to the point indicated and that the inspections of the construction, repairs, or installations have been conducted with the degree of care and professional skill and judgment ordinarily exercised by a member of his profession; and that to the best of his knowledge and in the professional opinion of the Designer, the Contractor has fulfilled the obligations of such plans, specifications, and contract. The Designer's certification for payment shall be signed and sealed by the Designer and presented to the Owner. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to minor deviations from the Contract Documents correctable prior to completion and to specific qualifications expressed by the Designer. The issuance of a Certificate for Payment shall further constitute a representation by the Designer, that the Contractor is entitled to payment in the amount certified.

9.6 DECISIONS TO WITHHOLD CERTIFICATION

9.6.1 The Designer may decide not to certify payment and may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Designer's opinion, the representations to the Owner required by Paragraph 9.5.2 cannot be made. If the Designer is unable to certify payment in the amount of the Application, the Designer will notify the Contractor and Owner as provided in Paragraph 9.5.1. If the Contractor and Designer cannot agree on a revised amount, the Designer will promptly issue a Certificate for Payment for the amount for which the Designer is able to make such representations to the Owner. The Designer may also decide not to certify payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Designer's opinion to

protect the Owner from loss due to: defective Work not remedied; third party claims filed or reasonable evidence indicating probable filing of such claims; failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment; reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum; damage to the Owner or another contractor; reasonable evidence that the Work will not be completed within the Time of Completion, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or persistent failure to carry out the Work in accordance with the Contract Documents.

9.6.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

9.7 PROGRESS PAYMENTS

9.7.1 After the Designer has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Designer.

9.7.2 The Contractor must promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor must, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Subcontractors in similar manner.

9.7.3 The Designer will furnish to a Subcontractor, upon request and if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Designer and Owner on account of portions of the Work done by such Subcontractor.

9.7.4 Neither the Owner nor Designer shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.

9.7.5 Payment to material suppliers must be treated in a manner similar to that provided in Paragraphs 9.7.2, 9.7.3, and 9.7.4.

9.7.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

9.8 FAILURE OF PAYMENT. The Contractor must not stop the Work for the failure of the Designer to issue a Certificate of Payment or the Owner to make timely payment.

9.9 SUBSTANTIAL COMPLETION

9.9.1 Substantial Completion is the stage in the progress of the Project when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents, so the Owner can occupy or utilize the Work for its intended use.

9.9.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Designer a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item or such list does not alter the responsibility for the Contractor to complete all Work in accordance with the contract Documents. Upon receipt of the Contractor's list, the Designer will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Designer's inspection discloses any item,

whether or not included on the Contractor's list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Designer. The Contractor shall then submit a request for another inspection by the Designer to determine Substantial Completion. When the Work or designated portion thereof is substantially complete, the Designer will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate.

9.9.3 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Designer, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

9.10 PARTIAL OCCUPANCY OR USE

9.10.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is authorized by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Designer as provided under Subparagraph 9.9.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Designer.

9.10.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Designer shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

9.10.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

9.11 FINAL COMPLETION AND FINAL PAYMENT

9.11.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Designer will promptly make such inspections and, when the Designer finds the Work acceptable under the Contract Documents and the Contract fully performed, the Designer will promptly issue a Final Certificate for Payment stating that to the best of the Designer's knowledge, information and belief, and on the basis of the Designer's observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said Final Certificate is due and payable. The Designer's Final Certificate for Payment will constitute a further representation that the conditions listed in Paragraph 9.11.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

9.11.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Designer (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Agreement to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5) if required by the Owner, other or additional data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances rising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

9.11.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Designer so confirms, the Owner shall, upon application by the Contractor and certification by the Designer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for work not fully completed and accepted is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Designer prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

9.11.4 Acceptance of final payment by the Contractor, Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract and construction of the Project.

10.1.2 In the event the Contractor encounters on the site material reasonably believed to be asbestos or polychlorinated biphenyl (hereinafter "PCB") which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner and Designer by phone and in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of the Owner and Contractor if in fact the material is asbestos or PCB and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos or PCB, or when it has been rendered harmless, by written agreement of the Owner and Contractor, or in accordance with final determination by the Designer.

10.1.3 The Contractor shall not be required to perform without consent of Owner and Designer any Work relating to asbestos or PCB.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to: employees working on the Project and other persons who may be affected thereby; the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury, or loss.

10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including erecting necessary barricades or other temporary walls and structures as required during the period of construction, posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.

10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

10.2.5 The Contractor shall promptly remedy damage and loss to property referred to in Paragraphs 10.2.1.(2) and (3), caused in whole or in part by the Contractor, Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Paragraphs 10.2.1.(2) and (3), except damage or loss attributable to acts or omissions of the Owner or Designer and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Article 3. All costs to repair any damage and loss to property referred to in Paragraphs 10.2.1.(2) and (3), shall be the sole responsibility of the Contractor and such repair or replacement shall be performed expeditiously without cost to the Owner.

10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's Superintendent, required under Paragraph 3.8, unless otherwise designated by the Contractor in writing to the Owner and Designer.

10.2.7 The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.

10.2.8 Existing utilities have been identified and described in the Contract Documents insofar as information is reasonably available, however, it is the Contractor's responsibility to verify such information and to preserve all existing utilities whether shown in the Contract Documents or not. If utility conflicts are encountered by the Contractor during construction, Contractor shall file sufficient notice to the owners of the utilities so that they may make the necessary adjustments, as well as the Designer or Designer.

10.3 EMERGENCIES. In an emergency affecting the safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Paragraphs 4.2.7, 4.2.8 and Article 7. As soon as practicable, the Contractor must notify the Construction manager and Designer of any such emergency.

ARTICLE 11 UNCOVERING AND CORRECTION OF WORK

11.1 UNCOVERING OF WORK

11.1.1 If a portion of the Work is covered contrary to the Designer's request or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Designer, be uncovered for the Designer's observation and be replaced at the Contractor's sole expense without change in the Time of Completion.

11.1.2 If a portion of the Work has been covered which the Designer has not specifically requested to observe prior to its being covered, the Designer may request to see such Work and it shall be uncovered by the Contractor. If such Work is not in accordance with the Contract Documents, the Contractor shall pay such costs unless the condition was caused by the Owner or a separate contractor in which event the Owner or separate contractor shall be responsible for payment of such costs. If such work is in accordance with the Contract Documents, the Owner, by appropriate Change Order, shall be charged with the cost of uncovering and replacement.

11.2 CORRECTION OF WORK

11.2.1 The Contractor shall promptly correct Work rejected by the Designer or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear any and all costs of correcting such rejected Work, including additional testing and inspections and compensation for the Designer's services and expenses made necessary thereby.

11.2.2 If, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Paragraph 9.10.1 or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. This period of one year shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the work. This obligation under this Paragraph 11.2.2 shall survive acceptance of the Work under the Contract and termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.

11.2.3 The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

11.2.4 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Paragraph 2.2. If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Designer, the Owner may remove it and store the salvageable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten (10) days after written notice, the Owner may upon ten (10) additional days' written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the Designer's services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

11.2.5 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

11.2.6 Nothing contained in this Section 11.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the time period of one year as described in Paragraph 11.2.2, relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the work.

11.3 ACCEPTANCE OF NONCONFORMING WORK. If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 12 MISCELLANEOUS PROVISIONS

12.1 GOVERNING LAW. This Agreement shall be governed by and in accordance with the laws of the State of North Carolina. All actions relating in any way to this Contract, shall be brought exclusively in the General Court of Justice in the County of Catawba and the State of North Carolina, after exhausting the dispute resolution procedure set forth in Section 4.4, herein.

12.2 SUCCESSORS AND ASSIGNS. The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other Party hereto and to partners, successors, assigns, and legal representatives of such other Party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither Party to the Contract shall assign the Contract as a whole without written consent of the other. If either Party attempts to make such an assignment without such consent, that Party shall nevertheless remain legally responsible for all obligations under the Contract.

12.3 WRITTEN NOTICE. Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the business address listed in the Agreement.

12.4 RIGHTS AND REMEDIES. Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

12.5 WAIVER OF RIGHTS. No action or failure to act by the Owner or Designer shall constitute an obligation or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

12.6 COMPLIANCE WITH LAWS. Contractor represents that it is in compliance with all Federal, State, and local laws, regulations or orders, as amended or supplemented. The implementation of this contract will be carried out in strict compliance with all Federal, State, or local laws regarding discrimination in employment.

12.7 TESTS AND INSPECTIONS

12.7.1 Tests, inspections, and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and the Owner shall bear the costs of tests, inspections, and approvals. Should any retest be necessary due to the failure of the Work to pass the first test or for any other reason whatsoever, the Contractor shall bear all related costs of retests, inspections or re-inspections, and approvals. The Contractor shall give the Designer timely notice of when and where tests and inspections are to be made so the Designer may observe such procedures.

12.7.2 If the Designer, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Paragraph 12.7.1, the Designer will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Designer of when and where tests and inspections are to be made so the Designer may observe such procedures.

12.7.3 If such procedures for testing, inspection or approval under Paragraphs 12.7.1 and 12.7.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs made necessary by such failure including the costs of bringing the Work into compliance with the Contract Documents as well as the costs of any repeated procedures, testing, inspection or approval and the compensation for the additional services and expenses of the Designer.

12.7.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Designer.

12.7.5 If the Designer is required by the Contract Documents to observe tests, inspections, or approvals, the Designer will do so promptly and, where practicable, at the normal place of testing.

12.7.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

12.8 COMMENCEMENT OF STATUTORY LIMITATION PERIOD. As between the Owner and Contractor:

Before Substantial Completion. As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than such date of Substantial Completion.

Between Substantial Completion and Final Certificate for Payment. As to acts or failures to act occurring subsequent to the relevant date of Substantial Completion and prior to issuance of the Final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of issuance of the Final Certificate for Payment.

After Final Certificate for Payment. As to acts or failures to act occurring after the relevant date of issuance of the Final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Contractor pursuant to any warranty provided under Paragraph 3.4, the date of any correction of the Work or failure to correct the Work by the Contractor under Section

11.2 or the date of actual commission of any other act or failure to perform any duty or obligation by the Contractor or Owner, whichever occurs last.

ARTICLE 13 TERMINATION OR SUSPENSION OF THE CONTRACT

13.1 TERMINATION BY THE CONTRACTOR

13.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 180 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor, for any of the following reasons: issuance of an order of a court or other public authority having jurisdiction; an act of government, such as a declaration of national emergency, making material unavailable; because the Designer has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Paragraph 9.6.

13.1.2 If one of the above reasons exists, Contractor shall send written notice of the condition to Owner and Designer and Owner and Designer shall have thirty (30) days to cure or correct the condition. If owner fails to cure the Condition, the Contractor may, upon seven (7) additional days' written notice to the Owner and Designer, terminate the Contract and recover from the Owner payment for work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, not including overhead, profit, or damages. In no event shall Owner be responsible for lost profits, special or consequential damages.

13.2 TERMINATION BY THE OWNER FOR CAUSE

13.2.1 The Owner may terminate the Contract if the Contractor: refuses or fails to supply enough properly skilled workers or proper materials; fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors; persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or otherwise is in substantial breach of a provision of the Contract Documents.

13.2.2 When any of the above reasons exist, the Owner, upon certification by the Designer that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven (7) days written notice and opportunity to cure, terminate employment of the Contractor and may, subject to any prior rights of surety: take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor; and finish the Work by whatever reasonable method the Owner may deem expedient.

13.2.3 When the Owner terminates the Contract for one of the reasons stated in Paragraph 13.2.1, the Contractor shall not be entitled to receive further payment.

13.2.4 If the unpaid balance of the Contract Sum does not cover the cost of finishing the Work, the Contractor shall pay the difference to the Owner. The amount to be paid to the Owner, shall be certified by the Designer, upon application, and this obligation for payment shall survive termination of the Contract.

13.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

13.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay, or interrupt the Work in whole or in part for such period of time as the Owner may determine.

13.4 TERMINATION BY OWNER FOR CONVENIENCE

13.4.1 The Owner may, at any time, terminate the Contract for the Owner's Convenience and without cause.

13.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall:

1. Cease operations as directed by the Owner in the notice;
2. Take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
3. Except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

13.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work properly executed and costs incurred by reason of such termination. Termination shall not relieve the Contractor of its responsibilities for any completed portion of the Work nor shall it relieve its sureties of their obligation for and concerning any claims arising out of the Work performed.

13.4.4 In the event of termination by the Owner for convenience, the Contractor shall not be entitled to any other compensation, including compensation for lost profit, lost opportunity, or any other direct, special or consequential cost, loss or damage.

13.5 BANKRUPTCY

13.5.1 The bankruptcy of the Contractor shall not terminate this Contract until such time that it is specifically rejected by the Trustee or Contractor in bankruptcy. During the election period the Contractor has to assume or reject this Contract, the Contractor shall continue to perform its Work under the Contract.

13.5.2 In the event the Contractor in Bankruptcy assumes the Contract, the Contractor shall apply progress payments to all of its unpaid obligations on this Project before using any of these monies for either administrative expenses of the bankruptcy or as general assets of the estate.

13.6 SECURITY OF NON-PUBLIC RECORDS.

13.6.1 Pursuant to NCGS § 132-1.7 entitled, "Sensitive Public Security Information", public records, as defined in NCGS § 132-1, shall not include information containing specific details of public security plans and arrangements or the detailed plans and drawings of public buildings and infrastructure facilities. Therefore, all information provided, received, gathered or obtained by Contractor containing specific details of public security plans and arrangements or the detailed plans and drawings of public buildings and infrastructure facilities shall be held confidential and shall be used by the Contractor only for the purpose of fulfilling the terms of this Agreement. All plans and drawings shall be returned to the County, or otherwise destroyed at the direction of the County, upon termination or expiration of this Agreement. Any breach of this paragraph by Contractor shall result in the immediate termination of this contract.

Appendix A
RULES IMPLEMENTING MEDIATED
SETTLEMENT CONFERENCES IN
CATAWBA COUNTY
Adopted: February 5, 2024

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RULE

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RULE 1. INITIATING MEDIATED SETTLEMENT CONFERENCES

- A. Purpose of Mandatory Settlement Conferences. Pursuant to Catawba County Code Section 8-35 and NCGS §143-128(f1), these Rules are promulgated to implement a system of settlement events which are designated to focus the parties' attention on settlement rather than on claim preparation and to provide a structured opportunity for settlement negotiations to take place. Nothing herein is intended to limit or prevent the parties from engaging in settlement procedures voluntarily at any time prior to or during commencement of the dispute resolution process.
- B. Initiating the Dispute Resolution Process.
1. Any party to a Catawba County contract governed by Catawba County Code Chapter(s) 8 or 30 and who is a party to a dispute arising out of the construction process in which the amount in controversy is at least \$15,000 may submit a written request to Catawba County for mediation of the dispute.
 2. Prior to submission of a written request for mediation to Catawba County, the parties should give notice of any and all claims in accordance with their respective contracts, obtain decisions on the claims as required or allowed by their respective contracts, and attempt to resolve the dispute according to the terms and conditions in their respective contracts. The Mediator may adjourn any mediated settlement conference if the Mediator believes, in his or her sole discretion, that the parties have not satisfied all of the terms and conditions of their respective contracts and that doing so will enhance the prospects for a negotiated settlement.
- C. Condition Precedent to Litigation. Before any party to a Contract may commence a civil action against Catawba County seeking remedies for breach or non-performance of the Contract by the County, said party must first initiate the dispute resolution process under these rules and attend and participate in good faith in the mediated settlement conference.

RULE 2. SELECTION OF A MEDIATOR

- A. Selection of a Certified Mediator by Agreement of the Parties. The parties shall select a Certified Mediator within twenty-one (21) days of receipt by the County of the request for mediation. If the Mediator selected is not available or declines to participate for any reason, the parties shall select another Certified Mediator. If the parties are unable to agree on a mediator within twenty-one (21) days of the request for mediation, the County shall have the right in its absolute discretion to appoint a Certified Mediator.
- B. Withdrawal or Disqualification of a Mediator. Any party may request replacement of a mediator by Catawba County for good cause. If a mediator withdraws or is disqualified, then the parties shall select another Certified Mediator within three (3) days of the notice of withdrawal or disqualification. A mediator who has withdrawn or been disqualified shall not be entitled to receive an administrative fee, unless the mediation has been commenced. If the parties do not select and designate a mediator within three (3) days from the notice of withdrawal or disqualification, the County shall have the right in its absolute discretion to appoint a Certified Mediator.

RULE 3. THE MEDIATED SETTLEMENT CONFERENCE

- A. Where the Conference is to be Held. Unless all parties and the mediator otherwise agree, the mediated settlement conference shall be held in Catawba County. The mediator shall be responsible for reserving a place and making arrangements for the conference and for giving timely notice of the time and location of the conference to all attorneys, unrepresented parties and other persons and entities required to attend.

- B. When the Conference is to be Held. The mediation shall be completed within ninety (90) days after selection of the mediator.
- C. Request to Extend the Deadline for Completion. A party, or the mediator, may request that Catawba County extend the deadline for completion of the mediated settlement conference. Such request shall state the reasons the extension is sought and shall be served by the moving party upon the other parties and the mediator. If any party does not consent to the request, said party shall promptly communicate its objection, and the reasons for its objection, to Catawba County. Catawba County may grant the request by setting a new deadline for completion of the conference, or deny the request to extend the deadline, resulting in an impasse of the mediation.
- D. Recesses. The mediator may recess the mediated settlement conference at any time and may set times for reconvening. If the time for reconvening is set before the conference is recessed, no further notification is required for persons present at the conference.
- E. Postponements. A mediated settlement conference session may be postponed for good cause only after notice by the movant to all parties of the reason for the postponement and a finding of good cause by Catawba County.
- F. Construction Project. The mediated settlement conference or the matter subject of the mediated settlement conference shall not be cause for the delay of the construction project which is the focus of the dispute.

RULE 4. DUTIES OF PARTIES AND OTHER PARTICIPANTS

- A. Attendance.
 1. All parties to the dispute must attend the mediated settlement conference. Failure of a party to a construction contract to attend the mediated settlement conference will result in Catawba County's withholding of monthly payment to that party until such party attends the mediated settlement conference.
 2. Attendance shall constitute physical attendance, not by telephone or other electronic means. Notwithstanding the foregoing, all parties and persons required to attend a mediated settlement conference may agree to conduct the conference using remote technology, or using a hybrid of in-person attendance and remote technology.
 3. Any party that is a nongovernmental entity shall be represented at the mediated settlement conference by an officer, employee, or agent who is not the entity's outside counsel and who has been authorized to decide whether, and on what terms, to settle the action on behalf of the entity, or who has been authorized to negotiate on behalf of the entity and can promptly communicate during the conference with persons who have decision-making authority to settle the action; provided, however, that if a specific procedure is required by law (e.g., a statutory pre-audit certificate) or the entity's governing documents (e.g., articles of incorporation, bylaws, partnership agreement, articles of organization, or operating agreement) to approve the terms of the settlement, then the representative shall have the authority to negotiate and make recommendations to the applicable approval authority in accordance with that procedure.
 4. Any party that is a governmental entity shall be represented at the mediated settlement conference by an employee or agent who is not the entity's outside counsel and who: (i) has authority to decide on behalf of the entity whether and on what terms to settle the action; (ii) has been authorized to negotiate on behalf of the entity and can promptly communicate during the conference with persons who have decision-making authority to settle

the action; or (iii) has authority to negotiate on behalf of the entity and to make a recommendation to the entity's governing board, if under applicable law the proposed settlement terms can be approved only by the entity's governing board. Notwithstanding anything in these rules to the contrary, any agreement reached which involves a governmental entity may be subject to the provisions of NCGS §159-28(a).

5. Attorneys on behalf of parties may attend the mediated settlement conference but are not required to do so.
6. Sureties or insurance company representatives are not required to attend the mediated settlement conference unless any monies paid or to be paid as a result of any agreement reached as a result of mediation require their presence or acquiescence. If such agreement or presence is required, then authorized representatives of the surety or insurance company must attend the mediation.

- B. Finalizing the Agreement. If an agreement is reached in the mediated settlement conference, parties to the agreement shall reduce the terms to writing and sign it along with their counsel, if counsel is present, prior to the adjournment of the conference. If additional time is required to formalize an agreement, the mediator may recess the conference and set a time certain for reconvening pursuant to Rule 3(D). The time for reconvening shall be as soon as practicable to allow for formalization of the agreement.
- C. Mediation Fee. The mediation fee and any ancillary fees shall be paid in accordance with Rule 6 Compensation of the Mediator.
- D. Failure to Compensate the Mediator. Any party's failure to compensate the mediators in accordance with Rule 6 shall subject that party to a withholding of said amount of money from the party's monthly payment by Catawba County.

RULE 5. AUTHORITY AND DUTIES OF MEDIATORS

- A. Authority of Mediators.
 1. Control of Conference. The mediator shall at all times be in control of the mediated settlement conference and the procedures to be followed.
 2. Private Consultation. The mediator may communicate privately with any participant or counsel prior to and during the mediated settlement conference. The fact that private communications have occurred with a participant shall be disclosed to all other participants at the beginning of the conference.
 3. Scheduling the Conference. The mediator shall make a good faith effort to schedule the mediated settlement conference at a time that is convenient with the participants, attorneys and mediator. In the absence of agreement, the mediator shall select the date for the mediated settlement conference.
- B. Duties of Mediators.
 1. The mediator shall define and describe the following at the beginning of the mediated settlement conference:
 - a. The process of mediation;
 - b. The difference between mediation and other forms of conflict resolution;
 - c. The costs of the mediated settlement conference;

- d. That the mediated settlement conference is not a trial, the mediator is not a judge, and the parties retain their legal rights if they do not reach settlement;
- e. The circumstances under which the mediator may meet and communicate privately with any of the parties or with any other person;
- f. Whether and under what conditions communications with the mediator will be held in confidence during the conference;
- g. The inadmissibility of conduct and statements as provided by NCGS §7A-38.1(l);
- h. The duties and responsibilities of the mediator and the participants; and
- i. Any agreement reached will be reached by mutual consent.

2. Disclosure. The mediator has a duty to be impartial and to advise all participants of any circumstance bearing on possible bias, prejudice or partiality.

3. Declaring an Impasse. It is the duty of the mediator to timely determine that an impasse exists and that the mediated settlement conference should end.

4. Reporting the Results of the Conference. The mediator shall report to Catawba County within ten (10) days of the mediated settlement conference whether or not an agreement was reached by the parties. If an agreement was reached, the report shall state the nature of said agreement. The mediator's report shall inform Catawba County of the absence of any party known to the mediator to have been absent from the mediated settlement conference without permission. Catawba County must require the mediator to provide statistical data for evaluation of the mediated settlement conference program.

5. Scheduling and Holding the Conference. It is the duty of the mediator to schedule the mediated settlement conference and conduct it prior to the deadline of completion set by these Rules. Deadlines for completion of the conference shall be strictly observed by the mediator unless said time limit is changed by a written order from Catawba County.

RULE 6. COMPENSATION OF THE MEDIATOR

The parties shall compensate the mediator for mediation services, and any ancillary fees related to the mediation, at the rate in accordance with the rate charged for Superior Court mediation. The parties shall also pay to the mediator a one-time per case administration rate in accordance with the rate charged for Superior Court mediation, which is due upon appointment.

RULE 7. MEDIATOR CERTIFICATION

All mediators shall be properly certified in accordance with the rules certifying mediators in Superior Court in North Carolina. (Except when otherwise allowed by Catawba County upon the request of the parties to the mediation.) When selecting mediators, the parties may designate a preference for mediators with a background in construction law or public construction contracting. Such requirements, while preferred, are not mandatory under these Rules. All mediators chosen must either demonstrate they are certified in accordance with the Rules for Mediated Settlement Conferences in Superior Court or must gain the consent of Catawba County to mediate any dispute in accordance with these Rules.

RULE 8. RULE AMENDMENTS

These Rules are subject to amendment by Catawba County at any time the County deems appropriate.

RULE 9. TIME LIMITS

Any time limit provided for by these Rules may be waived or extended by the County for good cause shown.

RULE 10. NO RECORDING

There shall be no stenographic, audio, or video recording of the mediation process by any participant. This prohibition includes recording either surreptitiously or with the agreement of the parties.

CONTRACTOR'S GENERAL WARRANTY
CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

The undersigned Contractor hereby warrants, in accordance with the applicable provisions and terms set forth in the Contract Documents, all materials and workmanship incorporated in CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER against any and all defects due to faulty materials or workmanship or negligence for a period of 12 months, or such longer periods as set forth in the Contract Documents, from the effective date of Substantial Completion. This Contractor further warrants all work incorporated in this project to remain leak-proof and watertight at all points for a period of 60 months from the effective date of Substantial Completion.

This Warranty shall be binding where defects occur due to normal usage conditions and does not cover willful or malicious damage, damage caused by acts of God or other casualty beyond the control of the Contractor.

This Warranty shall be in addition to other warranties and guarantees set forth in the Contract Documents and shall not act to constitute a waiver of additional protection of the Owner afforded, where applicable, by consumer protection and product liability provisions of law, and these stipulations shall not constitute waiver of any additional rights or remedies available to the Owner under the law.

This ____ day of _____, 20____.

Signature of Affiant

Print or Type Name: _____

Title: _____

State of _____ County of _____

Signed and sworn to (or affirmed) before me, this the ____
day of _____, 20____.

My Commission Expires: _____

Notary Public
Notary Printed Name: _____

||| (Affix Official/Notarial Seal) |||

END OF SECTION

PERFORMANCE BOND

DATE OF EXECUTION: _____

NAME OF PRINCIPAL: _____
(CONTRACTOR) _____

NAME OF SURETY: _____

NAME OF CONTRACTING BODY: CATAWBA COUNTY

AMOUNT OF BOND: _____

CONTRACT NUMBER: _____

KNOW ALL MEN BY THESE PRESENTS, THAT WE, the PRINCIPAL and SURETY above named, are held and firmly bound unto the above named CONTRACTING BODY, hereinafter the Contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the PRINCIPAL entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the PRINCIPAL shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also as well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements as of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR AS PRINCIPAL
(SEAL) _____
Bidder's and Corporate Seal
Signature: _____
Printed Name: _____
Title: _____

SURETY
(SEAL) _____
Surety's Name and Corporate Seal
Signature: _____
Printed Name: _____
Title: _____

ATTEST:

Signature and Title

Signature and Title

PAYMENT BOND

DATE OF EXECUTION: _____

NAME OF PRINCIPAL: _____
(CONTRACTOR) _____

NAME OF SURETY: _____

NAME OF CONTRACTING BODY: CATAWBA COUNTY

AMOUNT OF BOND: _____

CONTRACT NUMBER: _____

KNOW ALL MEN BY THESE PRESENTS, THAT WE, the PRINCIPAL and SURETY above named, are held and firmly bound unto the above named CONTRACTING BODY, hereinafter the Contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the PRINCIPAL entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the PRINCIPAL shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR AS PRINCIPAL

SURETY

(SEAL) _____
Bidder's and Corporate Seal
Signature: _____
Printed Name: _____
Title: _____

(SEAL) _____
Surety's Name and Corporate Seal
Signature: _____
Printed Name: _____
Title: _____

ATTEST:

Signature and Title

Signature and Title

CONTRACTOR INSURANCE REQUIREMENTS

Contractor shall maintain at all times during the term of this Contract, at the contractor's sole expense:

I. Commercial General Liability Insurance

Contractor shall maintain Commercial General Liability insurance written on an occurrence basis, including coverage for products and completed operations liability, contractual liability, liability from independent contractors, property damage liability, bodily injury liability, and personal injury liability with limits of not less than \$1,000,000 per occurrence and \$2,000,000 annual aggregate. The aggregate limit shall apply separately to each location. The limits may be satisfied by a combination of primary and excess insurance.

II. Business Automobile Insurance

At all times while the Contractor's representatives are conducting on-site work, the Contractor shall maintain Automobile Liability insurance for any owned, hired, rented, or borrowed vehicle with a limit of not less than \$1,000,000 per occurrence for bodily injury and property damage liability. The limit may be satisfied by a combination of primary and excess insurance.

III. Workers Compensation & Employers Liability Insurance

At all times while the Contractor's representatives are conducting on-site work, Contractor shall maintain statutory Workers Compensation insurance in accordance with the laws of North Carolina. Contractor shall also maintain Employers' Liability insurance with limits of not less than \$1,000,000 per accident and \$1,000,000 each employee for injury by disease.

IV. Umbrella Liability

Contractor shall maintain an occurrence basis (as distinguished from a "claims made" basis) Umbrella Liability policy (true follow form) over the underlying General Liability, Automobile Liability, and Employer's Liability, with the following limits of liability: Each Occurrence \$2,000,000 / Aggregate \$2,000,000.

V. Property Insurance (Builder's Risk):

Contractor shall maintain Property Insurance in the form of an "All Risk" or equivalent policy form equal to the value of the Contract including any Change Orders added during the life of the contract.

VI. General Requirements

1. Contractor agrees to provide a Certificate of Insurance ("COI") prior to the execution of the Contract. Contractor agrees to indemnify County if the insurance policy referenced in the COI does not contain, at a minimum, the coverage amounts listed on the COI.
2. Catawba County shall be named as an additional insured under Contractor's automobile, general liability and property insurance. In the event of a loss arising out

of, or related to the Contractor's services performed under this Contract, Contractor's Liability insurance shall be primary (pay first) with respect to any other insurance which may be available to the County, regardless of how the "other insurance" provisions may read.

3. The Contractor's General Liability, Automobile Liability, and Workers Compensation insurance must contain a waiver of subrogation in favor of the County.
4. Contractor shall be responsible for insuring all of its own personal property, improvements, and betterments.
5. All insurance policies put forth to satisfy the above requirements shall require the insurer to provide a minimum of sixty (60) days notice to the County of any material change in coverage, cancellation, or non-renewal.
6. All insurance put forth to satisfy the above requirements shall be placed with insurance companies licensed to provide insurance in the state of North Carolina. Any deductibles or self-insured retentions in the required insurance shall be subject to approval by the County.
7. Prior to execution of the Contract, Contractor shall provide written evidence of insurance as requested by the County to confirm that these insurance requirements are satisfied. Contractor agrees to provide complete copies of policies if requested. Failure of Contractor to provide timely evidence of insurance, or to place coverage with insurance, or to place coverage with insurance companies acceptable to the County, shall be viewed as Contractor's delaying performance entitling the County to all appropriate remedies under the law including termination of the contract.

County Campuses to Go Smoke and Tobacco -Free
Effective: March 1, 2013; Revised February 11, 2014

Catawba County Government buildings have been tobacco free since 1990. The Public Health campus has been tobacco free since 2005 and the Catawba Valley Medical Center campus has been tobacco free since 2006 and smoking is not allowed at County parks. County grounds have been smoke-free since January 1, 2011. Effective March 1, 2013, all Catawba County buildings and grounds will be smoke and tobacco free.

BACKGROUND

Catawba County recognizes that smoking and tobacco are health, safety and environmental hazards for employees and visitors. Catawba County recognizes its obligation to promote a healthy environment, free from unwanted smoke and tobacco usage for everyone within its facilities and on its grounds.

Catawba County recognizes that adopting a 100% smoke and tobacco-free campus policy is an effective way to help protect its employees and visitors from the harmful effects of smoke and tobacco.

As a government entity and large employer, Catawba County is on the forefront of promoting healthy behaviors and is ranked among one of the healthiest counties in the State. A major benefit of adopting a smoke and tobacco-free policy is a healthier workforce. In fact, the #1 reason why most people quit smoking and using tobacco is because their workplace has gone smoke and tobacco-free. To be a strong proponent of healthy lifestyles, it is a necessity for Catawba County to implement a 100% smoke and tobacco-free policy for all facilities.

Catawba County Public Health adopted a 100% tobacco free campus in 2005. In addition, all schools and hospitals in Catawba County have also adopted 100% tobacco free policies. It is important that Catawba County have a 100% smoke and tobacco-free campus policy in order to set an example as a government entity and also as a large employer.

SMOKING AND TOBACCO PRODUCTS PROHIBITED

Smoking or using any cigarette, electronic cigarette, cigar, pipe or any other tobacco product is prohibited at all times.

- In any building, facility, or vehicle owned, leased or rented (when County is Lessor), or chartered by Catawba County or any of its departments; and
- On any grounds or property, including parking lots, owned, leased or rented (when County is Lessor), or chartered by Catawba County or any of its departments.
- While on County property.

SIGNAGE

Signs will be posted in a manner and location that adequately notify employees and visitors of the smoke and tobacco-free policy.

EDUCATION

Public Health Administration and the County's Public Information Officer will conduct tobacco free campus outreach through Spirit Newsletter articles; posting information and a FAQ page on SharePoint; posting information on Facebook and Twitter pages; a press release for the public; a recording for the main health department phone line; posting on the County website, and creating a flyer/document for the E-bulletin system.

ENFORCEMENT

Consequences for employees who violate this smoke and tobacco free policy will be in accordance with personnel policies and may include verbal or written warning, or termination. Visitors who smoke or are seen using tobacco will be asked to refrain while on County property or leave the premises. Law enforcement officers may be contacted to escort the person off the premises or cite the person for trespassing if the person refuses to comply and leave.

This policy applies to the following County buildings and campuses:

- Catawba Valley Medical Center, Public Health, Social Services, the Family Services Center, LifeSkills
- Social Services Family Builders and group homes
- Riverbend, Bakers Mountain, and St. Stephens parks
- Justice/Government Center Complex, Animal Shelter, Garage, Maintenance
- Libraries
- Landfill/Eco Complex/Convenience Center sites
- Agricultural Resources Center Complex
- 1924 Courthouse
- EMS Bases



catawba county

human resources

MAKING. LIVING. BETTER.

Catawba County Government
Contractor Safety Guidebook



catawba county

Contractor Safety Guidebook Acknowledgement

I hereby acknowledge that I have received a copy of the Catawba County Government Contractor Safety Guidebook.

Name: _____

Title: _____

Company: _____

Signed: _____

Date: _____

Return to: Catawba County Government
Purchasing Department
PO BOX 389
Newton, NC 28658

The safety policy of Catawba County Government is to provide for the protection of its employees, citizens, visitors, facilities and surrounding environment through the development and implementation of a comprehensive safety program.

Contractors are expected to also provide safe workplaces and implement their own safety programs. This guidebook is intended to assist in coordinating Catawba County Government facilities and contractor operations during construction and renovation projects. By becoming familiar with the policies and procedures in this guidebook, the safety-minded contractor should get the job done safer and with less workplace hazards.

Contractors are expected to comply with all applicable Federal, State, and Local laws and also follow safe work practices for construction trades. Some of these regulations and safe work practices are outlined in this guidebook.

Due to the wide variety of construction operations, it is not possible to outline every conceivable applicable regulation and work practice in this guidebook. Nothing in this guidebook should be construed to be part of the contract specification.

Contractor management and supervision must thoroughly review their own work practices and workplace hazards and then provide employees all the necessary training and equipment for their safety.

EMERGENCY NUMBER — call 911.

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SAFETY PROGRAM OBJECTIVES

Safety and health programs strive to protect people, property, and the environment and must comply with governmental regulations. The objective of this guidebook is to assist in providing a safe environment for employees, citizens, visitors and construction workers in all areas during renovation or new construction projects.

Major objectives of a contractor's safety and health program are to:

1. Protect employees, visitors, property and the environment from potential hazards.
2. Provide a safe and healthful workplace free from recognized hazards.
3. Comply with all governmental safety, health, and environmental standards.
4. Maintain an effective health and safety program, which includes managers, supervisors, and employees.
5. Cooperate with building occupants and others involved in the work area to maintain a safe and healthful workplace.

BASIC SAFETY RULES

Contractors and their employees shall:

1. Observe the posted speed limit.
2. Obey all posted warnings.
3. Observe the No Smoking and Drug Free Workplace policies on the Catawba County Government Campus.
4. Refrain from fighting and horseplay on Catawba County Government property.
5. Remain in designated areas at all times and use approved travel routes into and out of the job site.
6. Maintain work areas in an orderly manner that does not block exits or traffic through the work area.
7. Remove trash daily.

SPECIAL PROCEDURES AND WORK PERMITS

The following special procedures are specific to Catawba County Government. Although some topics listed below are covered by state and federal regulations, they receive special interest in the County setting.

1. Hazard Communication and Chemical Safety

- a) Contractors shall have copies of Safety Data Sheets (SDS) available at the job site for review.
- b) To ensure that all contractors' employees know and understand the hazards of all chemicals they are exposed to and how to protect themselves from hazardous chemicals, each contractor must

establish and maintain an effective hazard communication program. The program must comply with OSHA standard 29 CFR 1926.59.

- c) The contractors HAZCOM program must provide:
 - A written hazard communication program,
 - An inventory of chemicals,
 - Safety data sheets (SDS) for all chemicals at the site, • Labeling of all containers and other warnings, and
 - Employee training.

- d) Catawba County will provide information to contractors if known asbestos or lead hazards are involved in the construction project. Upon discovery of materials that may contain asbestos (Presumed Asbestos asbestos-containing material, PACM) or lead, the contractor should contact the Project Manager and/or Risk Manager for environmental testing.

2. Excavations and Trenches

- a) A daily inspection of excavations, the adjacent areas, and protective systems shall be performed by a competent person.
- b) Trenches more than 5 feet deep require shoring or sloping.
- c) Substantial barricades to prevent persons from falling into an open trench shall be maintained around the perimeter of trenches. This is especially important at the end of the workday for trenches that must remain open overnight. A plastic ribbon is not substantial for this purpose.
- d) Ladders will be provided at least every 25 feet for access to trenches over 4 feet deep.

3. Electrical Hazards

- a) It is very important that each contractor establish and maintain an effective electrical safety-related work practices program. References for such a program include OSHA standards 29 CFR 1910.331 to 1910.333 — Electrical Safety-Related Work practices and CFR 1926 Subpart K Electrical.
- b) Training shall be documented for all employees who face a risk of electric shock from working on, near, or with electrical circuits which are not reduced to a safe level by electrical insulation.

4. Lockout/Tagout

- a) The lockout/tagout standard (the control of hazardous energy standard) in 29 CFR 1926.417 and will be followed by all contractors on all job sites. The OSHA lockout/tagout procedure requires at a minimum:
 - Use of locks and/or tags on energy isolating devices.

- Special lockout/tagout procedures for jobs requiring multiple lockout/tagout devices.
 - Contractors must provide their own lockout/tagout equipment.
 - All contractors' employees, (authorized, affected, and other employees), must be trained by the contractor (or another acceptable training source) concerning lockout/tagout procedures.
 - An annual inspection shall be conducted by an authorized employee of the contractor to evaluate the implementation & efficacy of lockout/ tagout procedures.
 - Locks and/or tags must not be removed by anyone other than the employee applying them except under a special, approved permit.
 - Testing or positioning of machines or equipment will be performed only under special procedures per OSHA 29 CFR 1910.147(f).
- b) Procedures: All contractors will have a general lockout/tagout program prior to performing work at or for Catawba County Government. A written form will be required for lockout/tagout procedures for machinery on equipment which require more than one energy isolating device to be locked and/or tagged.
- c) Training: All contractors' employees will be trained by the contractor (or another acceptable training source) concerning the lockout/tagout procedures prior to beginning work at the site. A record will be kept of all employees trained and verification (by exam or other written means) that they understood the training they received. The training will include the disciplinary actions which will be taken if lockout/ tagout procedures are not followed.
- d) Inspections: Audits and inspections of the lockout/tagout procedures will be conducted routinely by the contractor's foreman, supervisor, or on-site safety personnel. A record will be kept of the inspections and the follow- up action taken.

5. Confined Space Entry Program

- a) Confined spaces present serious potential hazards to employees entering them, including oxygen deficiency, toxic materials, flammable materials, and hazardous energy. Each contractor must establish and maintain an effective confined space entry procedure that complies with OSHA standard 29 CFR 1926.21(b)(6) and 1910.146 when applicable.
- b) For those contractors performing work in areas with confined spaces, a copy of the confined space entry procedures must be submitted to the Project Manager and/or Risk Manager prior to beginning work at the site.
- c) Contractors must provide all equipment required for safe entry, including special rescue equipment.

6. Fall Protection

- a) Reasonable fall protection shall be provided to protect personnel from accidental falls associated with floors, platforms, scaffolds, guardrails, physical barriers, and elevated work locations. Standard guardrails must be provided for work locations 6 feet or more above the adjacent level per OSHA standard 29 CFR 1926.500 and fall protection generally provided over 10 feet.
- b) All employees working at unguarded locations above 6 feet in construction (10 feet on scaffolds) must be protected by properly wearing approved fall protection equipment including safety harnesses and life lines as specified by supervision. All employees required to wear approved fall protection devices must be properly trained concerning the need for and purpose of the protection. In addition, employees must be instructed in the proper use of the equipment and shall demonstrate that they know, understand, and can use the fall protection devices properly.
- c) Supervisors shall ensure the use of fall protection devices as required by 29 CFR 1926.500 Subpart M.

7. Scaffolds

- a) Contractors shall comply with OSHA Standards 29 CFR 1926, Subpart L on Scaffolding and 29 CFR 1910.28.
- b) Access to scaffolds shall be limited to authorized personnel only, especially after working hours.

SAFETY POLICIES

- a) **Facilities, Equipment, Tools and Vehicles:** All workplace facilities equipment, tools and vehicles must be properly designed and maintained from a safety standpoint. All workplace facilities, equipment, and activities must comply with the applicable governmental regulations including OSHA and EPA. Proper stairs, ladders, platforms, and guardrails must be provided to ensure employee safety and compliance with OSHA regulations. All equipment tools and vehicles used must be used in accordance with manufacturers operating instructions.
- b) **Education and Training:** All managers, supervisors, and employees must be properly trained to recognize, evaluate, and control workplace safety and health hazards. No employee is allowed to perform a job until he or she has been properly trained to perform the job safely. Specific training must be provided concerning the safety rules and procedures pertaining to the jobs being performed. Safety and health training is to be conducted initially upon employment and at least annually thereafter. Frequent refresher training such as tool box safety talks should also be part of the training program.
- c) **Inspections:** Contractors should perform frequent and regular safety inspections.

- d) **Emergency Procedures:** All employees must know, understand, and be able to follow all workplace emergency procedures pertaining to their assignment, including calling 911. Periodic tests, drills, audits, etc. must be conducted to verify employee knowledge and understanding of all emergency procedures.
- e) **Accidents:** All accidents, incidents, injuries and illnesses must be reported to supervision immediately, so they can be properly investigated and employees properly protected. Injuries and illnesses requiring an “Employers’ first Report of Accident” will be reported to the Project Manager and/or Risk Manager.
- f) **Manual Materials Handling:** Manual materials handling and other physical activities must be performed only by those employees physically able to do so.
- g) **Enforcement:** Contractors should consider disciplinary action for unsafe acts.

GENERAL SAFETY PROCEDURES

The following General Safety Procedures apply to the entire workplace and should be followed by managers, supervisors and employees.

1. OSHA General Duty Clause

Hazardous conditions or practices not covered in an OSHA standard may be covered under Section 5(a)(1) of the Occupational Safety and Health Act of 1970 which states: “Each employer shall furnish to each of his employee’s employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”

2. General Inspections and Training

- a) Contractors should designate a competent site-safety coordinator for each job site. The contractor’s site-safety coordinator should be identified to the Project Manager and/or Risk Manager in the event that safety concerns regarding the worksite arise.
- b) Contractors should initiate and maintain an inspection program to provide for frequent and regular self-inspections of the job site, materials, and equipment.
- c) Contractors should instruct each employee in the recognition and avoidance of unsafe conditions and in the regulations applicable to his or her work environment and to control or eliminate any hazards or other exposure to illnesses or injury.
- d) The use of any machinery, tool, material, or equipment which is not in compliance with any applicable requirements of North Carolina DOL or OSHA standards is prohibited.

3. Medical Services and First Aid

Rev. 12/2023

- a) A person trained to render first aid is to be available at the worksite.
- b) Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

4. Hand and Power Tools

- a) Electric power operated tools shall either be approved double-insulated, or be properly grounded, and used with ground fault circuit interrupters when used in damp or wet areas.
- b) Only authorized and properly trained employees shall use power tools.
- c) Powder actuated tools require certified operators and warning signs posted in all areas affected by the noise of the nail gun.
- d) Wrenches shall not be used when the jaws are sprung to the point that slip page occurs.
- e) Impact tools shall be kept free of mushroomed heads.
- f) The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool.

5. Personal Protective Equipment (PPE)

Appropriate personal protective equipment shall be worn in all operations where there is an exposure to hazardous conditions or where the need is indicated for using such equipment to reduce the hazard to the employees.

6. Eye and Face Protection

- a) Eye and face protection shall be provided when machines or operations present potential eye or face injury.
- b) Eye and face protective equipment shall meet the requirements of ANSI Z87.1-1991, "Practice for Occupational and Educational Eye and Face Protection."
- c) Employees involved in welding operations shall be furnished with filter lenses or plates of at least the proper shade number.
- d) Employees exposed to laser beams shall be furnished suitable laser safety goggles that will protect for the specific wavelength of the laser and be optical density adequate for laser involved.

7. Head Protection

Head protective equipment (hard hats/ helmets) shall be worn in areas where there is a possible danger of head injuries from impact, flying or falling objects, or electrical shock and burns. Hard hats/ helmets shall meet the performance requirements of ANSI Z89.1, “Standard for Industrial Protective Helmets.”

8. Hearing Protection

- a) Feasible engineering or administrative controls shall be utilized to protect employees against sound levels in excess of those shown in Table D-2, OSHA Standard 1926.52
- b) When engineering or administrative controls fail to reduce sound levels within the limits of Table D-2, hearing protective devices shall be provided and used.
- c) Hearing protection is required at constant noise above 85 decibels or impact noise above 140 decibels.
- d) In all cases where the sound levels exceed the values shown in safety and health regulations, a hearing conservation program shall be administered.

9. Respiratory Protection

- a) When engineering or administrative controls are not effective in controlling toxic substances, appropriate respiratory protective equipment will be provided and shall be used.
- b) Respiratory protective devices provided by supervisors shall be appropriate for the hazardous material involved and the extent and nature of the work requirements and conditions.
- c) Employees required to use respiratory protective devices shall be thoroughly trained in their use.
- d) Contractors should have a written respirator protection program that includes respirator training, fit-testing and medical qualification documentation.

10. Gases, Vapors, Fumes, Dusts, and Mists

- a) Exposure to toxic gases, vapors, fumes, dusts, and mists at a concentration above those specified in the most recent “Threshold Limit Values of Airborne Contaminants” of the ACGIH, shall be avoided.
- b) Administrative or engineering controls must be implemented whenever feasible to comply with TLV’s.
- c) When engineering and administrative controls are not feasible to achieve full compliance, protective equipment or other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed. Any equipment and technical measures used for this purpose must first be approved for each particular use by an industrial hygienist or other technically qualified person.

11. Electrical

- a) All electrical work shall be in compliance with the most recent National Electrical Code or the NEC according to the construction documents.
- b) Only qualified persons are permitted to work on or near energized conductors or parts and then only under special procedures that ensure proper employee protection.
- c) Unqualified persons shall not be allowed to work within 10 feet of energized overhead power lines.
- d) Equipment must not be operated closer than 10 feet to overhead energized power lines unless specific procedures are followed by qualified persons using appropriate protection equipment.
- e) Extension cords used with portable electric tools shall be the 3-wire type and shall be protected from damage. Splices shall have soldered wire connections with insulation equal to the original. Worn or frayed cords shall not be used.
- f) Bulbs on temporary lights shall be equipped with guards or deeply recessed in the reflector. Temporary lights shall not be suspended by their electric cords unless designed for suspension.
- g) Receptacles for attachment plugs shall be of the approved concealed contact type. Where different voltages, frequencies, or types of current are supplied receptacles shall be of such designs that attachment plugs are not interchangeable.
- h) Each disconnecting means of motors and appliances and each service feeder or branch circuit at the point where it originates shall be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident.
- i) Cable passing through work areas shall be covered or elevated to protect it from damage which would create a hazard to employees.
- j) Boxes for disconnecting means shall be securely and rigidly fastened to the surface upon which they are mounted and fitted with covers.
- k) All extension cords and cord and plug connected equipment shall be protected by an assigned equipment grounding conductor program.
- l) No employer shall permit an employee to work in proximity to any part of an electric power circuit that he may contact, unless the employee is protected against electric shock by de-energizing the circuit and grounding it or by guarding it by effective insulation or other means.
- m) In work areas where the exact location of underground electric power lines is unknown, workers using jackhammers, bars, or other hand tools which may contact an energized line shall be provided with insulated protective gloves.

12. Fire Protection

- a) Firefighting equipment will be conspicuously located, readily accessible at all times, shall be periodically inspected, and shall be maintained in operating condition.
- b) Extinguishers are to be placed at least every 75 feet. Extinguishers are to be provided by the contractor.
- c) Each employee must know the alarm system at the worksite so the employees and the local fire department, can be alerted during an emergency.

13. Flammable and Combustible Liquids

- a) Flammable and combustible liquids shall only be stored in approved containers and in appropriate quantities for the job site use.
- b) Conspicuous and legible signs prohibiting smoking shall be posted in service and refueling areas.
- c) Flammable liquids shall be dispensed through grounded and bonded containers.

14. Welding, Cutting and Heating

- a) All employees shall be instructed in the safe use of welding equipment prior to using this equipment.
- b) Proper precautions (isolating welding and cutting, removing fire hazards from the vicinity, providing a fire watch, etc.) for fire prevention shall be taken where welding or other “hot work” is being done. No welding, cutting or heating shall be done where the application of flammable paints or the presence of any other flammable compounds, or heavy dust concentration creates a fire hazard.
- c) Arc welding and cutting operations shall be shielded by noncombustible or flameproof shields to protect persons from direct arc rays. Visual barrier screens are required for arc welding operations.
- d) When electrode holders are to be left unattended, electrodes shall be removed and the holder shall be placed or protected so that it cannot make electrical contact with employees or conducting objects.
- e) All arc welding and cutting cables shall be completely insulated and be capable of handling the maximum current requirements for the job. There shall be no repairs or splices within 10 feet of the electrode holder except where splices are insulated equal to the insulation of the cable. Defective cables shall be repaired or replaced.
- f) Fuel gas and oxygen hoses shall be easily distinguishable and shall not be interchangeable. Hoses shall be inspected at the beginning of each shift and shall be repaired or replaced if defective.
- g) General mechanical or local exhaust ventilation or airline respirators shall be provided, as required, when welding, cutting or heating:

- zinc, lead, cadmium, mercury, or beryllium-bearing, materials in enclosed spaces.
 - stainless steel with inert-gas equipment.
 - in confined spaces.
 - where an unusual condition can cause an unsafe accumulation of contaminants.
- h) Proper eye protective equipment shall be provided when appropriate.
- i) Oxygen cylinders will be stored in a well-protected, well ventilated, dry location 20 feet from combustibles.

15. Housekeeping

- a) Form and scrap lumber with protruding nails and all other debris shall be kept clear from all work areas.
- b) Combustible scrap and debris shall be removed at regular intervals.
- c) Containers shall be provided for collection and separation of all refuse.
- d) Covers shall be provided on containers used for flammable or harmful substances.
- e) Wastes shall be disposed of at frequent intervals
- f) Lay down areas shall be orderly and free from tripping hazards

16. Storage

- a) All materials stored in tiers shall be secured to prevent sliding, falling, or collapse.
- b) Aisles and passageways shall be kept clear and in good repair.
- c) Storage of materials shall not obstruct exits.
- d) Materials shall be stored with due regard to their fire characteristics.

17. Ladders

- a) The use of ladders with broken or missing rungs or steps, broken or split side rails or with other faulty or defective construction is prohibited. When ladders with such defects are discovered they shall immediately be withdrawn from service.
- b) Portable ladders shall be placed on a substantial base at a 4 to 1 pitch, have clear access at top and bottom, extend a minimum of 36 inches above the landing, or be provided with grab rails and secured against movement while in use.
- c) Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors.
- d) Job-made ladders shall be constructed for their intended use. Cleats shall be inset into side rails 1/2 inch, or filler blocks used. Cleats shall be uniformly spaced, 12 inches, top-to-top.
- e) Except where either permanent or temporary stairways or suitable ramps or runways are provided, ladders shall be used to give safe access to all elevations.
- f) All users of ladders shall be properly trained and documented by the contractor.
- g) Ladders shall be inspected periodically by the contractor.

18. Railings

- a) A standard railing used to protect personnel from falls shall consist of top rail, intermediate rail, toe board, and posts, and have a vertical height of approximately 42 inches from upper surface of top rail to the floor, plat- form, etc.

- b) The top rail of a railing shall be smooth-surfaced, with strength to withstand at least 200 pounds. The intermediate rail shall be approximately halfway between the top rail and floor.
- c) A stair railing shall be of construction similar to a standard railing, but the vertical height shall be not more than 34 inches, nor less than 30 inches from upper surface of top rail to surface of tread in line with face or riser at forward edge of tread.

19. Scaffolds

- a) Scaffolds shall be erected on sound, rigid footing, capable of carrying the maximum intended load without settling or displacement.
- b) Scaffolds and their components shall be capable of supporting, without failure, at least 4 times the maximum intended load.
- c) Guardrails and toe boards shall be installed on all open sides and ends of platforms more than 10 feet above the ground or floor, except needle beam scaffolds and floats. Scaffolds 4 feet to 10 feet in height, having a minimum dimension in either direction of less than 45 inches, shall have standard guardrails installed on all open sides and ends of platform.
- d) There shall be a screen with maximum 1/2-inch openings between the toe board and the guardrail, where the persons are required to work or pass under the scaffold.
- e) All planking shall be Scaffold Grade or equivalent. The maximum permissible span for 1 1/4 x 9 inch or wider plank of full thickness is 4 feet, with medium loading of 50 p.s.f.
- f) Scaffolding planking shall be overlapped a minimum of 12 inches or secured from movement.
- g) Scaffold planks shall extend over their end supports not less than 6 inches nor more than 12 inches.
- h) All scaffolding and accessories shall have any defective parts immediately replaced or repaired.
- i) An access ladder or equivalent safe access shall be provided.

20. Air Tools

- a) Pneumatic power tools shall be secured to the hose or whip in a positive manner to prevent accidental disconnection.
- b) Safety clips or retainers shall be securely installed and maintained on pneumatic impact tools to prevent attachments from being accidentally expelled.
- c) The manufacturer's safe operating pressure for all fittings shall not be exceeded.
- d) All hoses exceeding 1/2-inch inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.

21. Compressed Air

- a) Compressed air used for cleaning purposes shall not exceed 30 psi.
- b) Compressed air for cleaning will only be used with effective chip guarding and personal protective equipment. This requirement does not apply to concrete form, mill scale, and similar cleaning operations.

22. Compressed Gas Cylinders

- a) Valve protection caps shall be in place when compressed gas cylinders are transported, moved, or stored.

- b) Cylinder valves shall be closed when work is finished and when cylinders are empty or moved.
- c) Compressed gas cylinders shall be secured in an upright position at all times, except if necessary for short periods of time when cylinders are actually being hoisted or carried.
- d) Cylinders shall be kept at safe distances or shielded from welding or cutting operations. Cylinders shall be placed where they cannot become part of an electrical circuit.
- e) Oxygen and fuel gas regulators shall be in proper working order while in use.
- f) Applicable technical portions of American National Standards Institute, Z49.1, Safety in Welding and Cutting, shall be followed.

23. Hoists and Cranes

- a) Contractors must comply with the manufacturer's specifications and limitations for hoists. Rated load capacities, recommended operating speeds, and special hazard Warnings or instructions shall be posted on cars and platforms.
- b) Suspended loads should never be moved directly over personnel.

24. Accident Record Keeping and Reporting Requirements

Within eight (8) hours after the death of any employee from a work-related incident.

Within 24 hours of the in-patient hospitalization of one or more employees, amputation or loss of eye as a result of a work-related incident.

Risk Management will call OSH Division at 1-800-625-2267 or 919-779-8560.

Catawba County, North Carolina
Contractors Reimbursable Sales and Use Tax Statement (must accompany each pay request)

Project: _____ Project Location: _____ Pay App/Invoice No: _____

Name of Contractor: _____ For Period: _____

Invoice Date	Vendor Name	Type of Property Purchased	Invoice Number	Invoice Total (Including tax)	State Tax 4.75% (ex.)	County Tax 2.25% (ex.)	Total Tax 7% (ex.)	County
TOTALS								

The undersigned individual certifies (1) that he or she is an employee or principal of the Contractor that is filing this form with the County to request reimbursement for N.C. State and local sales and use taxes that the Contractor has paid, (2) that the above listed vendors were paid sales tax upon purchases of building materials during the period covered by the construction estimate, and the property upon which such taxes were paid with or will be used in the performance of this contract, (3) that no tax on purchases or rentals of tools and/or equipment is included in the above list, (4) that all of the material above became a part of or is annexed to the building or structure being erected, altered or repaired, and (5) that all of the information on this form, and any additional pages added to this page, if any, is true and accurate.

_____ County, North Carolina
 Signed and sworn to (or affirmed) before this day by _____
 (name of principal)

 (signature of principal)

Date: _____

 Notary Public's Signature

 (Notary's printed or typed name, Notary Public)

(Official Seal) My commission expires: _____



catawba county
finance

DUMPSTER / ROLL-OFF CONTAINER REQUIREMENTS

Catawba County has a franchise agreement with Republic Services for solid waste disposal. If you need a dumpster or roll-off container for your project, you must use Republic Services.

REPUBLIC SERVICES CONTACT: TABETHA TALLENT
CONSTRUCTION ACCOUNT MANAGER
TELEPHONE: 828-303-0191

- If you own a solid waste dumpster or roll-off container and means to transport it, you may use your own equipment.
- If you have issues establishing service with Republic Services, please contact the Catawba County Utilities & Engineering Office at 828-465-8217.

catawbacountync.gov

Purchasing Office

25 Government Drive | PO Box 389 | Newton NC 28658 | 828.465.8227

MAKING. LIVING. BETTER.

Roll-off Dumpster Requirements

SUBSTITUTION REQUEST FORM

PROJECT: CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

(Company Name of Prime Bidder (Contractor) who will submit Bid.)

(Address of Prime Bidder (Contractor) who will submit Bid.)

(Signature of Prime Bidder (Contractor) who will submit Bid.)

We hereby submit for your consideration the following product instead of the specified item for the above project.

<u>SECTION</u>	<u>PARAGRAPH</u>	<u>SPECIFIED ITEM</u>
_____	_____	_____
_____	_____	_____

PROPOSED SUBSTITUTION:

Attach complete technical data, including laboratory tests, if applicable.

Include complete information on changes to drawings and/or specifications which proposed substitution will require for its proper installation.

Submit with request all necessary samples and substantiate data to prove equal quality and performance to that which is specified. PLEASE INDICATE ALL COMPARATIVE INFORMATION, i.e. material weights, gauges, finishes, strength of materials, insulation, anchorage, power requirements, "R" factor, etc. Clearly mark manufacturer's literature to indicate equality in performance.

COMPLETE THE FOLLOWING:

1. Does the substitution affect the dimensions shown on drawings?

YES _____ NO _____ If yes, clearly indicate changes.

2. Will the undersigned pay for any changes to the building design, including engineering and detailing costs caused by the requested substitution?

3. What effect does substitution have on other trades?

4. What effect does substitution have on applicable code requirements?

5. Difference between proposed substitution and specified items are:

6. Cost difference between proposed substitution and specified items is:

7. Contractor agrees to share cost savings with Owner.

8. Manufacturer's guarantees of the proposed and specified items are:

SAME _____ DIFFERENT _____ (EXPLAIN)

9. Reason for substitution:

Provide additional pages as necessary to provide adequate explanation.

CERTIFICATION OF EQUAL PERFORMANCE AND ASSUMPTION OF LIABILITY FOR EQUAL PERFORMANCE:

The undersigned states that the function, appearance, and quality are equivalent or superior to the specified item.

Submitted by: (Product Manufacturer or Vendor)

Date _____

_Firm

Telephone _____

Address

Fax _____

City, State, Zip

_Signature of Manufacturer/Provider

Title

Signature must be by a person who has the authority to legally bind his firm to all the above terms. Failure to provide legally binding signature will result in retraction of approval.

FOR USE BY ARCHITECT

_____ Approved

_____ Received too late

_____ Approved as noted

_____ Disapproved

REMARKS:

BY: _____ DATE: _____

SECTION 00 65 36---WARRANTIES:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

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

1.02 SUMMARY:

- A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

Refer to the General Conditions for terms of the Contractor's period for correction of the Work.

- B. Related Sections: The following Sections contain requirements that relate to this Section:

Division 1 Section 01700 "Project Closeout" specifies contract closeout procedures.

Division 2 through 16 Sections for specific requirements for warranties on products and installations specified to be warranted.

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

- C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

Separate Prime Contracts: Each prime contractor is responsible for warranties related to its own contract.

1.03 WARRANTY REQUIREMENTS:

- A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- B. Reinstatement of Warranty: When work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the

Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefited from use of the work through a portion of its anticipated useful service life.

- D. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.

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

Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.04 SUBMITTALS:

Submit written warranties to the Architect no later than 60 days following the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the work, or a designated portion of the Work, submit written warranties no later than 30 days following the date designated.

When a designated portion of the work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within 30 days of completion of that designated portion of the Work.

Form of Submittal: At final completion, compile two copies of each required warranty properly executed by the Contractor, or by the contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

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

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

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

When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty and include copy of warranty in each required manual.

PART 2 PRODUCTS - Not applicable.

PART 3 EXECUTION

3.01 LIST OF WARRANTIES:

Schedule: Provide warranties on products and installations as specified in the following sections which are scheduled here as reference. Failure to list a required warranty in this reference schedule does not relieve the contractor of his responsibility to provide any and all warranties which are specified elsewhere in the Contract Documents.

DIVISION	REFERENCE SECTION	WARRANTY DESCRIPTION
	Supplementary General Conditions	Contractor's 1-Year Warranty
Division 2	Termite Control	Vendor's 1-Year Warranty
Division 6	Solid Surface Fabrications	
Division 7	Membrane Roofing	Manufacturer's 20 -Year Warranty
Division 7	Membrane Roofing	Roofer's 2-Year Warranty
Division 7	Metal Roofing	Manufacturer's 20 Year Weathertight Warranty
Division 7	Metal Roofing	Roofer's 2-Year Warranty
Division 7	Shingle Roofing	Manufacturer's 20 Year Weathertight Warranty
Division 7	Shingle Roofing	Roofer's 2-Year Warranty
Division 8	Flush Wood Doors	Manufacturer's Warranty
Division 8	Finish Hardware	Manufacturer's Warranty
Division 8	Aluminum Storefront	Manufacturer's Warranty
Division 8	Aluminum Curtainwall	
Division 9	Gypsum Drywall	Manufacturer's 5-Year Warranty
Division 9	Acoustical Ceiling System	Manufacturer's Warranty
Division 9	Ceramic Tile	Manufacturer's Warranty
Division 10	Toilet Partitions & Accessories	Manufacturer's 15-Year Warranty
Division 12	Manufactured Casework	Contractor/Vendor's 1-Year Guarantee
Division 12	Quartz Counter Tops	
Division 12	Manual Roller Shades	
Division 15	General Provisions (15010)	Plumbing Contractor's 1-Year Warranty
Division 15	General Provisions (15500)	Mechanical Contractor's 1-Year Warranty
Division 15	Roof Top Equipment	Manufacturer's Warranties
Division 15	Compressors	Manufacturer's Warranties
Division 15	Electric Wall Heaters	Manufacturer's Warranties
Division 15	Temperature Controls	Manufacturer's Warranties
Division 16	Lighting	Manufacturer's Warranties

Division 16	Communications	Manufacturer's Warranties
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END OF SECTION 00 65 36

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION
EDUCATION CENTER
NEWTON, NORTH CAROLINA

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SECTION 01 11 00---SUMMARY OF WORK

PART 1 GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of each prime contract, including General and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

The Project consists of all construction for a one-story pre-engineered metal building Education Center and a one-story load bearing masonry Storage Building.

Project Location: The project site is located at 2894 Mt Olive Church Rd, Newton, NC. The site is on the north side of Mt Olive Church Rd.
Owner: Catawba County

Contract Documents, dated June 18, 2025 are prepared for the project by CBSA Architects, Inc.

The Scope of work includes but is not limited to site grading, fencing, septic system, asphalt paving, concrete paving, stone paving, concrete walks, masonry, prefab wood roof trusses, thermal and moisture protection, hollow metal doors and frames, wood doors, aluminum storefront window, interior metal stud partitions, standing seam metal roof, interior finishes, pre-engineered metal building and erection, electrical, mechanical, plumbing, and landscaping.

The project has no Alternate Bids.

1.03 CONTRACTS

The project shall be bid and constructed under the Single Prime Method. The contract to be used for this project shall be AIA Document A101-2017 Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment is a Stipulated Sum.

1.04 WORK UNDER OTHER CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.
- B. Concurrent Work: Owner will award a separate contract for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.
 - 1. Data, communication, IT equipment, and furnishings.

1.05 PRIME CONTRACTORS USE OF PREMISES

General: During the construction period the prime Contractor shall have full use of the building indicated for work to occur for construction operations and limited use of the site due occupied adjacent buildings on the site. The contractors' use of the premises is limited only by the Owner's right to perform work or to retain other contractors on portions of the Project.

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

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

1.06 OWNER'S OCCUPANCY REQUIREMENTS

- A. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
 2. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.
 3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of building.
 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

1.07 EARLY COMPLETION OF PROJECT:

The Contractor may attempt to complete the project prior to the Contract Completion Date. However, such planned early completion shall be for the Contractor's convenience only and shall not create any additional rights of the Contractor or obligations of the Owner under this Contract, nor shall it change the Time for Completion or the Contract Completion Date. The Contractor shall not be required to pay liquidated damages to the Owner because of its failure to complete by its planned earlier date. Likewise, the Owner shall not pay the Contractor any additional compensation for early completion nor will the Owner owe the Contractor any compensation should the Owner, its officers, employees, or agents cause the Contractor not to complete earlier than the date required by the Contract Documents.

1.08 WORK MOBILIZATION AND SUBSTANTIAL COMPLETION

- A. The actual project start date shall commence on or following the date established by the Architect/Owner in the Notice-To-Proceed. The Contractor shall be allowed to mobilize on site upon the Architect's receipt of a properly and fully executed contract from the Contractor. To complete all work on time and to accommodate the Owner's schedule, substantial completion for entire project shall be achieved no later than the schedule of consecutive calendar days submitted by the Contractor within the bid proposal and agreed upon between Owner and Contractor. The Contractor's construction schedule shall commence from the start date established in the Notice to Proceed.
- B. The overall work shall be conducted in one phase.
- C. An extension may be provided based upon approval of Owner for any delay in obtaining a building permit, execution of contract or issuance of Notice to Proceed whichever is later.

1.09 SPECIAL REQUIREMENTS FOR SUBSTANTIAL COMPLETION

As a requirement for Substantial Completion for this project, the contractor shall apply for and receive a Certificate of Occupancy from the local Building Inspection Department. The Certificate shall cover the entire work of the project. Partial or Temporary Permits shall not be acceptable to meet requirements for Substantial Completion.

1.10 CONTRACT COMPLETION / CLOSEOUT

- A. Refer to Division 1 – Project Closeout for a complete list of items to be completed by the Contractor before final payment can be made and the contract can be finalized.
- B. In order to complete all work of the contract, all project closeout documents must be submitted to the Architect within 60 consecutive calendar days following Date of Substantial Completion. All punch list items must be completed within 30 consecutive calendar days following the issuance of the Punch List.

1.11 LIQUIDATED DAMAGES

Liquidated damages, if any, in the amount specified in the Owner's Contract for Construction or the General Conditions to the Contract for Construction shall be assessed beginning after the scheduled Date of Substantial Completion and extending until the project is deemed substantially complete.

1.12 PROJECT MEETINGS:

- A. In order to enable an orderly review of the work, to provide for an open discussion of problems, and to prevent unnecessary delays to the project, Monthly Construction Conferences will be conducted by the Architect. Attendance by representatives of all major sub-contractors, and the Owner are required for these meetings. In addition, a Pre-Construction conference will be conducted. Additionally, at appropriate times during the course of construction, the Architect may request that other subcontractors attend a particular meeting. Attendance by subcontractors, when requested, is part of the work of this contract and no additional compensation to the Prime Contractor shall be allowed.

- B. Staging areas for work, material storage, and general parking areas shall be confirmed at the Pre-Construction Conference, in collaboration with the Owner.
- C. The Architect shall compile the agenda for each meeting. To the extent practicable, the attendees shall notify the Architect at least 24 hours in advance of project meetings, regarding items to be added to the agenda.
- D. The Architect will compile minutes of each Construction Conference and furnish copies to the Owner and Prime Contractors. Recipients may copy and distribute copies at their discretion. Should Prime Contractors find discrepancies in the minutes, they shall notify the Architect within 7 calendar days following receipt of the minutes.

1.13 CONSTRUCTION PROGRESS REPORTING:

- A. At each construction meeting, the Contractor shall furnish a written summary report of the work which they have accomplished during the preceding month and also of the work proposed to be accomplished during the next month. The report shall be in summary form with sufficient detail to illustrate the amount of progress that has been made. The purpose of this report will be to assist the Architect in evaluating the actual progress of the work as it related and compares to the "Project Construction Schedule". Copies of the reports will be attached to the minutes of the corresponding "Monthly Construction Conference".
- B. The General Contractor shall include summaries for his Plumbing, Mechanical, and Electrical Subcontractors.

1.14 FIELD ADJUSTMENTS AND COORDINATION:

- A. Working drawings and specifications are not complete without architectural interpretation. Certain field adjustments and corrections of conflicts are to be expected. The Architect recognizes this fact and makes his services available to the Contractor on this project to answer questions of interpretation or intent and to make decisions wherever problems of any nature arise during the course of construction. One purpose of this service on the part of the Architect is to relieve the Contractor from the responsibility of making his own decisions where there can be doubt or question as to the proper decision with respect to interpretation, intent, adjustment, correction, coordination and the like.
- B. All matters of this nature and of similar nature shall be referred to the Architect for his final decision. If the Contractor follows any other procedure concerning such matters, he will do so at his own risk and he will be held responsible for proper rectification as prescribed by the Architect.

1.15 CODES AND STANDARDS:

Wherever reference is given to codes, or standard specifications, or other data published by regulating agencies or accepted organizations, including but not limited to National Electrical Codes, N. C. State Building Codes, Local Building Code, Federal Specifications, ASTM Specifications, various Institute Specifications, and the like, it shall be

understood that such reference is to the latest edition including addenda published prior to the date of the contract documents.

1.16 SHOP DRAWINGS: Refer also to the "General Conditions".

- A. Submit shop drawings for all manufactured or fabricated equipment or material including manufacturer's catalog data and manufacturer's specifications.
- B. Shop drawings shall show arrangement, dimensions, material, finishes, shapes, capacities, quality, connections with other work, cutting, fitting, drilling required, and other necessary information.
- C. When shop drawings are required to be submitted to Building Authorities, the Contractor shall submit them and secure approval of the Authorities.
- D. The Contractor shall keep a copy of his approved Shop Drawings on the job site at all times after their approval, and he shall make them available, for reference, to the authorized representative of other Contractors, Subcontractors, Architect and Owner.
- E. The Contractor shall make and verify all field measurements.
- F. Where the contractor anticipates tight installation conditions or interferences, the shop drawing shall indicate the effective contiguous work of other trades and shall be responsible for cross-checking the shop drawings and/or actual installation work with the work of other contractors.
- G. Shop Drawing size shall not exceed 36" x 24".

1.17 RECORD DRAWINGS (As-Builts):

The Contractor shall deliver to the Architect, prior to final payment, one complete set of marked up legible reproducible drawings showing all changes to general construction, equipment, mechanical, plumbing, and electrical systems and connections as installed or built.

1.18 WORK PHASES (LIQUIDATED DAMAGES)

The overall work shall be conducted in one phase. Time to commence construction shall be established in the Notice to Proceed. Punch list work shall be complete no later than thirty (30) consecutive calendar days following issuance of Punch List. Project Closeout documents shall be satisfactorily submitted no later than sixty (60) consecutive calendar days from Date of Substantial Completion. Failure to complete Punch List and Project Closeout within the specified times listed above may result in Architect charging \$50.00/each calendar day of delay to complete Punch List and \$50.00/each calendar day of delay to satisfactorily complete Project Closeout.

1.15 CONTRACTOR'S CONSTRUCTION SCHEDULE:

Following the Architect's approval, the General Contractor shall distribute copies of the construction schedule to all Prime Contractors (Plumbing, Mechanical, and Electrical), the Owner, and the Architect. The number of copies shall be:

- Architect ----- 2 copies
- Owner ----- 2 copies
- Prime Subcontractors ----- 2 copies
- Consulting Engineers ----- 2 copies

1.16 REQUEST FOR PAYMENT:

- A. Contractors are directed to use forms similar to AIA Document G702, Application and Request for Payment. Each line item of expense, where applicable, shall be broken down into Material Cost and Labor Cost.
- B. Contractors wishing to use non-AIA documents for pay applications shall obtain approval from the Architect for the form to be substituted.
- C. The following example should be used as a guide in preparing line item breakdown of costs for a schedule of values and subsequent pay application. The Contractor shall include those items relative to his work.
- D. Schedule of values shall include all items relative to the work. Each item shall include a separate listing for material cost and a separate listing for labor cost.

GENERAL CONSTRUCTION	PLUMBING CONSTRUCTION
Permits	Plumbing Fixtures (M)
Insurance & Material & Performance Bonds	Plumbing Fixtures (L)
Temporary Utilities and Sanitation Safety, Barricades, Fence & Gate, etc.	Below Grade Waste Piping (M)
Superintendent	Below Grade Waste Piping (L)
Demolition	Above Grade Waste Piping (M)
Contingency Allowance	Above Grade Waste Piping (L)
Insurance, Material and Performance Bonds	Below Grade Water Piping (M)
Mobilization	Below Grade Water Piping (L)
General Clean Up	Above Grade Water Piping (M)
	Above Grade Water Piping (L)
	Pipe Insulation (M)
	Pipe Insulation (L)
	Compressed Air System (M)
	Compressed Air System (L)
Final Cleaning	Water Treatment (L)
Temporary Road	Insulation (M)
Site Demolition	Insulation (L)
Rough Grading	Demolition

Erosion Control (M)
Erosion Control (L)
Soil Treatment (M)
Soil Treatment (L)
Storm Drainage (M)
Storm Drainage (L)
Storm Water Retention (M)
Storm Water Retention (L)
General Excavation
Site Utility – Domestic Water (M)
Site Utility – Domestic Water (L)
Site Utility – Fire Water (M)
Site Utility – Fire Water (L)
Site Utility – Sanitary Sewer (M)
Site Utility – Sanitary Sewer (L)
Curb & Gutter (Material)
Curb & Gutter (Labor)
Asphalt Paving (M)
Asphalt Paving (L)
Concrete Paving (M)
Concrete Paving (L)
Concrete Savings (M)
Concrete Sidewalks (L)
Site Drainage (M)
Site Drainage (L)
Lawns and Grassing
Footings (M)
Footings (L)
Slabs-On-Grade (M)
Slabs-On-Grade (L)
Elevated Concrete Slab (M)
Elevated Concrete Slab(L)
Concrete Reinforcing (M)
Concrete Reinforcing (L)
Masonry Work (M)
Masonry Work (L)
Structural Steel (M)
Steel Erection (L)
Interior Stairs (M)
Interior Stairs (L)
Railings (M)
Railings (L)
Rough Carpentry (M)

MECHANICAL CONSTRUCTION

Roof Top Equipment (M)
Roof Top Equipment (L)
Curbs (M)
Curbs (L)
Exhaust Fans (M)
Exhaust Fans (L)
Vehicle Exhaust System (M)
Vehicle Exhaust System (L)
Diffusers & Grilles (M)
Diffusers & Grilles (L)
Louvers & Dampers (M)
Louvers & Dampers (L)
Crane (L)
Ductwork and Liner (M)
Ductwork and Liner (L)
Insulation (M)
Insulation (L)
Radiant Heaters (M)
Radiant Heaters (L)
Gas Piping (M)
Gas Piping (L)
Insulation (M)
Control System (M)
Control System (L)
Control Wiring (M)
Control Wiring (L)

ELECTRICAL CONSTRUCTION

Rough Carpentry (L)	Conduit, Boxes & Fittings (M)
General Millwork (M)	Conduit, Boxes & Fittings (L)
Exterior Canopies (M)	Wire & Terminations (M)
Exterior Canopies (L)	Wire & Terminations (L)
Caulking and Sealants (M)	Light Fixtures (M)
Caulking and Sealants (L)	Light Fixtures (L)
Building Insulation (M)	Distribution Equipment (M)
Building Insulation (L)	Distribution Equipment (L)
	Fire Alarm System (M)
Roof Insulation (M)	Fire Alarm System (L)
Roof Insulation(L)	Wiring Devices & Plates (M)
Metal Roofing (M)	Wiring Devices & Plates (L)
Metal Roofing (L)	Data System (M)
Perimeter Roof Drainage (M)	Data System (L)
Perimeter Roof Drainage (L)	Generator (M)
Wood Doors (M)	Generator (L)
Wood Doors (L)	Site Work (M)
Aluminum Storefront (M)	Site Work (L)
Aluminum Storefront (L)	
Hollow Metal Doors (M)	
Hollow Metal Doors (L)	
Finish Hardware (M)	
Finish Hardware (L)	
Drywall Framing (M)	
Drywall Framing (L)	
Drywall Finish (M)	
Drywall Finish (L)	
LVP Vinyl Flooring (M)	
LVP Vinyl Flooring (L)	
Finish Carpentry (M)	
Finish Carpentry (L)	
Rough Carpentry (M)	
Rough Carpentry (L)	
Acoustical Ceilings (M)	
Acoustical Ceilings (L)	
Painting (M)	
Painting (L)	
Operable Partition (M)	
Operable Partition (L)	
Interior Signage (M)	
Interior Signage (L)	
Exterior Signage (M)	
Exterior Signage (L)	

Fire Extinguisher Cabinets (M)
Fire Extinguisher Cabinets (L)
Toilet Accessories (M)
Toilet Accessories (L)
Toilet Partitions (M)
Toilet Partitions (L)
Appliances & Equipment (M)
Appliances & Equipment (L)
Roller Shades (M)
Roller Shades (L)
Casework (M)
Casework (L)
Solid Surface Counter Tops (M)
Solid Surface Counter Tops (L)

1.17 SPECIAL REQUIREMENT FOR PAY APPLICATIONS

A. Tax Forms and Receipts:

1. All sales tax levied on materials entering into this building is to be paid by the Contractor for the work, including Local Option Sales and Use Tax.
2. The Contractor shall submit with each pay application a certificate of Sales Tax paid as required by the NC Department of Revenue for refunding sales tax on publicly owned buildings. The report shall be submitted on a form similar to the sample form bound in these specifications and shall include the work of all subcontractors. Backup documentation such as invoices shall be attached to the Sales Tax Form. Submit two (2) copies of the form and backup documentation.

B. Materials Stored Off Site:

1. Estimates for payments on materials will not be approved unless the materials are suitably stored and adequately protected within a bonded warehouse or facility properly insured or as hereinafter specified.
2. In the event that off-site storage is necessary, the contractor shall submit with his Application for Payment the following documents as substantiation of properly stored items:
 - a. On the Contractor's letterhead, a letter stating the name of the item or materials, the quantity and invoiced cost, and location of the stored items. This letter shall be notarized.
 - b. A Certificate of Insurance or other evidence from the Contractor's insurance company that the items are properly covered from loss by adequate insurance covering the facility where items are stored.
 - c. Copies of the Materials Vendors invoices to the Contractor for the stored material or items.

C. Materials Stored On Site:

1. Estimates for payments on materials will not be approved unless the materials are suitably stored and adequately protected on the site or as hereinafter specified.
2. In the event that on-site storage is necessary, the contractor shall submit with his Application for Payment the following documents as substantiation of properly stored items:
 - a. On the Contractor's letterhead, a letter stating the name of the item or materials, the quantity and invoiced cost. This letter shall be notarized.
 - b. Copies of the Materials Vendors invoices to the Contractor for the stored material or items.

1.18 INSTRUCTION OF OWNER'S PERSONNEL:

The Contractor shall make arrangements with the Owner and the various manufacturers of specialized equipment to provide complete instruction of the Owner's employees in the proper use and maintenance of the equipment furnished by him prior to beneficial occupancy of the building.

See also Division 1 Section "Closeout Procedures".

1.19 LIST OF PROPOSED SUBCONTRACTORS AND VENDORS

Refer to Article 5 of the General Conditions, Heading 5.2. The Contractor shall forward to the Architect for his records a list of proposed subcontractors and vendors within 21 days after the ward of the Contract. Should the Owner find objection to any proposed subcontractor, then he shall notify the contractor within seven days of receipt of the aforementioned list and a replacement subcontractor shall be agreed to along with any change in the contract price.

1.20 PROJECT SCHEDULE

- A. The following guideline schedule is proposed for this project and subject to modification:**
1. **Advertisement Issued: June 23, 2025.**
 2. **Prebid Conference: July 8, 2025 at 10:00 am EDT.**
 3. **Deadline to Submit Written Questions: July 15, 2025 at 5:00 pm EDT.**
 4. **Bid Opening: July 22, 2025 at 3:00 pm EDT.**
 5. **Contract Award: TBA.**
 6. **Contract Effective Date: Upon Execution.**

END OF SECTION 01 11 00

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION
EDUCATION CENTER
NEWTON, NORTH CAROLINA

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SECTION 01 21 00---ALLOWANCES:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

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

1.02 SUMMARY:

- A. This section includes administrative and procedural requirements governing allowances.

Selected materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.

- B. Types of allowances include the following:

Lump-sum allowances.

Unit-cost allowances.

Inspection and testing allowances.

Contingency allowances.

- C. Related Sections: The following Division I Sections contain requirements that relate to this Section:

Section "Unit Prices" specifies procedures for including unit prices which may be included as part of an allowance.

Section "Modification Procedures" specifies procedures for submitting and handling Change Orders.

Section "Quality Control Services" specifies procedures governing the use of allowances for inspection and testing.

Section "Finish Hardware" specifies procedures governing the use of allowances. (Not used)

Section "Carpet" specifies procedures governing the use of allowances. (Not used)

Section "Vinyl Wall Covering" specifies procedures governing the use of allowances. (Not used)

1.03 SELECTION AND PURCHASE:

At the earliest practical date after award of the contract, advise the Architect of the date when the final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

At the Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

Purchase products and systems selected by the Architect from the designated supplier.

1.04 SUBMITTALS:

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show the actual quantities of materials delivered to the site for use in fulfillment of each allowance.

1.05 SPECIFIED ALLOWANCES - ACCOUNTING:

The following allowances which comprise lump-sum, unit price, and inspection and testing allowances shall be considered specified allowances.

N/A

Each specified allowance shall cover the cost to the contractor for purchase of all materials, equipment, and/or service delivered at the site and/or provided for the project and all required taxes less any applicable trade discounts. The contractor's cost for unloading and handling at the site, labor, installation costs (except where specified to be included in the allowance amount), overhead, profit, and other expenses necessary to incorporate the materials, equipment, and/or service furnished by the allowance into the work of the project shall be included in the contract sum and not in the allowance amount.

1.06 CONTINGENCY ALLOWANCES - ACCOUNTING:

Contingency allowances shall be considered non-specified allowances and include the following:

General Contingency Allowance

Each contingency allowance shall cover all added costs to the contractor including materials, equipment, labor, installation, unloading and handling, storage, subcontract work, warranties, overhead, etc. reasonably contemplated for incorporating the work to be furnished by the allowance into the project. To the sum of the above costs, the Contractor agrees to add an amount for profit not to exceed amounts indicated within the Supplementary General Conditions of the total cost for the work to be added under the allowance. If contingency allowances are used to furnish additional work to the project, the Contractor will be reimbursed for profit and overhead from the contingency allowance amount. The Bidders are therefore cautioned not

to include profit and overhead for contingency allowance amounts when computing their original bid for the project.

1.07 SPECIFIED LUMP-SUM AND UNIT PRICE ALLOWANCES:

- A. See Section 3.03 Schedule of Allowances.

1.08 INSPECTION AND TESTING ALLOWANCES:

There are no inspection and testing allowances.

General Contractor shall provide coordination and incidental labor required to assist any testing agency. Costs for retesting upon failure of previous tests and inspections shall be borne by the contractor at his own expense.

1.09 CONTINGENCY ALLOWANCES:

Use contingency allowances only as directed for the Owner's purposes and only by written authorization by the Architect which indicates amounts to be charged to the allowance.

1.10 UNUSED MATERIALS:

Return unused materials to the manufacturer or supplier for credit to the Owner, after installation has been completed and accepted.

When requested by the Architect, prepare unused material for storage by Owner where it is not economically practical to return the material for credit. When directed by the Architect, deliver unused material to the Owner's storage space. Otherwise, disposal of unused material is the Contractor's responsibility.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 EXAMINATION:

Examine products covered by an allowance promptly upon delivery for damage or defects.

3.02 PREPARATION:

Coordinate materials and their installation for each allowance with related materials and installation to ensure that each allowance item is completely integrated and interfaced with related work.

3.03 SCHEDULE OF ALLOWANCES:

Various sections of the specifications contain additional information about specific allowances required for this project. Refer to sections noted in the schedule for further details of allowances. The purpose of the schedule is to provide a reference guide for the contractor and to state allowance amounts so that all allowances will be included in the proposal.

Include in the Base bid amount, unless otherwise indicated, the following amounts:

CONTINGENCY ALLOWANCES		
Section "Summary of Work"	\$50,000.00	Base Bid General Contingency Allowance

3.04 BOOKKEEPING PROCEDURES:

Each allowance herein required shall be included as a separate line item on the Contractor's Pay Request. All items to be charged to the respective allowance shall be authorized by the Architect in writing prior to proceeding with the work. A Change Order to incorporate the added work to be charged to the allowance shall be required. Contractor shall submit invoices from the manufacturer for any cost to be charged against any item within Specified Allowances.

Prior to review of the contractor's Final Pay Request, the Architect will initiate a change order to deduct from the contract price, any remaining unused amounts in the various allowances.

In the event that added work exceeds the amount of the allowances, a change order will be initiated by the Architect to account for deficiencies.

Refer to Section - Modification Procedures for additional information and requirements.

END OF SECTION 01 21 00

SECTION 01 22 00 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections include the following:

- 1. Division 9 Section "09260 Gypsum Drywall".

There are no unit prices for gypsum drywall.

1.3 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, equipment, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Methods of measurement and payment for unit prices are specified in the "List of Unit Prices" below.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. Owner reserves the right to negotiate with the Contractor the unit price submitted with the bid if Owner feels the unit price appears to be out of line or in question.

- E. List of Unit Prices: A list of unit prices is included at the end of this Section. Specification Sections, if referenced in the schedule, contain additional requirements for materials or services described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

- A. Contractor must provide unit pricing per cubic yard as referenced on the Bid Proposal Form.

END OF SECTION 01 22 00

SECTION 01 23 00---ALTERNATE BIDS:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

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

1.02 SUMMARY:

This Section specifies administrative and procedural requirements for alternates.

1.03 DEFINITION:

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

1.04 COORDINATION:

Coordinate related work and modify or adjust adjacent work as necessary to ensure that work affected by each accepted Alternate is complete and fully integrated into the project.

1.05 NOTIFICATION:

Immediately following the award of the contract, prepare and distribute to each party involved, notification of the status of each Alternate. Indicate whether Alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to alternates.

1.06 SCHEDULE:

A "Schedule of Alternates" is included at the end of this section. Specification Sections, if referenced in the Schedule, contain requirements for materials and methods necessary to achieve the work described under each alternate.

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

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 SCHEDULE OF ALTERNATES:

There are no alternate bids for this project.

END OF SECTION 01 23 00

SECTION 01 26 00---MODIFICATION PROCEDURES:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

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

1.02 SUMMARY:

- A. This section specifies administrative and procedural requirements for handling and processing contract modifications.

Single Prime Contracts: Provisions of this Section apply to all of the work of the single prime contractor.

- B. Related Sections: The following Division 1 Sections contain requirements that relate to this Section:

Section "Summary of the Work" for requirements for the Contractor's Construction Schedule.

Section "Summary of the Work" for administrative procedures governing "Requests for Payment".

Section "Unit Prices" for administrative requirements governing use of unit prices.

1.03 MINOR CHANGES IN THE WORK:

The Architect will issue supplemental written instructions authorizing minor changes in the Work, not involving adjustments to the Contract Sum or Contract Time. Verbal authorization by the Architect will be subsequently documented by the Architect for record keeping.

1.04 CHANGE ORDER PROPOSAL REQUESTS:

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

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

Within 21 days of receipt of a proposal request, submit an estimate of cost necessary to execute the change to the Architect for the Owner's review.

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

Identify as separate items and indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts. Include installation costs, labor costs, supervision, administration, and profit.

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

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

Include a statement outlining the reasons for the change and the effect of the change on the Work. Price a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.

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

Identify as separate items and indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts. Include installation costs, labor costs, supervision, administration, and profit.

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

- C. Proposal Request Form: At his option, the Contractor may use his own form or use AIA Document G709 for Change Order Proposal Requests.

1.05 CONSTRUCTION CHANGE DIRECTIVE:

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

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

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

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

1.06 CHANGE ORDER PROCEDURES:

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

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01 26 00

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SECTION 01 50 00---TEMPORARY FACILITIES: (Applying to All Contractors)

1.01 UTILITIES, STRUCTURES, SIGNS:

A. Sanitary Arrangements:

The General Contractor shall provide portable toilet facilities required for a complete and adequate sanitary arrangement. These facilities will be available to other Contractors on the job and shall be kept in a neat and sanitary condition at all times.

A separate portable toilet shall be provided by the General Contractor for the use of female workers.

The General Contractor is not required to pay the required tap fee and associated fees for permanent sanitary sewer service.

The General Contractor is required to pay the necessary fees associated for the septic system permit.

B. Temporary Structures:

The General Contractor shall erect a temporary field office, complete with lights, telephone, heat in cold weather and air conditioning in hot weather.

Each separate contractor shall provide all necessary storage sheds, shanties, etc., for his own use. All temporary structures shall be built in a sound waterproof manner and shall remain on the premises until their removal is approved by the Architect.

C. Water:

The General Contractor shall make the necessary arrangements and provide and install all piping to convey water to point of use, as required by him, and shall be responsible for all damage to water lines and upon completion of the project remove all temporary lines.

The General Contractor is required to pay the required tap fee for and associated fees for temporary water service.

The General Contractor is required to pay the required tap fee and associated fees for permanent water service.

The metered cost of temporary and/or permanent water used shall be borne by the General Contractor.

Other contractors shall make all necessary arrangements with the General Contractor to obtain water as required by them and shall pay the cost of repairs resulting from damage caused by them to his temporary lines and provide hoses or extend temporary line for their own use.

If the General Contractor requires reimbursement from the other separate prime contractors for water consumed in the performance of their respective contracts, he is at liberty to make individual

arrangements with each, as mutually agreed upon, and to assume total responsibility for the settlement of each such account.

If water service requires relocation, Owner will provide the relocation.

D. Electricity:

The General Contractor shall make the necessary arrangements and provide all temporary electric service and lighting required during the entire construction period.

The General Contractor is required to pay the required permit fees and associated fees for temporary power service.

The metered cost of electricity used shall be borne by the General Contractor.

The electric service shall be of sufficient capacity and characteristics to supply the proper current for the various types of construction tools, motors, welding machines, lights, heating equipment, pumps, and other work required. All necessary temporary wiring, panelboards, outlets, switches, lamps, fuses, controls and accessories, except extension cords, shall be provided. A sufficient number of electric outlets shall be provided; locate outlets so that 50 ft. long extension cords will reach all work requiring light or power. Temporary light shall be based on one 200-watt lamp for each 1000 sq. feet of floor area, with adequate lighting in all stair wells and corridors and a minimum of one light per room. Lights shall be kept in service at all times for use by all workmen on the project and for inspections.

Temporary electrical service shall comply with requirements of the Occupational Safety and Health Act.

If the General Contractor requires reimbursement from the other contractors for electricity consumed in the performance of their respective contracts, he is at liberty to make individual arrangements with each, as mutually agreed upon, and to assume total responsibility for the settlement of each such account.

E. Temporary Heat:

General Requirements: The General Contractor shall provide cold weather protection and temporary heat as necessary to carry on the work expeditiously during inclement weather, to protect all work and materials against injury from dampness and cold, to dry out the building and to provide suitable working conditions for the installation and curing of materials, until final acceptance by the Owner. Refer to requirements in detail specifications for temperatures to be provided and maintained for installation and curing under the various trades.

Heaters for cold weather protection and temporary heat shall be blower type space heaters of adequate size and quantity. The fuel used shall be liquid petroleum gas. Heater shall be properly vented.

The permanent heating system for the building shall be used to provide temporary heating as hereinafter specified. The heating requirements during construction are divided into the following classes and types:

(1) Cold Weather Protection shall be considered the period of rough construction and up to the time

when the work is entirely closed in and the heating apparatus is in permanent position, ready for operation on a temporary basis, by the Contractor. This work shall include protection of work exposed to the elements against adverse dampness and cold, by covering, enclosing, heating materials and work under construction, and providing suitable working conditions for all trades employed on the work.

- (2) Temporary heat shall be considered the period when temporary heating is required from the time the work is entirely closed in and the heating apparatus is in permanent position and ready for operation, until the building and equipment is accepted by the Owner.
 - (a) Temporary heating for protection shall be provided from the permanent heating system when necessary to prevent freezing within the building, to dry out the building and to provide suitable working conditions for the installation and curing of materials. A temperature of not less than 50 degrees F. nor more than the maximum design temperatures shall be maintained throughout the entire building. The General Contractor shall be responsible for proper cleaning of the building and obtaining the Architects approval prior to operation of the permanent heating system.

F. Temporary Roads:

It is the responsibility of the General Contractor to provide and maintain in suitable condition for the duration of the project all necessary and temporary on-premises access roads and drives for the use of all Contractors on the project in the delivery of materials and equipment and accessibility to the work by all employees of each.

Roads and drives shall be maintained in good and traversable condition throughout the construction period and kept clear of any obstructions at all times for immediate use by fire trucks, ambulances, and similar vehicles in addition to automobiles and trucks. Access in close proximity to the building by emergency equipment shall be kept available at all times.

Any damage done to existing roads, curbs or sidewalks as a result of construction activity shall be repaired prior to final payment.

1.02 SPECIAL PROVISIONS:

The Contractor shall erect and maintain neat safe barricades at all excavations and other places as required. Warning lights on barricades shall be electric blinkers.

1.03 TEMPORARY SCAFFOLDS, STAGING AND SAFETY DEVICES:

Provide, erect, maintain and remove all scaffolding, staging, platforms, temporary runways, temporary flooring, guards, railings, stairs, etc., as required by local and state codes, or laws, for the protection of workmen and the public. The construction, inspection and maintenance of the above items shall comply with all safety codes and

regulations as applicable to the project.

1.04 LIFTING DEVICES AND HOISTING FACILITIES:

Contractors shall provide cranes and other lifting devices necessary for the proper and efficient movement of materials; provide operating personnel for equipment as required. Equipment shall be provided with proper guys, bracing and other safety devices as required by local or state codes. Remove hoisting equipment when they are no longer needed, or as directed by Architect.

1.05 PARKING:

Contractor's personnel shall park in designated places on the site. Space will be designated at the Pre-Construction Conference.

1.06 SIGNS:

Directional signs may be erected on the Owner's property subject to approval of the Owner with respect to size, style, and location of such directional signs. Such signs may bear the name of the Contractor and a directional symbol.

No other signs will be permitted except by permission of the Owner.

The General Contractor shall erect one project sign as detailed on the drawings.

1.07 TEMPORARY CONSTRUCTION FENCE:

There is no temporary construction fence required for this project.

1.08 PROTECTION OF EXISTING FACILITIES:

It shall be the obligation of the Contractor to direct his work in such a manner so as to eliminate or minimize damage to the existing facilities. All damage to existing construction and property shall be repaired to the original condition by the responsible prime contractor.

1.09 PERMITS:

The Owner shall pay for all building permit fees.
All other fees for utility services shall be paid by General Contractor.

END OF SECTION 01 50 00

SECTION 01 74 00---CLEANING UP: (Applying to All Contractors)

1.01 GENERAL:

The requirements listed herein shall be in addition to those covered by paragraphs 4.15 and 6.3 of the General Conditions.

1.02 SCOPE:

The General Contractor shall maintain adequate laborers on the project whose primary duty will be to keep the accumulated trash of all trades normally found on construction sites removed from the building and to maintain uncluttered working conditions.

The General Contractor shall clean all glass; replace all broken glass; remove stains, spots, marks and dirt from finish work; clean all hardware; remove paint spots or smears from all surfaces; clean all resilient tile, ceramic tile or other floors.

See Plumbing, Mechanical, and Electrical Specifications for cleaning all fixtures or appliances furnished and installed under their respective headings.

The project shall be "broom cleaned" once a week and all rubbish and trash shall be removed from the site a minimum of once per week.

All rubbish, surplus materials, storage shed, etc., shall be removed from the premises prior to project closeout.

1.03 CLEANING INSTRUCTIONS:

All cleanup work shall be done in accordance with cleaning instructions specified in technical specifications. Cleaning materials used shall be of suitable types for surfaces to be cleaned and shall be used in accordance with manufacturer's instructions.

END OF SECTION 01 74 00

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SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Documents required.
 - 3. Final cleaning.
- B. Related Sections include the following:
 - 1. Division 1 Section "Warranties".
 - 2. Divisions 2 through 16 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 PROJECT ACCEPTANCE

- A. Preliminary Procedures: Before requesting inspection for determining date of Project Acceptance, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit red-marked Project Record Documents, operation and maintenance manuals, and similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 8. Complete startup testing of systems.

9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for a Pre-Final Inspection by the Architect. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Following the inspection, the Architect will notify Contractor of items, either on Contractor's list or additional items identified by Architect that must be completed or corrected before final inspection will be made.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Acceptance.

1.4 FINAL COMPLETION

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

1. Submit a final Application for Payment.
2. Submit certified copy of Architect's Pre-Final inspection list of items to be completed or corrected (punch list). The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit roster of Owner's representatives that attended training sessions.
5. Submit all information as indicated within the Close-out Documents Check List provided at the end of this Section.

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

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 CONTRACTOR'S LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.6 WARRANTIES

- A. Submittal Time: Submit written warranties within 15 calendar days following the date of Final Acceptance of the Project.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

1.7 SUBMITTALS

- A. Submit all closeout documents to the Architect no later than 60 days following the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the work, or a designated portion of the Work, submit written warranties no later than 60 days following the date designated.
- B. When a designated portion of the work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within 60 days of completion of that designated portion of the Work.
- C. Form of Submittal: At final completion, compile three copies of all closeout documents required by the Contractor, subcontractor, supplier, or manufacturer. Organize all documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind closeout documents in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 by 11 inch paper.
2. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
3. Identify each binder on the front with the typed or printed title "CLOSEOUT DOCUMENTS," project title or name, and name of the Contractor.
4. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty and include copy of warranty in each required manual.

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. Final Cleaning shall be provided by the Prime General Contractor.
- B. Cleaning: Employ professional cleaners for final cleaning. Along with other closeout documents, submit copies of Professional Cleaning Companies Invoices covering work furnished. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 1. Complete the following cleaning operations before requesting final inspection for Final Acceptance for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

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- d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Replace parts subject to unusual operating conditions.
 - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - s. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

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CLOSE-OUT DOCUMENTS CHECKLIST	
CONTRACTOR	
PROJECT	CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER NEWTON, NORTH CAROLINA
ITEM	DATE RECEIVED/DELIVERED
Affidavit of Payments of Debts and Claims (G706) (3 notarized copies)	
Consent of Surety (G707) (3 notarized copies)	
Updated list of all subcontractors, major vendors and material suppliers indicating each division of work for which they are responsible. Provide each company name and contact information.	
Release of Liens from Subcontractors and Material Suppliers (G706A) (3 notarized copies) for each listed subcontractor, major vendor and material supplier.	
Final Application for Payment (4 notarized copies)	
Manufacturer's Owners Manuals and/or Maintenance Manuals	
Record (As-Built) Drawings	
Manufacturer's Roofing Warranty	
Roofer's Warranty	
Roof Manufacturer's Inspection Report	
Manufacturer's Guarantees, Warranties, etc.	
Subcontractors', major vendors' and material suppliers' Warranty.	
On Company Letterhead, Letter stating No Asbestos Materials Used	
On Company Letterhead, Letter stating Punch List Items are Complete with a Copy of the Checked Off Punch List Items	
On Company Letterhead, Letter stating all temporary facilities have been removed.	
On Company Letterhead, Letter stating the date of cancellation of Builder's Risk Insurance.	
Approved & Updated Shop Drawing/Submittals	
Copy of "Certificate of Occupancy"	

END OF SECTION 01 77 00

SECTION 03 10 00 - CONCRETE FORMWORK

PART 1: GENERAL

1.01 DESCRIPTION OF WORK

- A. Extent of formwork is indicated by the concrete structures shown on the drawings. Work shall include (except as specified elsewhere in the Contract Documents) providing formwork and shoring for all cast-in-place concrete; and installation into the formwork, items furnished by others, such as anchors, plates, inserts, frames, nosings, and any other items embedded in concrete.

1.02 STANDARDS

- A. References: Some products and execution are specified in this section by reference to published specifications or standards of the following with respective abbreviations used:

1. American Concrete Institute..... ACI
2. The American Society for Testing and Materials..... ASTM
3. U. S. Products Standards..... PS

- B. Standard Specifications and Codes:

The following Publications of the American Concrete Institute form a part of this Specification:

1. ACI 347-78 "Recommended Practice for Concrete Formwork".
2. ACI 301-72 "Specifications for Structural Concrete".

PART 2: PRODUCTS

2.01 MATERIALS

- A. Materials used for formwork shall be selected by the Contractor, subject to approval by the Engineer. All materials shall be high quality and standard for the industry.

PART 3: EXECUTION

3.01 FORMWORK DESIGN

- A. The Contractor shall be responsible for the design of all concrete formwork. Formwork shall be designed in accordance with ACI 347 unless noted. Design, erect, support, brace and maintain formwork so that it will safely support vertical and lateral loads that might be applied until such loads can be supported by the concrete structure. Carry vertical and lateral loads to ground by formwork system and in-place construction that has attained adequate strength for that purpose. Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation and position.
- B. Design forms and falsework to include assumed values of live load, dead load, weight of moving equipment operated on formwork, concrete mix, height of concrete drop, vibrator frequency, ambient temperature, foundation pressure, stresses, lateral stability, and other factors pertinent to safety of structure during construction. Provide shores and struts with positive means of adjustment capable of taking up formwork settlement during concrete placing operations, using wedges or jacks or a combination thereof. Support form facing materials by structural members spaced sufficiently close to prevent deflection. Fit forms placed in successive units for continuous surfaces to accurate alignment, free from irregularities and within allowable tolerances. Provide camber in formwork as required for anticipated deflections due to weight and pressures of fresh concrete. Provide formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide back-up material at joints as required to prevent leakage and fins.
- C. Formwork for foundation systems may be omitted when workmanship and soil conditions permit accurate excavation and the omission is approved by the Engineer. Provide temporary openings in wall forms, column forms, and other locations necessary to permit inspection and cleanout.
- D. Form accessories to be partially or wholly embedded in the concrete, such as ties and hangers, shall be a commercially manufactured type. Nonfabricated wire shall be used. Form ties shall be constructed so that the end fasteners can be removed without causing appreciable spalling at the faces of the concrete. After the ends or end fasteners of form ties have been removed, the embedded portion of the ties shall terminate not less than two diameters or twice the minimum dimensions of the tie from the formed faces of concrete to be permanently exposed to view except that in no case shall this distance be less than 3/4". When the formed face of the concrete is not to be permanently exposed to view, form ties may be cut off flush with the formed surfaces.
- E. At construction joints, contact surface of the form for sheeting for flush surfaces exposed to view shall overlap the hardened concrete in the previous placement by more than one foot. The forms shall be held against the hardened concrete to prevent offsets or loss of mortar at the construction joint and to maintain a true surface. Wood forms for wall openings shall be constructed to facilitate loosening, if necessary, to counteract swelling of the forms. Wedges used for final adjustment of the forms prior to concrete placement shall be fastened in position after the final check. Formwork shall be so

anchored to shores or other supporting surfaces or members that upward or lateral movement of any parts of the formwork system during concrete placement will be prevented. Runways for moving equipment or pump lines shall be provided with struts or legs and shall be supported directly on the formwork or structural member without resting on the reinforcing steel. When mudsills are to be placed for supporting concrete forms, a reasonably level and sufficiently compacted surface will be required. Shores shall be plumb within acceptable tolerances.

3.02 TOLERANCES

- A. Unless otherwise specified by the Engineer, formwork shall be constructed so that the concrete surfaces will conform to the tolerance limits listed in Table 4.3.1 of ACI 301-72.
- B. The Contractor shall establish and maintain in an undisturbed condition and until final completion and acceptance of the project, sufficient control points and bench marks to be used for reference purposes to check tolerances.

3.03 PREPARATION OF FORM SURFACES AND FORM COATINGS

- A. All surfaces of forms and embedded materials shall be cleaned of any accumulated mortar or grout from previous concreting and of all other foreign materials before concrete is placed in the forms. Coat form contact surfaces with form-coating compound before reinforcement is placed. Provide form-coating compounds that will not bond with, stain, or adversely affect concrete surfaces, and will not impair subsequent treatment of concrete surfaces requiring bond or adhesion or impede the wetting of surfaces to be cured with water or curing compounds. Do not allow excess form coating material to accumulate in the forms or to come into contact with surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

3.04 REMOVAL OF FORMS

- A. Formwork for columns, walls, sides of beams, and other parts not supporting the weight of the concrete may be removed as soon as the concrete has hardened sufficiently to resist damage from removal operations provided surfaces are cured and protected from cold weather as specified in other sections of this specification.

Forms and shoring in the formwork used to support the weight of concrete in beams, slabs and other structural members, shall remain in place until the concrete has reached the minimum strength specified of 75% of the specified 28-day design strength. Strength of concrete must be verified by concrete test cylinders molded and cured in the field under the same conditions that the concrete represented by these cylinders are cured and/or maturity meters connected to thermo-couples embedded in the concrete. It shall be the responsibility of the concrete technician, employed by the Owner, to inform the General Contractor when the strength of concrete cured in the field has attained the minimum specified strength required for removal of the forms.

Bottom forms of slabs shall not be removed in less time than is indicated below unless otherwise approved by the Engineer.

Above 60° F.	50° F.	40° to 50° F.
8 days	10 days	18 days

When temperature is below 40° F., the shores shall remain in place for an additional time equal to the lower temperature.

- B. When shores and other vertical supports are so arranged that the non-load-carrying form-facing material may be removed without loosening or disturbing the shores and supports, the facing material may be removed at an earlier age as specified or permitted. Wood forms for wall openings shall be loosened as soon as this can be accomplished without damage to the concrete.

When repair of surface defects or finishing is required at an early age, forms shall be removed as soon as the concrete has hardened sufficiently to resist damage from removal operations.

3.05 RESHORING

- A. When reshoring is permitted or required, the operations shall be planned in advance and shall be subject to approval. While reshoring is under way, no live load shall be permitted on the new construction.

In no case during reshoring shall concrete in beam, slabs, column or any other structural member be subjected to combined dead and construction loads in excess of the loads permitted by the Engineer for the developed concrete strength at the time of reshoring.

Reshores shall be placed as soon as practicable after stripping operations are complete but in no case later than the end of the working day on which stripping occurs.

3.06 RECORDS

A. The Contractor shall maintain an accurate log showing the following information:

1. Date of pour
2. Area poured
3. Average ambient temperature during curing period
4. Date forms scheduled for removal
5. Date form removal completed
6. Method of reshoring (number of floor, etc.)
7. Test cylinder serial numbers
8. Strength of test cylinders at 7 and 28 days.

END OF SECTION 03 10 00

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SECTION 03 11 00---CONCRETE REINFORCEMENT:

PART 1 GENERAL

1.01 GENERAL:

- A. The general provisions of the Contract, including General and Supplementary General Conditions and Special Conditions, apply to the work specified in this section.
- B. The work includes fabrication and placement of reinforcement for cast-in-place concrete, including bars, welded wire fabric, ties and supports.

1.02 CODES AND STANDARDS:

The work under this section shall comply with requirements of the latest edition of the following codes and standards, except as herein modified or specifically noted on the drawings:

1. American Concrete Institute, ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures".
2. American Concrete Institute, ACI 318 "Building Code Requirements for Reinforced Concrete".
3. American Welding Society, AWS D12.1 "Recommended Practices for Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction".
4. Concrete Reinforcing Steel Institute, "Manual of Standard Practice".

PART 2 PRODUCTS

2.01 MATERIALS:

All deformed reinforcing steel shall conform to "Standard Specification for Deformed Billet-Steel Bars for Concrete Reinforcement", ASTM A-615, Grade 60.

Welded wire fabric shall be fabricated with cold drawn wire, electrically welded and shall be of gauge and mesh, shown on the drawings or required, and shall conform to "Specifications for Welded Steel Wire Fabric for Concrete Reinforcement" (ASTM A-185).

PART 3 EXECUTION

3.01 FABRICATING AND PLACING TOLERANCES:

- A. Bars used for concrete reinforcement shall meet the following requirements for fabricating tolerances:

1. Sheared length: plus or minus one inch.
2. Stirrups and ties: plus or minus one-quarter inch.
3. All other bends: plus or minus one inch.
4. Bars shall be placed to the following tolerances:
 - a. Concrete cover to formed surfaces: plus or minus one-quarter inch.
 - b. Top bars in slabs: plus or minus one-quarter inch.

B. Bars may be moved as necessary to avoid interference with other reinforcing steel, conduits, or embedded items. If the bars are moved more than one bar diameter or enough to exceed the above tolerances, the resulting arrangement of bars shall be subject to approval by the Architect/Engineer.

3.02 PLACING:

- A. All reinforcing bars shall be supported and wired together to prevent displacement by construction loads or the placing of concrete beyond the tolerances as previously set forth. All bars shall be tied in place before placing concrete. The "sticking" of dowels after concrete is placed will not be permitted.
- B. Over formwork, metal or other approved bar chairs and spacers shall be furnished. Where the concrete surface will be exposed to weather in the finished structure or where rust would impair architectural finishes, the portions of all accessories in contact with the formwork shall be made of stainless steel or shall be plastic tipped steel.
- C. Welded wire fabric shall be lapped at least 1 mesh plus end extension of wires but not less than 6". The mesh shall be extended across supporting walls. Wire mesh shall be so placed as to positively secure its position 1/3 of the slab thickness below the top of the slab.
- D. Splices in reinforcement in slabs at points of maximum stress shall not be made. All splices shall be approved and shall provide sufficient lap to transfer the stress between the bars by bond and shear. The character and design of each splice shall conform to the requirements of the ACI-318.
- E. All reinforcing steel shall be cut and shop fabricated and delivered to the project properly tagged, bundled and ready to place. Reinforcing shall be stored off the ground at project site.
- F. Bars shall not be bent after being embedded in hardened concrete.
- G. Reinforcing shall be free from scale, loose rust or coatings which will reduce the bond to the concrete.
- H. Bars with kinks or bends not shown on drawings shall not be placed. The heating of reinforcement for bending or straightening will not be permitted.
- I. The minimum clear distance between parallel bars shall be equal to the nominal diameter of the bar. In no case shall the clear distance between the bars be less than 1" or less than 1-1/3 times the maximum size of

the coarse aggregate.

- J. The contractor shall securely maintain the metal reinforcement accurately in place until the concrete is placed. Any disturbances of reinforcement from any cause whatsoever shall be fully corrected prior to placing of concrete, and all damaged bar supports and spacers shall be repaired or removed and replaced.
- K. Concrete coverage of bars is to be as follows unless otherwise noted on plans:
 - 1. Exposed Surfaces:
 - Footings ----- 3"
 - Formed surfaces exposed to earth or weather (piers, beams, etc.)
 - 2" for #6 bars or larger.
 - 1-½" for #5 bars or smaller.
 - 2. Non-Exposed Surfaces:
 - Slabs ----- 3/4"

3.03 INSPECTION:

The Architect shall always be notified of the pouring schedule in advance and in ample time prior to placement of concrete to inspect the reinforcement. Inspection of reinforcement will be made only after each section to be poured is complete.

3.04 SHOP DRAWINGS:

Shop drawings shall be in accordance with the "Manual of Standard Practice for Detailing Reinforced Concrete Structures", ACI-315, and shall be prepared as follows:

- 1. Footings shall be shown in plan with reinforcing scheduled or shown on plan.
- 2. Accessories shall be indicated on the placing plan as detailed on the structural drawings and at locations where accessories are required.
- 3. No reinforcing shall be fabricated prior to the Engineer's approval of shop drawings.
- 4. Each shop drawing sheet shall be checked, stamped, signed, approved, and dated by the Contractor BEFORE submittal to the Architect. Any drawings not so signed shall be returned without checking.
- 5. Contractor and fabricator shall provide in their schedules for the Engineer to have a minimum of ten (10) working days from receipt of submittal for review and return submittals.

END OF SECTION 03 11 00

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SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mix design, placement procedures, and finishes.
- B. Related Sections include the following:
 - 1. Division 2 Section "Portland Cement Concrete Pavement"
 - 2. Division 2 Section "Concrete Curb, Curb and Gutter, and Gutter"

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume.

1.4 SUBMITTALS

- A. Product Data: For each type of manufactured material and product indicated.
- B. Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mix water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement." Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
- D. Formwork Shop Drawings: Not required.

- E. Welding Certificates: Copies of certificates for welding procedures and personnel.
- F. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials:
- G. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
 - 1. Cementitious materials and aggregates.
 - 2. Form materials and form-release agents.
 - 3. Steel reinforcement and reinforcement accessories.
 - 4. Fiber reinforcement.
 - 5. Admixtures.
 - 6. Waterstops.
 - 7. Curing materials.
 - 8. Floor and slab treatments.
 - 9. Bonding agents.
 - 10. Adhesives.
 - 11. Vapor retarders.
 - 12. Epoxy joint filler.
 - 13. Joint-filler strips.
 - 14. Repair materials.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
 - 1. Manufacturer must be certified according to the National Ready Mixed Concrete Association's Certification of Ready Mixed Concrete Production Facilities.
- C. Concrete Testing:
 - 1. A Concrete Testing Laboratory will be selected by the Architect. Invoices for the testing services shall be sent directly to the Architect. Architect shall forward to Owner for payment. The Contractor shall provide access to the site and causal labor to assist in obtaining cylinders. The Contractor shall notify the testing lab in a timely manner when concrete is to be poured.
 - 2. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.

- a. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
 - D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.
 - E. ACI Publications: Comply with the following, unless more stringent provisions are indicated:
 - 1. ACI 301, "Specification for Structural Concrete."
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
 - F. Mockups: Not required.
 - G. Pre-installation Conference: Not required.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 1. Plywood, metal, or other approved panel materials.
- B. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.
- D. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- E. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 inch (25 mm) to the plane of the exposed concrete surface.
2. Furnish ties that, when removed, will leave holes not larger than 1 inch (25 mm) in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Steel Bar Mats: ASTM A 184/A 184M, assembled with clips.
 1. Steel Reinforcement: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed bars.
- C. Plain-Steel Wire: ASTM A 82, as drawn.
- D. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

2.3 REINFORCEMENT ACCESSORIES

- A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless-steel bar supports.
- B. Joint Dowel Bars: Plain-steel bars, ASTM A 615/A 615M, Grade 60 (Grade 420). Cut bars true to length with ends square and free of burrs.

2.4 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I/II.
- B. Normal-Weight Aggregate: ASTM C 33, uniformly graded, and as follows:
 1. Class: Severe weathering region, but not less than 3S.
 2. Nominal Maximum Aggregate Size: 1 inch (25 mm).
- C. Water: Potable and complying with ASTM C 94.

2.5 ADMIXTURES

- A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride.
- B. Air-Entraining Admixture: ASTM C 260.
- C. Water-Reducing Admixture: ASTM C 494, Type A.
- D. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.

2.6 WATERSTOPS

- A. Self-Expanding Strip Waterstops: Manufactured rectangular or trapezoidal strip, sodium bentonite or other hydrophylic material for adhesive bonding to concrete.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Volclay Waterstop-RX; Colloid Environmental Technologies Co.
 - b. Hydrotite; Greenstreak.
 - c. Mirastop; Mirafi Moisture Protection, Div. of Royal Ten Cate (USA), Inc.

2.7 VAPOR RETARDERS

- A. See Division 7 Section "Waterproofing and Dampproofing"
- B. Granular Fills: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448, Size 57, with 100 percent passing a 1-1/2 inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-m) sieve.

2.8 FLOOR AND SLAB TREATMENTS: Not required.

2.9 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

- D. Water: Potable.
- E. Clear, Solvent-Borne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
- F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
- G. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, 18 to 22 percent solids.
- H. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- I. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- J. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
- K. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Evaporation Retarder:
 - a. Cimfilm; Axim Concrete Technologies.
 - b. Finishing Aid Concentrate; Burke Group, LLC (The).
 - c. Spray-Film; ChemMasters.
 - d. Aquafilm; Conspec Marketing & Manufacturing Co., Inc.
 - e. Sure Film; Dayton Superior Corporation.
 - f. Eucobar; Euclid Chemical Co.
 - g. Vapor Aid; Kaufman Products, Inc.
 - h. Lambco Skin; Lambert Corporation.
 - i. E-Con; L&M Construction Chemicals, Inc.
 - j. Confilm; Master Builders, Inc.
 - k. Waterhold; Metalcrete Industries.
 - l. Rich Film; Richmond Screw Anchor Co.
 - m. SikaFilm; Sika Corporation.
 - n. Finishing Aid; Symons Corporation.
 - o. Certi-Vex EnvioAssist; Vexcon Chemicals, Inc.
 - 2. Clear, Solvent-Borne, Membrane-Forming Curing Compound:
 - a. AH Clear Cure; Anti-Hydro International, Inc.
 - b. Spartan-Cote; Burke Group, LLC (The).
 - c. Spray-Cure & Seal 15; ChemMasters.
 - d. Conspec #1-15 percent solids; Conspec Marketing & Manufacturing Co., Inc.
 - e. Day-Chem Cure and Seal; Dayton Superior Corporation.
 - f. Diamond Clear; Euclid Chemical Co.
 - g. Nitocure S; Fosroc.

- h. Cure & Seal 309; Kaufman Products Inc.
 - i. Lambco 120; Lambert Corporation.
 - j. L&M Dress & Seal 18; L&M Construction Chemicals, Inc.
 - k. CS-309; W. R. Meadows, Inc.
 - l. Seal N Kure; Metalcrete Industries.
 - m. Rich Seal 14 percent UV; Richmond Screw Anchor Co.
 - n. Kure-N-Seal; Sonneborn, Div. of ChemRex, Inc.
 - o. Flortec 14; Sternson Group.
 - p. Cure & Seal 14 percent; Symons Corporation.
 - q. Clear Seal 150; Tamms Industries Co., Div. of LaPorte Construction Chemicals of North America, Inc.
 - r. Acrylic Cure; Unitex.
 - s. Certi-Vex AC 309; Vexcon Chemicals, Inc.
3. Clear, Waterborne, Membrane-Forming Curing Compound:
- a. AH Clear Cure WB; Anti-Hydro International, Inc.
 - b. Klear Kote WB II Regular; Burke Chemicals.
 - c. Safe-Cure & Seal 20; ChemMasters.
 - d. High Seal; Conspec Marketing & Manufacturing Co., Inc.
 - e. Safe Cure and Seal; Dayton Superior Corporation.
 - f. Aqua Cure VOX; Euclid Chemical Co.
 - g. Cure & Seal 309 Emulsion; Kaufman Products Inc.
 - h. Glazecote Sealer-20; Lambert Corporation.
 - i. Dress & Seal WB; L&M Construction Chemicals, Inc.
 - j. Vocomp-20; W. R. Meadows, Inc.
 - k. Metcure; Metalcrete Industries.
 - l. Cure & Seal 150E; Nox-Crete Products Group, Kinsman Corporation.
 - m. Rich Seal 14 percent E; Richmond Screw Anchor Co.
 - n. Kure-N-Seal WB; Sonneborn, Div. of ChemRex, Inc.
 - o. Florseal W.B.; Sternson Group.
 - p. Cure & Seal 14 percent E; Symons Corporation.
 - q. Seal Cure WB 150; Tamms Industries Co., Div. of LaPorte Construction Chemicals of North America, Inc.
 - r. Hydro Seal; Unitex.
 - s. Starseal 309; Vexcon Chemicals, Inc.
4. Clear, Waterborne, Membrane-Forming Curing Compound, 18 to 22 Percent Solids:
- a. Klear Kote WB II 20 percent; Burke Chemicals.
 - b. Safe-Cure & Seal 20; ChemMasters.
 - c. Conspec 21; Conspec Marketing & Manufacturing Co., Inc.
 - d. Diamond Clear VOX; Euclid Chemical Co.
 - e. SureCure Emulsion; Kaufman Products Inc.
 - f. Glazecote Sealer-20; Lambert Corporation.
 - g. Dress & Seal WB; L&M Construction Chemicals, Inc.
 - h. Vocomp-20; W. R. Meadows, Inc.

- i. Metcure 0800; Metalcrete Industries.
 - j. Cure & Seal 200E; Nox-Crete Products Group, Kinsman Corporation.
 - k. Rich Seal 18 percent E; Richmond Screw Anchor Co.
 - l. Kure-N-Seal W; Sonneborn, Div. of ChemRex, Inc.
 - m. Florseal W.B.; Sternson Group.
 - n. Cure & Seal 18 percent E; Symons Corporation.
 - o. Seal Cure WB STD; Tamms Industries Co., Div. of LaPorte Construction Chemicals of North America, Inc.
 - p. Hydro Seal 800; Unitex.
 - q. Starseal 0800; Vexcon Chemicals, Inc.
5. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound:
- a. Spray-Cure & Seal Plus; ChemMasters.
 - b. UV Super Seal; Lambert Corporation.
 - c. Lumiseal Plus; L&M Construction Chemicals, Inc.
 - d. CS-309/30; W. R. Meadows, Inc.
 - e. Seal N Kure 30; Metalcrete Industries.
 - f. Rich Seal 31 percent UV; Richmond Screw Anchor Co.
 - g. Cure & Seal 31 percent UV; Symons Corporation.
 - h. Certi-Vex AC 1315; Vexcon Chemicals, Inc.
6. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound:
- a. Klear-Kote Cure-Sealer-Hardener, 30 percent solids; Burke Group, LLC (The).
 - b. Polyseal WB; ChemMasters.
 - c. UV Safe Seal; Lambert Corporation.
 - d. Lumiseal WB Plus; L&M Construction Chemicals, Inc.
 - e. Vocomp-30; W. R. Meadows, Inc.
 - f. Metcure 30; Metalcrete Industries.
 - g. Vexcon Starseal 1315; Vexcon Chemicals, Inc.

2.10 RELATED MATERIALS

- L. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
- M. Epoxy Joint Filler: Two-component, semi-rigid, 100 percent solids, epoxy resin with a Shore A hardness of 80 per ASTM D 2240.
- N. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- O. Reglets: Not required.
- P. Dovetail Anchor Slots: Not required.

2.11 REPAIR MATERIALS

- Q. Repair Underlayment for Concrete Floors receiving Overlaid Finish Material: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.
1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3 to 6 mm) or coarse sand as recommended by underlayment manufacturer.
 4. Compressive Strength: Not less than 4100 psi (29 MPa) at 28 days when tested according to ASTM C 109/C 109M.
- R. Repair Topping for Exposed Concrete Floors: Traffic-bearing, cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch (6 mm).
1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3 to 6 mm) or coarse sand as recommended by topping manufacturer.
 4. Compressive Strength: Not less than 5700 psi (39 MPa) at 28 days when tested according to ASTM C 109/C 109M.

2.12 CONCRETE MIXES

- S. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:
1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301.
- T. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the laboratory trial mix basis.
- U. Footings and Foundation Walls: Proportion normal-weight concrete mix as follows:
1. Compressive Strength (28 Days): 3000psi.
 2. Maximum Slump: 5 inches (125 mm).
- V. Slab-on-Grade: Proportion normal-weight concrete mix as follows:
1. Compressive Strength (28 Days): 3000 psi.
 2. Minimum Cementitious Materials Content: 520 lb/cu. yd. (309 kg/cu. m).
 3. Maximum Slump: 5 inches (125 mm).
- W. Suspended Slabs: Proportion normal-weight concrete mix as follows:

1. Compressive Strength (28 Days): 3000 psi.
 2. Maximum Slump: 5 inches (125 mm).
 3. Maximum Slump for Concrete Containing High-Range Water-Reducing Admixture: 8 inches (200 mm) after admixture is added to concrete with 2- to 4-inch (50- to 100-mm) slump.
- X. Building Frame Members: Proportion normal-weight concrete mix as follows:
1. Compressive Strength (28 Days): 3000 psi.
 2. Maximum Slump: 5 inches (125 mm).
 3. Maximum Slump for Concrete Containing High-Range Water-Reducing Admixture: 8 inches (200 mm) after admixture is added to concrete with 2- to 4-inch (50- to 100-mm) slump.
- Y. Cementitious Materials: For concrete exposed to deicers, limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 requirements.
- Z. Air Content: Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows within a tolerance of plus 1 or minus 1.5 percent, unless otherwise indicated:
1. Air Content: 6 percent for 1-inch- (25-mm-) nominal maximum aggregate size.
- AA. Do not air entrain concrete to trowel-finished interior floors and suspended slabs. Do not allow entrapped air content to exceed 3 percent.
- BB. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- CC. Admixtures: Use admixtures according to manufacturer's written instructions.
1. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.

2.13 FABRICATING REINFORCEMENT

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

2.14 CONCRETE MIXING

- EE. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.
- FF. Project-Site Mixing: Not allowed.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
 - 1. Class A, 1/8 inch (3 mm): Not required
 - 2. Class B, 1/4 inch (6 mm) for concrete receiving applied finish.
 - 3. Class C, 1/2 inch (13 mm) for exposed concrete faces.
 - 4. Class D, 1 inch (25 mm) for unexposed faces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
 - 1. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Do not chamfer corners or edges of concrete walls.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

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

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor bolts, accurately located, to elevations required.
 - 2. Install reglets to receive top edge of foundation sheet waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 - 3. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.
- B. Leave formwork, for beam soffits, joists, slabs, and other structural elements, that supports weight of concrete in place until concrete has achieved the following:
 - 1. 28-day design compressive strength.
- C. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- D. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 SHORES AND RESHORES

- A. Comply with ACI 318 (ACI 318M), ACI 301, and recommendations in ACI 347R for design, installation, and removal of shoring and reshoring.
- B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.

- C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.5 VAPOR RETARDERS

- A. Vapor Retarder: Place, protect, and repair vapor-retarder sheets according to ASTM E 1643 and manufacturer's written instructions.

3.6 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
 - 1. Shop- or field-weld reinforcement according to AWS D1.4, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.7 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form from preformed galvanized steel, plastic keyway-section forms, or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
 - 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.

4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
 6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness, as follows:
1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
 2. Terminate full-width joint-filler strips not less than 1/2 inch (12 mm) or more than 1 inch (25 mm) below finished concrete surface where joint sealants, specified in Division 7 Section "Joint Sealants," are indicated.
 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Dowel Joints: Install dowel sleeves and dowels or dowel bar and support assemblies at joints where indicated.
1. Use dowel sleeves or lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.8 WATERSTOPS

- A. Flexible Waterstops: Install in construction joints as indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of Work. Field-fabricate joints in waterstops according to manufacturer's written instructions.
- B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, bonding or mechanically fastening and firmly pressing into place. Install in longest lengths practicable.

3.9 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Before placing concrete, water may be added at Project site, subject to limitations of ACI 301.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mix.
- C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.
- D. Deposit concrete in forms in horizontal layers no deeper than 24 inches (600 mm) and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints. Do not allow concrete to drop more than 60 inches.
 - 1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.
 - 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches (150 mm) 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 mix constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Maintain reinforcement in position on chairs during concrete placement.
 - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 4. Slope surfaces uniformly to drains where required.
 - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. 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.
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F (4.4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
- G. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:
1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F (32 deg C) 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.
 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.10 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding ACI 347R limits for class of surface specified.
- B. Smooth-Formed Finish: Not required.

3.11 FINISHING FLOORS AND SLABS

- A. General: Comply with recommendations in ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes.
 1. Apply scratch finish to surfaces indicated and to surfaces to receive concrete floor topping or mortar setting beds for ceramic or quarry tile, portland cement terrazzo, and other bonded cementitious floor finishes.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
 1. Apply float finish to surfaces indicated, to surfaces to receive trowel finish, and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

- D. Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighthen 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.
1. Apply a trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system
 2. Finish surfaces to the following tolerances, measured within 24 hours according to ASTM E 1155/E 1155M for a randomly trafficked floor surface:
 - a. For Floors Receiving Carpet or No Other Finish: Specified overall values of flatness, F(F) 25; and levelness, F(L) 20; with minimum local values of flatness, F(F) 17; and levelness, F(L) 15.
 - b. For All Other Areas: Specified overall values of flatness, F(F) 35; and levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and levelness, F(L) 17; for slabs-on-grade.
- E. Trowel and Fine-Broom Finish: Apply a partial trowel finish, stopping after second troweling, to surfaces indicated and to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.
- G. Slip-Resistive Aggregate Finish: Not required.
- H. Mineral Dry-Shake Floor Hardener Finish: Not required.

3.12 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel-finish concrete surfaces.

3.13 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with recommendations in ACI 305R for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.

- c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer recommends for use with floor coverings.
3. Curing Compound for Floors receiving Floor Finish Materials or Overlayment: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 4. Curing and Sealing Compound for Exposed Concrete Floors: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.
- 3.14 LIQUID FLOOR TREATMENTS Not required
- 3.15 JOINT FILLING
- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 1. Defer joint filling until concrete has aged at least six months. Do not fill joints until construction traffic has permanently ceased.
 - B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
 - C. Install semirigid epoxy joint filler full depth in saw-cut joints and at least 2 inches (50 mm) deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.
- 3.16 CONCRETE SURFACE REPAIRS
- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
 - B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 (1.2-mm) sieve, using only enough water for handling and placing.
 - C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension in solid concrete but not less than 1 inch (25

- mm) in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 3/4 inch (19 mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.17 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article.
- B. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Sampling and testing for quality control may include those specified in this Article.
- C. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mix, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
 - 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
 - 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.
 - 5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of four standard cylinder specimens for each composite sample.
 - 6. Compressive-Strength Tests: ASTM C 39; test two laboratory-cured specimens at 7 days and two at 28 days.
- D. Strength of each concrete mix will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).

- E. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-and 28-day tests.
- F. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- G. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Architect. Additional testing shall be at the Contractor's expense.
- H. General Contractor shall provide a job mock-up panel of sealed colored concrete. In a location designated by the Architect, place a minimum 100 sq. ft. floor mock-up using actual job site materials and installation procedures proposal for use in the project. Revise materials and procedures as directed by Architect to obtain acceptable finish surface. Do not destroy the approved mock-up panel until floor has been accepted. Maintain the same controls and procedures used in the acceptable mock-up throughout the project. General Contractor shall consult with manufacturer of concrete, color mix, and surface hardener for aid in instructing the proper use of the products. Engage an experienced installer who has specialized in the application of floor finishes similar to that required for this project.

General Contractor shall protect all slabs during construction and shall provide a thoroughly clean slab acceptable to Owner at the end of project. If slab is unacceptable it is Contractor's responsibility to remove sealant, provide slab remediation as required, and reapply sealant as required to provide an acceptable finish product.

END OF SECTION 03 30 00

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SECTION 03 35 00 - MISCELLANEOUS CONCRETE CONSTRUCTION

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. This section covers concrete construction, complete, including reinforcement therefore.

PART 2: PRODUCTS

2.01 MATERIALS

- A. Reinforcing: Bar reinforcement shall be intermediate grade new billet steel conforming to the requirements of ASTM A-615. Unless otherwise noted, all reinforcing bars shall be grade 60. Wire fabric reinforcement shall consist of steel wire conforming to the requirements of ASTM A-185, latest revision.
- B. Concrete: All concrete shall be equivalent to ready mix concrete manufactured and delivered in accordance with the requirements of ASTM C-94, latest revision and having a compressive strength at 28 days of 3000 psi, except as noted herein. The concrete manufacturer shall assume the responsibility of the design of the concrete mix in accordance with Alternate No. 2 of ASTM C-94. Air entrained concrete shall be used for all concrete exposed to the elements.
- a. Cement shall be Type 1 or Type 1A "Portland" cement conforming to ASTM C-150, latest revision or ASTM C-175, latest revision respectively.
- b. Aggregates shall conform to ASTM C-33, latest revision. Coarse aggregate shall be crushed rock or gravel and graded from 3/4" to #4 sieve for walls and slabs and from 2" to #4 sieve for mass or foundation concrete. Fine aggregate shall be natural sand.
- c. Mixing water shall be proportioned so that slump when measured with standard slump cone does not exceed the following:
- i. Slabs in grade Max. 4", Min. 3"
 - ii. Footings Max. 5", Min. 3"
 - iii. All others..... Max. 6", Min. 3"
- d. Premolded joint filler strips shall be resilient compressive, bituminous and fiber material saturated, with at least 35% and not over 50% by weight of asphalt. Poured type joint composition for expansion joints shall be elastic compound made up of asphalt and colloidal mineral fillers.

PART 3: EXECUTION

3.01 FORMS

- A. Forms shall be wood, metal, structural hardboard or other suitable material that will produce the required surface finish. Forms placed for successive pours for continuous surfaces shall be fitted to accurate alignment to assure a smooth completed surface free from irregularities, and shall be sufficiently tight to prevent the loss of mortar. No forms shall be left permanently in place without approval of the Engineer. Holes resulting from removal of form ties shall be filled solid within 12 hours after removal of forms with cement mortar.

3.02 PLACEMENT

- A. Concrete shall be placed as nearly as possible in its final position. Runways for wheeled equipment shall not be supported on the reinforcement. Concrete shall be placed and compacted in layers not over 18 inches deep. Vibrators may be used provided they are used under experienced supervision and the mixture is dry enough to prevent segregation. Form vibrators shall not be used. Vibration shall not be used for transporting or moving concrete inside the forms. No more concrete shall be placed than can be consolidated and finished the same day as placed. Free fall of concrete shall be limited so that no segregation of materials occurs.

3.03 JOINTS

- A. Construction of joints not indicated on drawing shall be approved by the Engineer in advance of pour. Joints in foundation walls shall be keyed. Before depositing of concrete is resumed, the hardened surface shall be roughened, cleaned and wetted surfaces shall be slushed with a coating of neat cement grout against which the new concrete shall be placed before the new grout has attained its set.

3.03 FINISHING

- A. After stripping forms, all voids and honeycombs shall be patched by chipping and scarifying the defective area and treating it with an approved bonding tending that all such voids be patched, not merely plastered. Grout mixture shall consist of one part Portland cement and one part sand. Immediately following removal of forms, all fins and irregular projections shall be removed from all surfaces except from those which are not to be exposed or waterproofed.
- B. Slabs shall be struck off and consolidated by approved machine or hand methods, so that upon completion, the surface shall be true to grade as shown on drawings and free of surface voids. All floors shall have monolithic steel trowel finish unless otherwise indicated on the drawings. Exterior walks shall be compacted, screeded and floated to a true even surface with wood floats and then broomed.

END OF SECTION 03 35 00

SECTION 04 20 00 – MASONRY WORK

PART 1 GENERAL

1.01 SCOPE OF WORK:

- A. Extent: The work required under this section consists of all masonry work and related items necessary to complete the work indicated on drawings and described in specifications.
- B. List of Items Included: Without restricting the volume or generality of the above "Extent," the work to be performed under this section shall include, but is not limited to, the following:
 - 1. Exterior and interior masonry work not otherwise specified.
 - 2. Provision of all anchors, ties and reinforcement required for all masonry work.
 - 3. Grouting and building-in all frames, vents, louvers, grilles, windows, door bucks and similar items in masonry walls and partitions.
 - 4. Building-in all flashings, access doors and panels, sleeves, lintels, anchors, inserts, ties, expansion joints, insulation, blocking, nailers, dowels, weep holes, and similar items furnished under this section and under other divisions of the work.
 - 5. Construction of sample panels.
 - 6. Other items indicated or required which are generally classified by the industry as "Masonry" items, unless specifically noted or specified to the contrary.

1.02 COMPLIANCE WITH STANDARD AND INDUSTRY SPECIFICATIONS:

- A. Any material or operation specified by reference to the published specifications of a manufacturer, The American Society for Testing and Materials (ASTM), The Structural Clay Products Institute (SCPI), National Concrete Masonry Association (NCMA), or other published standards, shall comply with the requirements of the current specification or standard listed. In the case of a conflict between the referenced specification and the project specifications, the project specifications shall govern. In case of conflicts between the referenced specifications and standards, the one having the more stringent requirements shall govern.
- B. The Contractor, if requested, shall furnish an affidavit from the manufacturer, certifying that the materials or products delivered to the job meet the requirements specified. However, such certification shall not relieve the Contractor from the responsibility of complying with any added requirements specified herein.

1.03 SAMPLE MATERIALS AND PANELS:

- A. Samples of Materials: Prior to installation, submit to the Architect for approval, the number of samples required to show the extreme variation in each color and texture of brick. In addition, submit to Architect for approval, prior to installation, two samples of steel reinforcement for masonry mortar joints, mortar color, metal anchors and ties. Samples of other materials to be used shall be provided if requested.

- B. Sample Wall Panel: Before the installation of any masonry material, erect at the job site, two (2) sample wall panels four feet long by four feet high. Panels shall show the proposed texture, bond, mortar joint and workmanship of all masonry materials. No masonry work shall be done until the Architect has selected and approved the sample panel of the work involved. The approved panel shall become the standard of comparison for all masonry work built of the materials that the approved panel include. The panel shall not be altered, moved or destroyed until the work is complete.

PART 2 PRODUCTS

2.01 MASONRY MATERIALS:

- A. Building Face Brick: Brick shall be made from clay or shale and conform to ASTM Specification C216, Type FBS, Grade SW with a minimum average compressive strength of 3000 psi.

Manufacturer's and/or distributors wishing to be approved for this project shall submit sample bricks to the Architect for consideration in accordance with requirements of the "Notice To Bidders". Only those brick whose color, texture and overall appearance are considered by the Architect to match the listed brick will be approved. A further condition of acceptance is that the brick shall be available to meet the bidding General Contractor's construction time schedule.

- B. Building Brick: Unexposed brick shall be made from clay or shale and conform to ASTM specification C62, type FBS, Grade SW with a minimum average compressive strength of 4500 PSI.

For the purpose of bidding, face brick by Statesville Brick shall be provided based upon the following brick allowance. Final brick selection shall be approved by Owner and Architect.

NO BUILDING FACE BRICK REQUIRED.

Subject to compliance with specifications and allowances, other manufacturer's whose products may be considered in the project include:

Boral Bricks
Taylor Clay Products
General Shale Brick
Cunningham Brick
Triangle Brick

- C. Concrete Building Brick: Concrete building brick shall conform to ASTM Specification C-55. Brick shall be in modular or standard sizes as the situation requires. Use concrete building brick for topping out concrete masonry work, only where necessary, and for fitting in close places.
- D. Lightweight Concrete Masonry Units:

Aggregate for Concrete Masonry Units: A blend of lightweight and normal weight aggregates, when tested in accordance with procedures set forth in ASTM 140, an average of three units shall have gross area compressive strength in excess of 1000 psi, water absorption less than 15 lbs. 1 ft. 3 and concrete density less than 105 lbs. ft.3. Additionally the compressive strength shall also be shown on a net area basis and it should be in excess of 1800 psi.

When using a blended unit, lightweight aggregate used shall be Solite or equal. No coal cinders will be acceptable in these units.

Size: The nominal face size of all units shall be 8" x 16" by the thicknesses indicated on the drawings.

Concrete masonry units shall be true to size and square on all sides. Units found to be undersize, oversize, warped or otherwise deformed shall be removed from the job site at the Contractor's expense.

The maximum moisture content shall not exceed 30 percent of the total absorption at the time the unit is placed in the wall.

Aggregates for concrete masonry units shall conform to ASTM Specifications C-331-69 "Lightweight Aggregates for Concrete Masonry Units" shall be expanded shale produced by rotary kiln process, and shall be graded to assure constant texture. All block units shall be free of organic impurities that will cause rusting, staining or pop-puts and shall contain no combustible matter.

All block designated to have a fire rating shall be Underwriter's Laboratory approved. All rated units required for this project shall be two-hour rated, shall be one-hour rated. Refer to the drawings for locations of rated block.

All concrete masonry units shall be square, true and have sharp arises. They shall be of consistent texture and shall be dimensionally stable in regard to height, width and length. A sample of four (4) blocks showing the extreme ranges in the texture is required before deliveries are made. All blocks used must be within the range limits of the texture of the samples.

Whenever the progress of erecting the walls is interrupted, the top of the walls shall be covered and this covering shall extend down over at least the top two courses of units then in the wall. Covering shall be a non-absorbing material.

Laboratory Test Reports: Field test reports made by independent testing laboratory proving the moisture content of the units will be required.

If required, the cost of these tests shall be borne by the Owner.

Copies of the test reports shall be forwarded promptly to the Architect by the Testing Laboratory. Two (2) copies required.

E. Architectural Colored Masonry Units (Integral Colored): Not required for this project.

1. General

SUBMITTAL

- A. Submit samples in form showing the full range of colors and textures available for each Exposed masonry unit required.
- B. Submit a full size sample of approved product.
- C. Submit certifications of compliance with material test reports.

QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain exposed units of texture and color from one manufacturer.
- B. Mock-up Panels: Prior to installing masonry units in the project, construct a sample wall panel 6'x6' to verify masonry selections and workmanship expected for the finished building.

DELIVERY, STORAGE AND HANDLING

- A. Specified Architectural Masonry units shall be delivered on wooden pallets protected from damage and covered with 4- mil plastic (shrink wrap).
- B. The purchasing contractor shall be responsible for keeping stored units covered each day.
- C. Units shall be handled to avoid breakage and chipping. Any chips outside of the requirements of ASTM shall not be placed in the finished wall. Units placed in the wall will be the responsibility of the purchasing contractor and not that of the manufacturer.

PROJECT CONDITIONS

- A. Cover walls with waterproof sheeting at the end of each work day.
- B. Protect the base of all walls from rain mud and mortar splashes with straw or sand, polyethylene plastic or other approved means of protection.
 - 1. Cover ground with sand or straw to a minimum 3'-0" beyond building and continuous around building perimeter.
 - 2. Cover base of wall with polyethylene plastic up to 3'-0" minimum above grade. Wrap plastic around wooden cleat and attach to wall minimum 3'-0" above grade and continuous around building perimeter.
 - 3. Protection shall be installed following veneer construction being 4'-0" above grade and continue throughout construction.

4. Protection shall be maintained throughout construction and replenished, repaired and/or replaced as required in order to maintain required protection.
5. Protection shall be provided following cleaning of veneer.

2. PRODUCTS

ARCHITECTURAL COLORED MASONRY UNITS

- A. All exposed colored units shall be normal weight material meeting the latest revisions of ASTM-C 90. For pricing purposes colors shall be as follows. Final colors shall be selected by Architect.
 1. NO COLORED MASONRY UNITS REQUIRED.
- B. All Architectural masonry units shall be manufactured to ASTM –C90 latest revision. All units shall be free of organic impurities that will cause rusting, staining or pop outs and shall contain no combustible matter. The use of coal cinder aggregate/bottom ash or similar waste products will not be allowed.
- C. Basis of Design Manufacturer: Adams. Substitutions shall be submitted by a qualified General Contractor bidding the project and approved by the Architect prior to bid date. Approved manufacturers include *Johnson*, Cemex and Martinsville Concrete Products.
- D. SIZE AND SHAPES:
Standard size Architectural Colored Masonry units shall be Split Face, Smooth Face and/or Shot Blast finish face as indicated on drawings and be in sizes as indicated on drawings 16" long.

Refer to the drawings for any other conditions that may require other sizes. Provide additional shapes and sizes as required for corner turns, window sills, etc.
- E. INTEGRAL WATER REPELLENT: All exterior exposed Architectural Colored Concrete Masonry units shall contain the manufacturer's recommended amount of integral water repellent DRY-BLOCK System as manufactured by W.R.Grace.
- F. All Architectural Colored Concrete Masonry units shall be laid in colored mortar. Colored mortar shall match color of the masonry units. Colored mortar shall contain integral water repellent fully compatible with the masonry unit and its integral water repellent.
- G. All outside building corners shall be same face finish return units.

H. All return corners when exposed at jamb openings shall be smooth face.

F. Masonry Mortar:

All masonry mortar for this project shall be Type S and materials shall comply with standards referenced by ASTM C-270.

1. Materials for Portland Cement Lime Mortar:

- A. Cement shall be Portland Cement, Type I or II, meeting Standard Specification for Portland Cement (ASTM C-150).
- B. Sand shall meet the requirements of Standard Specification for Aggregate for Masonry Mortar (ASTM C-144-84), with the gradation to satisfy paragraph 4, Grading, and with the omission of sub-paragraph 4.4.
- C. Hydrated Lime shall meet the requirements of the Standard Specification for Hydrated Lime for Masonry Purposes (ASTM C-207, Type S.)
- D. Hydraulic hydrated limes shall meet the requirements of the Standard Specification for Hydraulic Hydrated Lime for Structural Purposes (ASTM C-141).
- E. Water shall be potable.
- F. Admixture-workability and air entraining admixtures may be utilized and shall conform to ASTM C-260.

2. Prepackaged Mortar Cements:

Prepackaged mortar cements may be used on this project. The mortar cement shall be in accordance with ASTM C91-83a, and meet the following minimum requirements.

- A. Type S Mortar Cement: The masonry mortar made from the mortar cement shall have a compressive strength of 1800 psi minimum at 28 days when tested in accordance with ASTM C-270, with maximum air volume of 16%.
- B. The mortar cement shall contain Portland Cement, hydrated lime, plasticizing admixtures, and/or hydraulic hydrated lime. Mortar cements which contain other materials, including ground limestone, ground slag or other cementitious and non-cementitious materials are not acceptable.

Instructions for mixing the mortar shall be published and accompany all shipments. The instructions shall be volumetric measurements, and shall be developed to show proper proportion of sand to one (1) bag of the prepackaged mortar cement with volume of

water to produce a flow of the proper consistence.

- C. Freeze-Thaw Resistance: The mortar cement shall comply with the following requirements when subjected to 50 cycles of the freeze-thaw test:

Loss of compressive strength - 35% maximum
Loss in dry weight - 1.0% maximum

The test specimen shall be made in accordance with ASTM C-91-83a and ASTM C-67, Paragraphs 8.1, 8.3, and 8.4.

- D. The following have been pre-approved:

Product	Manufacturer
Brixment (Black Bag)	Essroc Material
Brick-Mix	Riverton Corporation
Flamingo - Lime Base (Colored)	Riverton Corporation
Tarmac Portland Cement-Lime Masonry	Roanoke Cement Company
Roanoke Portland Cement-Lime Masonry	Roanoke Cement Company
Carolinas Portland Cement-Lime Masonry	Carolinas Cement Company
Eaglebond	U.S. Cement
Santee	Santee Cement Co.
Giant Port-Lime	Giant Cement Company
Capitol Cement's Portland Cement Lime Type "S"	Capitol Cement Corporation
Standard Portland/Lime Cement	Lehigh
Portland Cement-Lime Colored Mortar Cement	Lehigh

- 3. On-the-job Mortar Cement:

- A. Type S Mortar shall have a compressive strength of 1800 psi minimum at 28 days. The mortar shall be proportioned within the following volumetric limits:

1 part Portland Cement
Part Hydrated Lime
Sand measured in a damp, loose condition is to be not less than 2 and not more than 3 times the sum of the volumes of cement plus lime used.

Plasticizer, per instructions of the manufacturer, the quantity of which is not to exceed 2% by volume of the cement and lime combination.

- 4. Measurement and Mixing:

Mortar may be proportioned either by the following proportion specification or by the Property Specification method described by ASTM C-270. The requirements for the two methods shall not be mixed.

- A. Proportional Method: The method of measuring materials shall be by volume and shall be such that the specified proportions of the mortar materials can be controlled and accurately maintained. A measuring device to make consistent volume measurements shall be used throughout the project. Measurement of sand by shovel shall not be permitted.
 - B. Mortar Mixer shall be paddle-type mechanical mixer. It shall be of such design and size to accommodate the mix without overloading, and be adequately powered to vigorously mix the ingredients.
 - C. The mortar mixer shall be charged in this order: add approximately one-half the water required, one-half the sand, the cement and lime (or prepackaged mortar cement), the remaining amount of sand, and sufficient water to bring the mix to desired consistency. Mortar shall be mixed for a minimum of five minutes after all materials have been charged into the mixer with all batches mixed to the same consistency.
 - D. Mortars that have stiffened because of evaporation of water from the mortar may be re-tempered by adding water as frequently as needed to restore the required consistency. Mortar shall be used and placed in their final position within 2 hours after mixing. When the temperature is over 80°F, the mortar shall be used within 1-1/2 hours after mixing mortar not used within these time periods shall be discarded.
- 5. Colored mortar with integral water repellent shall match in color and be used to lay Architectural Colored Concrete Block.
 - 6. Standard mortar with integral water repellent shall be used to lay veneer.
 - 7. Certification

The Contractor shall submit certification that masonry mortars used on this project meet or exceed requirements of ASTM C-270.

2.02 DELIVERY AND STORAGE OF MATERIALS:

Portland Cement, lime, and/or prepackaged mortar mixes shall be delivered to the site and stored in unbroken bags or other approved containers. These materials shall be stored in dry, weathertight sheds or enclosures with elevated floors, which will prevent the inclusion of foreign materials and damage by water or damp-ness.

Masonry sand shall be delivered and stored in a manner to prevent inclusion of foreign material therein. Brick shall be delivered and stored on the job site on platforms or timbers, clear of the ground. Brick which are chipped, cracked, broken, or marred in other manner shall not be used where exposed to view.

PART 3 EXECUTION

3.01 LAYING:

All brick shall be thoroughly wetted as necessary to reduce the rate of absorption of water at the time of laying.

All joints will be made straight to a line. All bond shall be kept plumb and uniform. Exterior walls, generally, shall be cavity wall construction with extruded polystyrene board insulation in cavity.

All joints between brick shall be completely filled with mortar. Brick shall be laid in a full, lightly furrowed bed of mortar with the head joints completely filled by placing sufficient mortar on the end of the brick so that when the brick is shoved into place, the head joint will be filled. Buttering of face edge and then slushing will not be permitted. All joints, both interior and exterior, shall be cut finish.

Brick shall generally be laid in bond except as otherwise shown on drawings. The bond of brick facing shall be laid out and adjusted for each space between openings in walls so that no closure will be required at jambs or external angles. The joints shall be approximately 3/8" thick, unless otherwise shown on the drawings.

All joints shall be tooled to a uniform concave, head joints first, and then the bed joints. All joints shall be tooled at approximately the same degree of moisture content and firmness to achieve color and texture. Joints in interior concrete masonry shall be tooled with a 24" tooling rod.

The interior facing course of all brickwork and blockwork in exterior walls shall be waterproofed on the back side before the exterior face walls are laid. Waterproofing to be applied in lifts not to exceed 6 brick courses in height.

Where bricks are disturbed or must be moved after the mortar has begun to lose its moisture, the brick and all adjacent mortar shall be removed and reset completely.

The Contractor shall cooperate with the setting of window frames and casings and door frames in masonry walls. Slush up with mortar as windows and door frames in exterior walls are set. Finish with cement mortar under all interior and exterior sills and saddles.

All exposed concrete masonry units shall be laid in running bond except as otherwise shown on the drawings.

Pockets, chases, corbels, recesses, openings and other necessary provisions shall be made as the work progresses to avoid cutting later. Information shall be obtained from other contractors as to their requirements that proper provision may be made in time. Fit and fill in neatly around all items after they have

been set. Fill in solidly with masonry around pipes and conduits at foot of chases on each floor except when allowance for expansion and contraction must be made.

All cutting of brick or block exposed to view shall be by power-operated carborundum saw.

Provide expansion/construction joints in all straight walls over 50' long 50' o/c. Verify and coordinate all expansion/control joint locations with drawings and Architect.

Cooperate with other contractors in installation of items to be built into masonry.

Set and build in vents, sleeves, flashings, expansion joints, steel sections, anchors, wall ties, nailing blocks, door and window frames, louvers, registers, grilles, and all items of others in any kind of masonry or other finish. Secure from other contractors, location and other information of their requirements.

Grout in around all frames and sills and stools in exterior masonry walls in a solid manner, allowing for necessary flashing, caulking where required.

Where caulking is required between masonry and metal frames, rake out mortar to required depth before mortar has set.

No masonry work shall be done unless the temperature of the surrounding area is above 40 degrees F and rising. Provide temporary protection of complete portions of masonry to insure a minimum of 48 hours curing at a minimum of 40 degrees F. The use of "antifreeze" or accelerating admixtures is not permitted.

Install concealed flashing at shelf angles, lintels, ledges, and similar obstructions to downward flow of water to direct water to exterior.

At lintels and shelf angles, extend flashing a minimum of 4 inches (100 mm) into masonry at each end. At heads and sills, extend flashing 4 inches (100 mm) at ends and turn up not less than 2 inches (50 mm) to form a pan.

Wicking Material: Install 1 inch thick, reticulated, nonabsorbent mesh made from polyethylene strands and shaped to maintain drainage at weeps without being clogged by mortar droppings. A mortar stop is required where rigid insulation is installed within the cavity. Manufacturer's include, but are not limited to, the following:

Mortar Net 45 A: Mortar Net
Dur-O-Wall: Polytite Mortar Stop
Advanced Building Products: Mortar Break
Hohmann & Barnard: The Mortar Net
Wire-Bond: Cavity Net DT

Weep Vents: Provide and install jumbo size cell vents 3/8" w x 3-1/2"h x 3-3/8"d at maximum 32" on center along the base of wall at thru flashing within concrete block veneer. Regardless of drawing details provide and install 3/8" outside diameter x 4" long clear PVC tube weeps at 32" on center above wall openings and at sills

of wall openings where thru flashing is located. Provide products provided by Wire-Bond, Heckman or Sandell.

Anchorage:

Metal Ties: Provide adjustable galvanized wall ties as shown.

Galvanized Carbon-Steel Sheet: ASTM A 366 (ASTM A 366M), cold-rolled carbon-steel sheet hot-dip galvanized after fabrication to comply with ASTM A 153, Class B-2 or B-3, as applicable.

Anchor masonry veneer to unit masonry with fasteners to face of unit masonry to comply with the following:

Embed ties in veneer mortar to within 1 inch (25 mm) of face.

Space anchors as indicated, but not more than 16 inches (457 mm) o.c. vertically and 16 inches (600 mm) o.c., horizontally, with not less than 1 anchor for each 2 sq. Ft. (0.2 sq. m.) of wall area. Install additional anchors within 12 inches (305 mm). Coordinate anchor spacing with drawings and stud spacing.

3.02 CONSTRUCTION TOLERANCES:

- A. Comply with tolerances in ACI 530.1/ASCE 6/TMS 602 and the following:
- B. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/4 inch in 20 feet (6 mm in 6m), nor 1/2 inch (12 mm) maximum.
- C. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3m), nor 1/2 inch (12 mm) maximum.
- D. For conspicuous horizontal lines, such as exposed lintels, sills, parapets, and reveals, do not vary from level by more than 1/4 inch in 20 feet (6 mm in 6 m), nor 1/2 inch (12 mm) maximum.
- E. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm). Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch (3 mm).
- F. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 m). Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch (3 mm).

3.03 CLEANING:

- A. While laying the masonry, good workmanship and job housekeeping practices shall be used so as to minimize the need for cleaning the masonry. Protect the base of the wall from mud splashes and

mortar droppings, protect the wall by setting scaffolds so that mortar is not deflected onto the wall, and at the end of each work day set the scaffolding boards so that they do not deflect rainfall onto newly laid masonry. Place sand around wall to avoid mud spatter.

The laying technique shall be such that mortar does not run down the face of the wall, or smear the mortar onto the block face.

After the joints are tooled, cut off mortar tailings with the trowel and brush excess mortar burrs and dust from the face of brick. Do not bag or sack the wall, but use a bricklayer's brush made with medium soft hair.

- B. Remove all large mortar particles with a hardwood scraper.
- C. If after using the above outlined techniques, additional cleaning of the walls is found necessary, allow the walls to cure one month prior to initiating further cleaning processes.
For exterior masonry work, clean as hereinafter specified in addition to the foregoing.
- D. Saturate the wall with clean water. The wall shall be thoroughly saturated prior to and at the time the cleaning solution is applied.
- E. Clean the wall only with an approved cleaning solution applied with a brush, starting at the top of the wall. Approved cleaning solutions are as follows: Sure-Klean 600, Vanatrol, Superior 800, or approved equal. Approved cleaners shall be composed primarily of detergents, wetting agents, buffering agents, and a maximum of 10% muriatic acid. The use of any of the above cleaning agents shall first be approved in writing by the manufacturer of the masonry being cleaned and the Architect. The concentration, method of application of the cleaning solution, and method of scraping shall be as outlined on the container by the manufacturer.
- F. High pressure water and sandblasting **shall not** be used for cleaning except with the recommendation and written approval of the brick manufacturer, and the written approval of the Architect/Engineer . Do not use high pressure washing on **any** sand faced brick.
- G. Immediately after cleaning a small area, the wall shall be rinsed thoroughly with quantities of water.
- H. Protect adjacent surfaces and materials during masonry cleaning operations.
- I. After the walls are cleaned, take necessary precautions to insure that other contractors and subcontractors do not damage or soil the walls by wrapping with polyethylene sheet or placing sand or straw bed 3'-0" wide around walls. Mud protection around the base of walls shall be left in place and maintained as necessary until the final grading work is done.

3.04 POINTING OF MASONRY:

At the completion of the masonry work, all holes in the exposed masonry shall be pointed. Defective joints shall be cut out and tuck pointed solidly with mortar. Pointing and tuck pointing shall be done with a pre-hydrated mortar. The mortar cement shall be controlled so that after curing of the mortar, no difference in texture or color exists with that of adjacent masonry.

3.05 GROUT FOR REINFORCED WALLS:

Grout for reinforced masonry walls and for general purpose filling of block cores, bond beams, etc. shall comply with ASTM C476. Pour grout in lifts not to exceed 8 feet. Grout shall be sufficiently fluid to surround steel, moisten masonry work and settle to a uniform level. Grout shall be puddled or vibrated as the work progresses.

Use fine grout in grout spaces less than 2 inches (50 mm) in horizontal dimension, unless otherwise indicated.

Use course grout in grout spaces 2 inches (50 mm) or more in least horizontal dimension, unless otherwise indicated.

3.06 ANCHORS, TIES, REINFORCEMENT, COMPRESSIVE FILLER:

Refer to Division 3 and Division 5 for anchorage to be furnished and installed and furnished but not installed under those divisions. All anchorage and ties furnished but not installed under Divisions 3 and 5 are to be installed under the "Masonry" division. All other masonry anchorage, ties, and reinforcement are to be furnished and installed under the "Masonry" division specifications. Anchorage and ties specified to be furnished under the "Masonry" division, but which require total or partial installation in concrete, shall be furnished to the concrete Contractor by the masonry contractor. The concrete contractor shall place the built-in portions of such anchorage and ties in the concrete forms in cooperation with the masonry contractor.

Furnish and install all required adjustable galvanized wall ties.

Brick Veneer/Metal Stud Anchors: Typical brick veneer anchors for metal stud application shall be equal and similar to Wire-Bond 1004X Type III X Screw on Anchor with #1100 ¼" diameter triangle. Sheet metal shall be 14 gauge. Finish shall be hot dip galvanized after fabrication. Screws shall be noncorrosive and sized for proper length to extend through sheathing into metal stud.

Brick Veneer/Concrete Block Anchors: Typical brick veneer anchors for concrete block application shall be equal and similar to Wire-Bond Ladder Hook & Eye. Reinforcing shall be extra heavy truss-type steel having embossed 3/16" diameter side rods and #9 truss rods welded together. Width of reinforcing to be as required by the wall thicknesses called for and shall be laid continuous in each alternate joint in height for concrete masonry (nominally every 16" in height). Lap all joints in reinforcement the thickness of the wall, lap reinforcing at intersecting walls full thickness of wall. Finish shall be hot dip galvanized after fabrication.

Equal manufacturer's include

Heckmann
Hohmann & Barnard

Furnish and install all required dovetail wall ties. Dovetail ties for anchoring concrete masonry to concrete shall be 14-gauge corrugated for mortar bond.

Wall ties shall be provided to account for sheathing thickness in order to anchor to stud wall and provide proper embed into masonry veneer.

Space anchors as indicated, but not more than 16 inches (457 mm) o.c. vertically and 16 inches (600 mm) o.c., horizontally, with not less than 1 anchor for each 2 sq. Ft. (0.2 sq. m.) of wall area. Install additional anchors within 12 inches (305 mm). Coordinate anchor spacing with drawings and stud spacing.

Refer to Section 05600 for types of expansion anchors required for making attachments to masonry.

Unless otherwise shown or specified, all masonry walls and partitions shall be laid without cross-bonding and reinforced with masonry wall reinforcing. Furnish and install all required masonry wall reinforcing for these walls and partitions. Reinforcing shall be extra heavy truss-type steel having embossed 3/16" diameter side rods and #9 truss rods welded together. Width of reinforcing to be as required by the wall thicknesses called for and shall be laid continuous in each alternate joint in height for concrete masonry (nominally every 16" in height). Lap all joints in reinforcement the thickness of the wall, lap reinforcing at intersecting walls full thickness of wall.

Samples and manufacturer's technical data relating to all of the foregoing anchorages and reinforcing shall be submitted, upon request, for the Architect's approval. Refer to drawings for location, spacing and further requirements.

Abutting partition shall be tied together by overlapping masonry wall reinforcing. Do not bond. Rake joint to receive caulking.

At top of all masonry walls which terminate under concrete construction, furnish and install bituminous impregnated open cell polyurethane compressible filler strips. Strips shall be installed on each side of wall. Strips shall be 2 inches wide x twice the thickness of the joint.

Install Anchor Seal Tape compatible with XPS insulated sheathing board. Install anchor seal tape in continuous vertical line of each column of masonry anchors. Tape shall be self-healing and seal around screw and cleat penetrations as they penetrate sheathing board.

3.07 MORTAR FILL IN HOLLOW METAL FRAMES:

Slush in and fill solid the jamb voids of all hollow metal (steel) door frames throughout the entire buildings, using mortar as above specified and working in close cooperation with other related contractors. Refer to the drawings for details and further requirements.

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END OF SECTION 04 20 00

SECTION 05 50 00---METAL FABRICATIONS:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.02 SCOPE:

This contract is intended to cover the complete furnishing and installation of all ornamental and plain cast iron work, stairs and ladders, railings, thresholds not included in other contracts, louvers, anchors and bolts, lintels, supports for other trades, and all other similar work throughout the building as shown or required by the plans and specifications.

1.03 SHOP DRAWINGS:

The contractor shall submit shop drawings for all items of ornamental and fabricated iron and steel for the Architect's approval before fabrication.

Samples representative of materials and finished products as may be requested by Architect.

Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

PART 2 PRODUCTS

2.01 QUALITY ASSURANCE:

Cast Iron: ASTM Specification A48 B3 and shall be Class No. 30 with a minimum tensile strength of 30,000 psi. See Section 02080 -- Site Drainage.

Steel: ASTM Specification A36, A36M, A53, A786, A500, A501, and A123-89A.

Aluminum: ASTM B221, B632.

Fabricator Qualifications: Firm experienced in producing metal fabrications similar to those indicated for this Project with a record of successful in-service performance, and with sufficient production capacity to produce required units without delaying the Work.

Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code-Steel," AWS D1.2 "Structural Welding Code-Aluminum," and AWS D1.3 "Structural Welding Code-Sheet Steel."

Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone re-certification.

PART 3 EXECUTION

3.01 WORKMANSHIP:

Metal surfaces shall be clean and free from mill scale, flake rust and rust pitting, well formed and finished to shape and size, with sharp lines and angles and smooth surfaces. Shearing and punching shall leave clean true lines and surfaces. Weld or rivet permanent connections. Flush rivets shall be finished flush and smooth on surfaces that will be exposed after installation. Do not use screws or bolts where they can be avoided; where used, heads shall be countersunk, screwed up tight and threads nicked to prevent loosening. Welding shall be continuous along the entire area of contact except where tack welding is permitted. Exposed connections of work in place shall not be tack welded. Exposed welds shall be ground smooth. Exposed surfaces of work in place shall have a smooth finish, and unless otherwise approved, exposed riveting shall be flush. Where tight fits are required joints shall be milled. Corner joints shall be coped or mitered, well formed, and in true alignment.

Casting shall be of uniform quality, free from blowholes, porosity, hard spots, shrinkage distortion or other defects. Casting shall conform to the dimensions indicated with a tolerance of plus or minus 1/8 inch, except in the dimensions of covers and the openings to receive them shall be limited to plus or minus 1/16 inch. Castings shall be smooth and well cleaned by shot blasting or other approved method. Covers subject to street or foot traffic shall have machined horizontal bearing surfaces; provide machined bearing or contact surfaces for other joints where indicated or required.

Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall give ample strength and stiffness. Joints exposed to weather shall be formed to exclude water. Provide holes and connections for the work of other trades.

At proper time, deliver and set in place items of metal work to be built into adjoining construction.

3.02 PAINTING AND PROTECTIVE COATING:

All ferrous metal, except stainless steel and galvanized surfaces shall be properly cleaned and given one shop coat of Tnemec No. 99, Southern Coatings Company RIP-276, Surface Engineering Company No. 2836R, or equal primer. Anchors that are built into masonry shall be coated with asphalt paint unless specified to be galvanized. Metal work to be encased in concrete shall be left unpainted unless specified or noted otherwise. Where hot-dip galvanized or zinc-coated metal is specified or shown, it shall not be shop primed unless specifically required.

Where dissimilar metals are in contact or where aluminum is in contact with concrete, mortar, masonry, wet or pressure-treated wood, or absorptive materials subject to wetting, the surface shall be protected with a coat of bituminous paint or asphalt varnish.

3.03 ANCHORS AND BOLTS:

Furnish all miscellaneous anchors required for attachment of blocking.

All bolts required for the connection of structural steel to structural steel will be furnished and installed under "Structural Steel" specifications.

All other bolts shall be furnished and installed under this Section. Bolts and fasteners, imbedded in masonry, concrete, and/or subject to wet conditions shall be galvanized. Furnish bolts, washers, and nuts for size and configuration indicated by drawings. For locations and conditions not shown, furnish bolts similar and equal to Hilti-Kwik II, Phillips wedge, or Wej-It. Anchors shall be size indicated on drawings or if not indicated, furnish size as recommended by manufacturer for work to be fastened.

3.04 METAL ACCESS DOORS: See Division 8, Section "Lightguage Metal Framing" **NONE REQUIRED.**

3.05 MISCELLANEOUS FRAMING: **NONE REQUIRED.**

3.06 EXTERIOR RAILINGS: **NONE REQUIRED.**

Furnish and install pipe and tube railings and railing supports as detailed on the drawings. Weld all connections and grind smooth.

Furnish pipe sleeves for installation of all rails in concrete. Set rails with approved rail setting compound.

Engineer, fabricate, and install handrails and railing systems to withstand structural loads without exceeding the allowable design working stress of the materials for handrails, railing system, anchors, and connections. Apply each load to produce the maximum stress in each of the respective components comprising guardrails, handrails and railing systems.

Comply with structural loading requirements of NCSBC Section 167.7.1 through 1607.7.1.3.

Assemble handrails and railing systems in the shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

3.07 METAL STAIRS: **NONE REQUIRED.**

Provide metal stairs of type specified at locations indicated on drawings. Construct stairs of shapes, sizes and gauges of metal as indicated on drawings. Include all anchors, bolts, angles, supports and other accessories necessary for complete assembly and installation. Except where other loads are designated, stairs shall be designed to support a minimum live load of 100 pounds per square foot. Stair members shall be welded, except that bolting may be used for field assembly where welding cannot be used. Bolts shall have concealed or flush heads. Erect stairs plumb and accurately and secure in place as detailed and as indicated on approved shop drawings.

Provide brackets for wall handrails; space brackets not to exceed 5 feet on centers. Wall handrails are

specified elsewhere in this section.

3.08 SAFETY NOSINGS FOR EXTERIOR STEPS: NONE REQUIRED.

- A. Safety nosings are required on all exterior concrete steps. Nosing width shall be 4" nominal.
1. Nosing base to be type 6063-T5 extruded aluminum.
 2. Anti-slip filler shall contain approximately 65% virgin grain Aluminum Oxide abrasive.
 3. Nosings shall be non-combustible as tested under Federal Test Method Standard No. 501a, Method 6411.
 4. Type of anchor shall be manufacturer's standard for application indicated on drawings.
 5. Nosings shall terminate not more than 4" (101.6 mm) from ends of steps for poured concrete stairs.
 6. Color shall extend uniformly throughout the filler and will be selected by Architect from manufacturer's standard color line.
 7. Note: Safety nosing going into new poured concrete or cement fill shall be installed before "INITIAL SET" of the concrete or cement occurs. Nosings shall finish flush with the top of the traffic surface.
- B. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
1. Wooster Products, Inc.: Supergrit Type 241 BF
 2. Safe T Metal Co., Inc.: Type BF 141
 3. American Safety Tread Co., Inc.: Type 9711

END OF SECTION 05 50 00

SECTION 06 30 00---MISCELLANEOUS CARPENTRY:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.02 SUMMARY:

This section includes the following:

Rough carpentry work not specified elsewhere and generally intended for support of other work.

Wood furring.

Wood equipment bases.

Miscellaneous blocking, grounds, nailers, and panels.

Related Sections: The following Sections contain requirements that relate to this Section:

Division 3 Section "Cast-In-Place Concrete" for wood formwork.

Division 10 Section "Storage Shelving" for factory manufactured storage and utility shelving.

1.03 SUBMITTALS:

General: Submit the following according to conditions of contract and Division 1 Specification Sections.

Wood treatment data for chemical treatment manufacture. Include chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated material.

Preservative Treatment: Include certification by treatment plant stating type of solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.

Waterborne Preservative Treatment: Include certification that moisture content of treated wood was reduced to levels specified prior to shipment to Project site.

Fire Retardant Treatment: Include certification by treating plant that treated wood complies with specified requirements.

Warranty: Include warranty of chemical treatment manufacturer for each type of treatment.

1.04 DELIVERY, STORAGE, AND HANDLING:

Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack material above ground level on uniformly spaced supports to prevent deformation.

For material pressure treated with waterborne chemicals, place spacers between each bundle for air circulation.

PART 2 PRODUCTS

2.01 LUMBER, GENERAL:

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

Grade Stamps: Furnish lumber with each piece factory-marked with grade stamp of inspection agency that indicates grading agency, grade, species, moisture content at time of surfacing and mill.

For exposed lumber, furnish pieces marked on ends or back of each piece.

Sizes: Provide nominal sizes indicated, complying with PS 20 except where actual sizes are specifically noted as being required.

Surfacing: Dressed lumber, S4S, unless otherwise indicated.

2.02 DIMENSION LUMBER FOR CONCEALED CONDITIONS:

Species: Any wood species listed by PS 20.

Moisture Content: S-DRY, KD 19 or MC 19 (19 percent maximum moisture content).

Grade: No. 2 or standard grade.

2.03 DIMENSION LUMBER FOR EXPOSED CONDITIONS: Not applicable.

2.04 BOARDS FOR CONCEALED CONDITIONS:

Species: Any wood species listed by PS 20.

Moisture Content: S-DRY, KD 19 or MC 19 (19 percent maximum moisture content).

Grade: No. 2, 2 common, or Construction Boards.

2.06 CONSTRUCTION PANELS:

Standards: Comply with requirements of PS 1 Voluntary Product Standard "Construction and Industrial Plywood" for veneer plywood and APA PRP-108 "Performance Standards and Policies for Structural-Use Panels" for performance rated panels.

Trademark: Furnish construction panels that are each factory-marked with APA trademark for grade specified.

Miscellaneous Concealed Plywood: C-C Plugged Exterior, thickness as indicated but not less than 1/2 inch nominal.

2.07 PARTICLEBOARD: Not applicable.

2.08 FASTENERS:

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

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

Bolts: ASTM A 307, Grade A; with ASTM A 563 hex nuts and flat washers.

2.09 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS:

Preservative Treatment by Pressure Process: AWWA C2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWWA C31 with inorganic boron (SBX).

Above-Ground Wood Treatment: Pressure treat with waterborne preservatives to a minimum retention of 0.25 pcf.

Kiln-dry interior dimension lumber after treatment to 19 percent maximum moisture content.

Kiln-dry interior construction panels after treatment to 15 percent maximum moisture content.

Treat wood items indicated and in the following circumstances:

In contact with masonry or concrete.
Within 18 inches of grade.

Ground-Contact Wood Treatment: Pressure treat with waterborne preservatives to a minimum retention of 0.40 pcf.

2.10 FIRE-RETARDANT TREATMENT BY PRESSURE PROCESS:

General: Identify treated wood with appropriate classification marking of Underwriters Laboratories Inc. or other testing and inspection agency acceptable to authorities having jurisdiction.

Dimension Lumber: Comply with AWPA C20.

Plywood: Comply with AWPA C27.

Treatment Type: Interior Type A for protected wood and Exterior Type for wood exposed to weather.

Inspect each piece after drying and discard damaged or defective pieces.

NOTE: All nailers, blocking, dimensional lumber and wood construction panels installed as part of roofing assembly shall be Fire Retardant.

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL:

Discard units of material with defects that impair quality of miscellaneous carpentry and in sizes that would require an excessive number or poor arrangement of joints.

Cut and fit miscellaneous carpentry accurately. Install members plumb and true to line and level.

Coat cut edges of preservative treated wood to comply with AWPA M4.

Securely fasten miscellaneous carpentry as indicated and according to applicable codes and recognized standards.

Countersink nail heads on exposed carpentry work and fill holes.

Use fasteners of appropriate type and length. Pre-drill members when necessary to avoid splitting wood.

3.02 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS:

Install where shown and where required for screeding or attachment of other work. Cut and shape to required size. Coordinate location with other work involved.

Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated.

3.03 WOOD FURRING:

General: Install at spacing indicated, with closure strips at edges and openings. Shim with wood as required for tolerance of finished work.

Furring to Receive Plywood Paneling: Install 1-by-3 inch furring at 2 feet o.c., horizontally and vertically. Select furring strips for freedom from knots that could cause bent-over nails and damage to paneling.

Furring to Receive Gypsum Board: Install 1-by-2 inch furring at 16 inches o.c., vertically.

Furring to Receive Plaster Lath: Install 1-by-2 inch furring at 16 inches o.c., vertically.

3.04 CONSTRUCTION PANELS:

Comply with applicable installation recommendations in APA Form E30 "Design/ Construction Guide-- Residential & Commercial."

END OF SECTION 06 30 00

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SECTION 07 10 00---WATERPROOFING AND DAMPPROOFING:

PART 1 GENERAL

1.01 SCOPE OF WORK:

- A. Extent: The work required under this section consists of all waterproofing and related items necessary to complete the work indicated on the drawings and described in the specifications.
- B. List of Items Included: Without restricting the volume or generality of the above "extent", the work to be performed under this section shall include, but is not limited to, the following:
 - 1. Foundation, thru-wall, cavity wall, head and sill, spandrels, and parapet flashing.
 - 2. Vapor barriers.
- C. Related Sections:
 - Division 2 Section "Foundation Drainage System"
 - Division 7 Section "Foundation Waterproofing"

1.02 GENERAL REQUIREMENTS:

- A. The materials and methods shall be as specified herein, unless they are contrary to the Manufacturer's directions or to approved trade practice; or unless the Contractor believes they will not produce a watertight job which he will guarantee as required. Where any of the above conditions occur, the Contractor shall notify the Architect in writing. Deviation from the procedure specified will be permitted only upon Architect's approval and providing the work is guaranteed by the Contractor as specified.
- B. If, prior to beginning work, the Contractor does not notify the Architect in writing of any proposed changes, it will be assumed that he agrees that the materials and methods specified will produce the results desired, and that he will furnish the required guarantee.

1.03 SUBMITTALS:

- A. Submit product information for each waterproofing and damproofing product to be installed on this project. Submit manufacturer's specification and data indicating compliance with this specification.

PART 2 MATERIALS

2.01 SLAB VAPOR BARRIER:

- A. Plastic Vapor Barrier: ASTM E 1745, Class A, with a permeance of less than 0.01 perms before and after mandatory ASTM E 154 (Sections 8, 11, 12, and 13) conditioning tests. Vapor barrier shall be minimum 15 mils thick. Include manufacturer's recommended adhesive or pressure-sensitive seam tape manufactured specifically for the membrane, vapor proofing mastic, and pipe boots.

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1. Architect approved products include the following:
 - a. Stego Industries, LLC, Stego Wrap, 15 mil
 - b. Epro Services; Ecoshield E15
 - c. Reef Industries Inc.; Vaporguard
 - d. Viper Vaporcheck II 15 Mil "Class A" Vapor Barrier
 - e. Tex-Trude Xtreme 15 Mil "Class A" Vapor Barrier
 - f. Substitutions as per Section 01600.

2.02 FLASHING:

- A. Flashing not otherwise noted, where called for on the drawings shall be 5 oz. copper fiberglass fabric flashings. Manufacturer's include, but are not limited to, the following:

1. Architect approved products include the following:
 - a. Advanced Buidling Products
 - b. Affco Products, Inc.
 - c. York

2.03 WATERSTOPS:

Waterstopping for concrete joints is specified in Division 3 Section "Cast-In-Place Concrete"

2.04 SPRAY-ON VAPOR BARRIER

- A. Vapor barrier shall be used for dampproofing the exterior face of interior face of the masonry wall cavity. Vapor barrier shall be #788 Non Fibered Asphalt Emulsion Dampproofing by "Henry" or Architect approved equal. Barrier shall be compatible with masonry, concrete, CMV, and gypsum sheathing.
- B. Prior to installation all surfaces shall be clean and in good repair. Surface shall be free of dirt, water-repellent compounds, and other foreign matter. All holes, cracks, and recessed joints in concrete block shall be filled with cement mortar for a smooth, clean surface without depressions or projections. Fill all cold joints flush with surface using a sealant compatible with asphalt.
- C. Stir coating thoroughly and apply on damp wall surface for a tighter bond. Apply by spraying with heavy-duty spray equipment or soft bristle brush. Keep strokes in one direction. Do not over brush. Apply additional coats as required at right angle to former coat. Coating shall be applied in strict accordance with manufacturers written instructions.
- D. Coating shall be applied when air temperature is 45° F and rising. Do not apply if there is a threat of rain or temperature below 40° F within 24 hours.
- E. Apply product in 1 coat (unless application requires multiple coats) extending the coating in and around all joints, grooves and slots, following all reveals and soffits for openings and continuing 12" min. out on adjoining partitions and soffits. Allow to set as required by manufacturer.

2.05 FOUNDATION WATERPROOFING:

- A. The work required under this section consists of all foundation waterproofing and related items necessary to complete the work indicated on the drawings and/or described in the specifications.

2.06 WATERPROOFING SYSTEM:

- A. All enclosing masonry walls below grade adjacent to interior areas shall have waterproof cement plaster mixed in the proportion of one part cement to three parts fine sand and applied to a total thickness of 3/8" and given a steel trowel finish.
- B. When surfaces are thoroughly dry, apply one coat of primer at a rate of 250 sq.ft. per gallon as approved by membrane manufacturer. Over primer, apply one layer of W.R. Grace Company "Bituthene", Royston "Membrane 104A, W.R. Meadows, Inc., or equal, 60 mils thick, lapping all edges 3" in accordance with manufacturer's installation instructions sealing all openings.
- C. Over waterproofing membrane, apply one layer of extruded polystyrene insulation board in thickness or R value as indicated on drawings. Bond to membrane waterproofing using cold mastic bonding adhesive. Butt all joints tight to form a continuous protection layer over the membrane waterproofing. Over insulation board install subsurface drainage mat consisting of a filter fabric bonded to a nylon or medium density polyethylene matting.
- D. Foundation Drain Pipe System: (not required)
 - 1. Drain pipe around enclosing walls below grade, where called for on the drawings, shall be 4" diameter, perforated PVC drainage pipe, surrounded by polystyrene drainage bed enclosed in plastic netting; EEE-ZZZ Lay Drain Pipe Co., PO Box 867, Pisgah Forest, NC 28768 or equal. Pipe shall be laid and graded for flow as called for on drawings.
 - 2. Laterals from drain pipe to termination points shall be standard strength, 4" diameter, Schedule 40 PVC pipe, laid with continuous grade on earth and joined with solvent welded joints. Drainage pipe sections shall be straight and free from imperfections or obstructions.
 - 3. Cover total drain pipe with continuous strips of glass filter fabric. After drain lines have been installed, they shall be tested by running water through them. Remove all obstructions to flow.
 - 4. In lieu of drainage piping described above, alternative drainage may be provided as an integral part of drainage mat system complete with connections and adaptors to pipe drainage.
- E. All walls thus treated must be fully completed including the installation of pipes, sleeves, etc., and all openings shall be grouted tight before the waterproofing treatment is applied.
- F. The application methods of the manufacturer of the materials used shall be followed for all details of application.

PART 3 EXECUTION

3.01 INSTALLATION:

- A. Vapor Barrier:
Installation of vapor barrier shall be as follows.
1. Install vapor barrier and accessories according to manufacturer's written instructions. Barrier shall be sealed along all joints, penetrations, and vertical walls.
- B. Flashing:
Installation of flashing shall be as follows.
1. Horizontal Masonry Surfaces: The flashing for horizontal masonry surfaces shall be laid in a slurry of fresh mortar and topped with a fresh full bed or mortar. The flashing shall be cut 3/8" short of the exterior face of the wall and inspected by Architect prior to covering. Flashing shall be carried through the wall, turning up where possible to facilitate drainage through the weeps, then turned up on back wall not less than 2" or carried upward across the cavity a minimum of 6". Flashing will then be secured in back wall mortar joint or reglet.
- C. Vertical Masonry Surface:
Surfaces receiving the flashing shall be sufficiently spotted with fibrous asphalt mastic to hold it in place until masonry is set. Secure in back wall mortar joint or reglet as detailed.
- D. Foundation Sill Dampproofing:
The flashing for foundation sills shall be laid in a slurry of fresh mortar and topped with a fresh full bed of mortar. Flashing shall be cut 3/8" short of the exterior face of the wall and inspected by Architect prior to covering. Flashing shall be turned up on the inside not less than 2" or carried upward across the cavity a minimum of 6" and secured in the back wall mortar joint or reglet. Weepholes shall be installed approximately 24" o.c. Where sill and column meet, flashings shall be brought a minimum of 10" up the column.
- E. Thru-Wall:
Flashing shall be cut 3/8" short of the exterior face of the wall and inspected by Architect prior to covering. Carry flashing through the wall, turning up where possible to facilitate drainage through weep holes. Turn flashing up on the back wall not less than 2" or carry upward across the cavity a minimum of 6" and secure in the back wall mortar joint or reglet. Extend flashing up and behind any sheathing board.
- F. Cavity Wall:
Flashing shall be laid in a slurry of fresh mortar and topped with a fresh full bed of mortar. Flashing shall be cut 3/8" short of the exterior face of the wall and inspected by Architect prior to covering. Flashing shall be carried through the wall and upward across the cavity a minimum of 6" and secured in the back wall mortar joint, reglet, or adhered to substrate.
- G. Heads and Sills:
Flashing for heads and sills shall be cut 3/8" short of the exterior face of the wall and inspected by Architect prior to covering. Flashing shall be carried internally through the wall and turned up at the

inside not less than 2". Head flashing shall be carried 6" beyond both ends of the steel lintel. Both head and sill flashing shall be turned up at the sides and sealed to form a pan. All corners shall be folded, not cut. Install weep holes.

- H. Spandrel/Lintel Beams:
Spandrel flashing shall start from the outside toe of the shelf angle, go up the face of the beam and then through the wall, turning up on the inside not less than 2". Install weep holes.
- I. Parapet or Coping:
Flashing for parapets or copings shall be laid in a slurry of fresh mortar and topped with a fresh full bed or mortar. Flashing shall be cut 3/8" short of the exterior face of the wall and inspected by Architect prior to covering. Weepholes shall be installed approximately 24" o.c. immediately on top of the flashing.
- J. Joining of Materials:
End laps shall be a minimum of 6" and side laps a minimum of 4", all sealed with mastic. Laps shall be rolled with a heavy hand roller until beads of mastic appear at the edges. All other concealed flashing materials shall be lapped a minimum of 4" and the contacting surfaces coated with fibrous asphalt mastic. All lap joints and corner joints shall be overlapped and sealed accordingly.
- K. Weep Vents:
All flashing shall be drained to the outside. Weep vents placed 24" (32" for concrete block masonry veneer) on center shall be provided in the head joints in the first course immediately above the flashing. Weepholes shall be kept free of mortar droppings.

END OF SECTION 07 10 00

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SECTION 07 21 00---THERMAL INSULATION:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

- A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this section.

1.02 SCOPE:

- A. The extent of thermal insulation work is shown on the drawings and as specified herein.
- B. The work includes, but is not limited to, the following:
 - 1. Batt insulation
 - 2. Sound attenuation blankets
 - 3. Rigid board insulation - sheathing
 - 4. Miscellaneous mineral fiber insulation for filling voids
 - 5. Foamed-In-Place Insulation (not required)

1.03 RELATED SECTIONS:

Division 7, Section 'Thermoplastic Membrane Roofing' for Roof Insulation
Division 9, Section 'Gypsum Drywall' for Sound Insulation

1.04 QUALITY ASSURANCE:

- A. Thermal Conductivity: The thickness shown are for the thermal conductivity (k-value at 75 degrees F.) specified for each material. Provide adjusted thicknesses as directed for the use of material having a different thermal conductivity.

1.05 SUBMITTALS:

- A. Manufacturer's Data, Thermal Insulation:
- B. For information only, submit 2 copies of manufacturer's specifications and installation instructions for each type of insulation required. Include data substantiating that the materials comply with specified requirements. Indicate by copy of transmittal form that Installer shall receive copy of manufacturer's instructions.

1.06 PRODUCT HANDLING:

- A. Protection from Deterioration: Do not allow insulation materials to become wet or soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.

1. Protect plastic insulation from exposure to sunlight.
- B. Fire Hazard: Do not deliver plastic insulating materials to the project site ahead of the time of installation. Protect at all times against ignition. Complete the installation and concealment of plastic materials as rapidly as possible in each area of work.

1.07 JOB CONDITIONS:

- A. Examination of Substrate: The Installer must examine the substrate and the conditions under which the insulation work is to be performed, and notify the Contractor in writing of any unsatisfactory conditions. Do not proceed with the insulation work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.
- B. Do not proceed with the installation of insulation until subsequent work which conceals the insulation is ready to be performed.

PART 2 PRODUCTS

2.01 Thermal Batt Insulation: ASTM C 665, Type I; preformed glass fiber batt; friction fit, conforming to the following:

- A. Surface Burning Characteristics: Flame spread index of 25 or less; smoke developed index of 450 or less, when tested in accordance with ASTM E 84.
- B. Combustibility: Non-combustible when tested in accordance with ASTM E 136, except for facing, if any.
- C. Provide insulation made without formaldehyde.
- D. Facing: Unfaced unless otherwise noted on drawings.
- E. Facing: Asphalt treated Kraft paper, one side. See drawings for location.
- F. Manufacturers:
 1. Certain Teed Corporation: www.certainteed.com
 2. Johns Manville Corporation: www.jm.com
 3. Owens Corning Corp: www.owenscorning.com
 4. Substitutions as per Section 01600.

2.02 Sound Attenuation Batt Insulation: ASTM C 665, Type I; preformed glass fiber batt; friction fit, conforming to the following:

- A. Surface Burning Characteristics: Maximum flame spread index of 10; maximum smoke developed index of 10, when tested in accordance with ASTM E 84.
- B. Combustibility: Non-combustible when tested in accordance with ASTM E 136, unfaced, if any.
- C. Provide insulation made without formaldehyde.
- D. Unfaced.
- E. Thickness: 3-1/2" or 5-1/2" as indicated on drawings.
- F. Manufacturers:
 1. Certain Teed Corporation: www.certainteed.com
 2. Johns Manville Corporation: www.jm.com
 3. Owens Corning Corp: www.owenscorning.com

4. Substitutions as per Section 01600.

2.03 Sonobatt Insulation (above suspended ceiling): ASTM C 665, Type I; preformed glass fiber batt; friction fit, conforming to the following:

- A. Surface Burning Characteristics: Maximum flame spread index of 10; maximum smoke developed index of 10, when tested in accordance with ASTM E 84.
- B. Combustibility: Non-combustible when tested in accordance with ASTM E 136, unfaced, if any.
- C. Provide insulation made without formaldehyde.
- D. Unfaced.
- E. Thickness: 3-1/2"
- F. Manufacturers:
 - 1. Certain Teed Corporation: www.certainteed.com
 - 2. Johns Manville Corporation: www.jm.com
 - 3. Owens Corning Corp: www.owenscorning.com
 - 4. Substitutions as per Section 01600.

2.04 Extruded Polystyrene Plastic Board Insulation (XPS):

- A. Rigid, closed-cell, extruded polystyrene board complying with FS HH-I-524, Type IV, Class B; 40 PSI compressive strength, 1.0 perm-inch maximum vapor transmission; 0.10% maximum water absorption; manufacturer's standard sizes; 48" x 96" boards. Board edges shall be ship lap in profile in order to provide overlapping joints.
- B. Integral Skin: Except as otherwise indicated, provide manufacturer's standard type extruded with integral high-density skin, with thermal conductivity (k-value at 75 degrees F.) of 0.20.
- C. Sealant Tape: Provide high density polyethylene fill facer with a butyl rubber adhesive to provide a mechanical and chemical bond to the insulation board.
- D. Products/Manufacturers: Provide one of the following:
 - 1. "Styrofoam SM" (Dow Chemical)
 - 2. UC Industries Foamular 250
 - 3. Amofam by Amoco Foam Products Company
 - 4. Substitution as per section 01600.

2.05 MINERAL FIBER BLANKET INSULATION

- A. Non-Faced glass or other inorganic fibers and resinous binders formed into flexible blankets, complying with FS HH-I-521; Type I; density of not less than 1.5 lbs. Per cu. ft.; thermal conductivity (k-value at 75 degrees F.) of 0.27; manufacturers' standard sizes.
- B. Products/Manufacturers: Provide one of the following:
 - 1. Fiber Glass Home Insulation; Johns-Manville
 - 2. Fiberglass Building Insulation; Owens-Corning Fiberglass
 - 3. Thermafiber Blanket; US Gypsum
 - 4. Zonolite Glass Fiber; Zonolite/Grace

2.06 FOAMED-IN-PLACE (not required)

- A. Urethane Foamed-In- Place Plastic Insulation: Manufacturer's standard urethane or isocyanurate 2-component mix for producing rigid, closed-cell insulation by frothing/pouring in place; 1.5 to 2.5 lbs. Density; 3.0 perm inch vapor transmission; water absorption of 3.0%; thermal conductivity (k-value at 75 degrees f.) of 0.17 when aged 90 days at 140 degrees F. dry heat.
- B. Products/Manufacturers – Provide one of the following:
 - a. Core-fill 500; Taylor Chemical
 - b. CSI Urethane Froth Foam; Chenetics Systems, Inc.
 - c. CPR Urethane Pour/Froth; CPR Div., Upjohn
 - d. NCFI Foam-In-Place: no. Carolina Faom Ind., Inc.
 - e. O-C Urethane 800; Owens-Corning Fiberglass Corp.
 - f. UFC Foam Systems; United Foam Corp.

2.07 MISCELLANEOUS MATERIALS:

- A. Mechanical Anchors: Type and size shown or, if not shown, as recommended by the insulation manufacturer for the type of application shown, and condition of substrate, and for compliance with insurance requirements.
- B. Metal Furring Strips: Dow Temp Guard Insulation Furring, or equal, 1-5/8" wide, ribbed galvanized steel furring strips.
- C. Mastic Sealer: Type recommended by insulation manufacturer for bonding edge joints between units and filling voids in the work.

PART 3 EXECUTION

3.01 INSTALLATION:

- A. General: Comply with manufacturer's instructions for the particular conditions of installation in each case. If printed instruction are not available or do not apply to the project condition, consult the manufacturer's technical representative for specific recommendations before proceeding with the work.
- B. Extend insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections which interfere with placement.
- C. Apply a single layer of insulation of the required thickness, unless otherwise shown or required to make up the total thickness.
- D. General Building Insulation: Apply insulation units to the substrate by the method indicated, complying with the manufacturer's recommendations. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage, to provide permanent placement and support of units.

3.02 EXTRUDED POLYSTYRENE PLASTIC BOARD INSULATION:

- A. The installer of plastic board insulation shall be only a firm licensed or franchised by the manufacturer of the primary materials.
- B. Comply with manufacturers installations for the particular conditions of installation in each case. If printed instructions are not available or do not apply to the project conditions, consult the manufacturers technical representative for specific recommendations before proceeding with the work.
- C. Masonry Cavity Wall: Install boards spot adhered to concrete block within cavity of wall between horizontal joint reinforcement. Adhesive shall be compatible with the board insulation as well as the damp proofing membrane on the concrete block. Comply with manufacturers recommended procedures to minimize unsafe and hazardous conditions. Install boards tightly against each other within the wall cavity.
- D. Stud Cavity Wall: Install boards mechanically attached to metal stud wall. Install boards horizontally and perpendicular to studs with vertical joints staggered. Comply with manufacturer's recommended procedures to minimize unsafe and hazardous conditions. Install boards tightly against each other within the wall cavity and seal all joints with joint sealant tape to prevent air/moisture infiltration as recommend by manufacturer.

3.03 BLANKET INSULATION:

- A. Stuff loose mineral fiber insulation into miscellaneous voices and cavity spaces as indicated. Compact to approximately 40% of normal maximum volume (to a density of approximately 2.5 lbs. per cu. ft.)

3.04 FOAMED-IN-PLACE INSULATION: (NOT REQUIRED)

- A. The installer of foamed-in-place insulation shall be only a firm licensed or franchised by the manufacturer of the primary foaming materials.
- B. Comply with manufacturers installations for the particular conditions of installation in each case. If printed instructions are not available or do not apply to the project conditions, consult the manufacturers technical representative for specific recommendations before proceeding with the work.
- C. Fill cavities with foamed-in-place plastics, placed by manufacturers recommended pouring or frothing methods which will prevent excessive pressures from being exerted on the construction, and yet will ensure complete filling of the cavities to the extremities of each pour area. Comply with manufacturers recommended procedures to minimize unsafe and hazardous conditions. Maintain inspection ports to show presence of insulation at the extremities of each pour area. Close ports after complete coverage has been confirmed.
- D. Close off openings and shield other work from being covered with foamed-in-place insulation.

END OF SECTION 07 21 00

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SECTION 07 84 00---FIRESTOPPING:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

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

1.02 SCOPE:

(A) This Section includes firestopping for the following:

Penetrations through fire-resistance rated floor and roof construction including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.

Penetrating through fire resistance rated walls and partitions including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.

Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.

Sealant joints in fire-resistance-rated construction.

(B) Related Sections: The following Sections contain requirements that relate to this section.:

Division 3 Section "Cast-In-Place Concrete" for construction of openings in concrete slabs.

Division 4 Section "Unit Masonry" for joint fillers for non-fire-resistive-rated masonry construction.

Division 7 Section "Building Insulation" for safing insulation and accessories.

Division 7 Section "Joint Sealants" for non-fire-resistive-rated joint sealants.

Division 15 Sections specifying ducts and piping penetrations.

Division 16 Sections specifying cable and conduit penetrations.

1.03 SYSTEM PERFORMANCE REQUIREMENTS:

(A) General: Provide firestopping systems that are produced and installed to resist the spread of fire, according to requirements indicated, and the passage of smoke and other gases.

(B) F-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with F ratings indicated, as determined per ASTM E 814, but not less than that equaling or exceeding the fire resistance rating of the constructions penetrated.

(C) T-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with T ratings, in addition to F ratings, as determined per ASTM E 814, where indicated and where systems protect penetrating items exposed to contact with adjacent materials in occupiable floor areas. T-rated assemblies are required where the following conditions exist:

Where firestop systems protect penetrations located outside of wall cavities.

Where firestop systems protect penetrations located outside fire-resistive shaft enclosures.

Where firestop systems protect penetrations location in construction containing doors required to have a temperature-rise rating.

Where firestop systems protect penetrating items larger than a 4" diameter nominal pipe or 16 sq.in. in overall cross-sectional area.

(D) Fire-Resistive Joint Sealants: Provide joint sealants with fire-resistance ratings indicated, as determined per ASTM E 119, but not less than that equaling or exceeding the fire-resistance rating of the construction in which the joint occurs.

For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.

For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.

For floor penetrations with annular spaces exceeding 4" or more in width and exposed to possible loading and traffic, provide firestop systems capable of supporting the floor loads involved either by installing floor plates or by other means.

For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

For firestopping exposed to view, provide products with flame-spread values of less than 25 and smoke developed values of less than 450, as determined per ASTM E 84.

1.04 SUBMITTALS:

(A) General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

(B) Product Data for each type of product specified.

Certification by firestopping manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOC's) and are nontoxic to building occupants.

(C) Product certificates signed by manufacturers of firestopping products certifying that their products comply with specified requirements.

1.05 QUALITY ASSURANCE:

(A) Fire-Test-Response Characteristics: Provide firestopping that complies with the following requirements and those specified under the "System Performance Requirements" article:

Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL, Warnock Hersey, or another agency performing testing and follow up inspection services for firestop systems that is acceptable to authorities having jurisdiction.

Through-penetration firestop systems are identical to those tested per ASTM E814 under conditions where positive furnace pressure differential of at least 0.01 inch of water is maintained at a distance of 0.78 inch below the fill materials surrounding the penetrating items in the test assembly. Provide rated systems complying with the following requirements:

Through-penetration firestop system products bear UL or Warnock Hersey classification marking.

Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by UL in their "Fire Resistance Directory" by Warnock Hersey, or by another qualified testing and inspecting agency.

Fire resistive joint sealant systems are identical to those tested for fire-response characteristics per ASTM E 119 under conditions where the positive furnace pressure differential is at least 0.01 inch of water, as measured 0.78 inch from the face exposed to furnace fire. Provide systems complying with the following requirements:

Fire Resistance Ratings of Joint Sealants: As indicated by reference to design designations listed by UL in their "Fire Resistance Directory" or by another qualified testing and inspecting agency.

Joint sealants, including backing materials, bear classification marking of qualified testing and inspection agency.

Information on drawings referring to specific design designations of through-penetration firestop systems is intended to establish requirements for performance based on conditions that are expected to exist during installation. Any changes in conditions and designated systems, require the Architect's prior approval. Submit documentation showing that the performance of proposed substitutions equals or exceeds that of the systems they would replace and are acceptable to authorities having jurisdiction.

(B) Installer Qualifications: Engage an experienced installer who is certified, licensed, or otherwise qualified by the firestopping manufacturer as having the necessary experience, staff, and training to install manufacturer's products per specified requirements. A manufacturer's willingness to sell its firestopping products to the Contractor or to an Installer engaged by the contractor does not in itself confer qualification on the buyer.

(C) Single-Source Responsibility: Obtain through-penetration firestop systems for each kind of penetration and construction condition indicated from a single manufacturer.

Provide firestopping products containing no detectable asbestos as determined by the method specified in 40 CFR Part 763, Subpart F, Appendix A, Section 1, "Polarized Light Microscopy."

(D) Coordinating Work: Coordinate construction of openings and penetrating items to ensure that designated through-penetration firestop systems are installed per specified requirements.

1.06 DELIVERY, STORAGE, AND HANDLING:

Deliver firestopping products to project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; lot number; shelf life, if applicable; qualified testing and inspecting agency's classification marking applicable to project; curing time; and mixing instructions for multi-component materials.

Store and handle firestopping materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.07 PROJECT CONDITIONS:

(A) Environmental Conditions: Do not install firestopping when ambient or substrate temperatures are outside limits permitted by firestopping manufacturer or when substrates are wet due to rain, frost, condensation, or other causes.

(B) Ventilation: Ventilate firestopping per firestopping manufacturers' instructions by natural means or, where this is inadequate, forced air circulation.

1.08 SEQUENCING AND SCHEDULING:

Do not cover up those firestopping installations that will become concealed behind other construction until authorities having jurisdiction, if required, have examined each installation.

PART 2 PRODUCTS

2.01 FIRESTOPPING, GENERAL:

(A) Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, demonstrated by firestopping manufacturer based on testing and field experience.

(B) Accessories: Provide components for each firestopping system that are needed to install fill materials and to comply with "System Performance Requirements" article in Part 1. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire-resistance-rated systems. Accessories include but are not limited to the following items:

Permanent forming/damming/backing materials including the following:

Semirefactory fiber (mineral wool) insulation.

Ceramic fiber.

Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.

Fire rated form board.

Joint fillers floor joint sealants.

Temporary forming materials.

Substrate primers.

Collars.

Steel sleeves.

(C) Applications: Provide firestopping systems composed of material specified in the Section that comply with system performance and other requirements.

2.02 FILL MATERIAL FOR THROUGH-PENETRATION FIRESTOP SYSTEMS:

Ceramic-Fiber and Mastic Coating: Ceramic fibers in bulk form formulated for use with mastic coating, and ceramic fiber manufacturer's mastic coating.

Ceramic Fiber Sealant: Single-component formulation of ceramic fibers and inorganic binders.

Endothermic, Latex Compound Sealant: Single-component, endothermic, latex formulation.

Intumescent, Latex Sealant: Single-component, intumescent, latex formulation.

Intumescent Putty: Non-hardening, dielectric, water-resistant putty containing no solvents, inorganic fibers, or silicone compounds.

Intumescent Wrap Strips: Single-component, elastomeric sheet with aluminum foil on one side.

Job-Mixed Vinyl Compound: Prepackaged vinyl based powder product for mixing with water at project site to produce a paintable compound, passing ASTM E 136, with flame-spread and smoke-developed ratings of zero per ASTM E 84.

Mortar: Prepackaged dry mix composed of a blend of inorganic binders, fillers, and lightweight aggregate formulated for mixing with water at project site to form a non-shrinking, homogenous mortar.

Pillows/Bags: Re-usable, heat-expanding pillows/bags composed of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agent and fire-retardant additives.

Silicone Foam: Two-component, silicone-based liquid elastomer that, when mixed, expands and cures in place to produce a flexible, non-shrinking foam.

Silicone Sealant: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealant of grade indicated below.

Grade: Pourable (Self-leveling) formulation for openings in floors and other horizontal surfaces and non-sag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless indicated firestop system limits use to non-sag grade for both opening conditions.

Solvent-Release-Curing Intumescent Sealant: Solvent-release-curing, single-component, synthetic-polymer-based sealant of grade indicated below:

Grade: Pourable (Self-leveling) formulation for openings in floors and other horizontal surfaces and Non-sag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless indicated firestop system limits use to non-sag grade for both opening conditions.

Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:

Ceramic-Fiber and Mastic Coating:

FireMaster Bulk and FireMaster Mastic, Thermal Ceramics

Ceramic-Fiber Sealant:

Metacaulk 525, The RectorSeal Corporation

Endothermic, Latex Sealant:

Fyre-Shield, Tremco Inc.

Endothermic, Latex Compounds:

Flame-Safe FS500/600 Series, International Protective Coatings Corp.

Flame-Safe FS900/FST900 Series, International Protective Coatings Corp.

Intumescent Latex Sealant:

Metacaulk 950, The RectorSeal Corporation

Fire Barrier CP 25WB Caulk, 3M Fire Protection Products

Intumescent Putty:

Pensil 500 Intumescent Putty, General Electric Co.

Flame-Safe FSP1000 Putty, International Protective Coatings Corp.

Fire-Barrier Moldable Putty, 3M Fire Protection Products

Intumescent Wrap Strips:

Dow Corning Fire Stop Intumescent Wrap Strip 2002, Dow Corning Corp.

CS2420 Intumescent Wrap, Hilti Construction Chemicals, Inc.

Fire Barrier FS-195 Wrap/Strip, 3M Fire Protection Products

Job-Mixed Vinyl Compound:

USG Firecode Compound, United States Gypsum Co.

Mortar:

K-2 Firestop, Bio Fireshield, Inc.
Novasit K-10 Firestop Mortar, Bio Fireshield, Inc.
KBS-Mortar Seal, International Protective Coatings Corp.

Pillows/Bags:

Firestop Pillows, Bio Fireshield, Inc.
KBS Sealbags, International Protective Coatings Corp.

Silicone Foams:

Dow Corning Fire Stop Foam 2001, Dow Corning Corp.
Pensil 200 Foam, General Electric Co.

Silicone Sealants:

Dow Corning Firestop Sealant 2000, Dow Corning Corp.
Dow Corning Firestop Sealant SL 2003, Dow Corning Corp.
Pensil 100 Firestop Sealant, General Electric Co.
CS240 Firestop Sealant, Hilti Construction Chemicals, Inc.
Metacaulk 835, The RectorSeal Corporation
Metacaulk 880, The RectorSeal Corporation
Frye-Sil, Tremco Inc.
Frye-Sil S/L, Tremco Inc.

Solvent-Release-Curing Intumescent Sealants:

Biostop 500 Intumescent Firestop Caulk, Bio Fireshield, Inc.
Fire Barrier CP 25N/S Caulk, 3M Fire Protection Products
Fire Barrier CP 25S/L Caulk, 3M Fire Protection Products

2.03 FIRE-RESISTIVE ELASTOMERIC JOINT SEALANTS:

Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that complies with ASTM C 920 requirements, including those referenced for Type, Grade, Class, and Uses, and requirements specified in this section applicable to fire-resistive joint sealants.

Sealant Colors: Provide color of exposed joint sealants to comply with the following:

Provide selections made by Architect from manufacturer's full range of standard colors for products of type indicated.

Single-Component, Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; exposure-related use NT, and joint substrate related Uses M, G, A, and (as applicable to joint substrates indicated) O.

Multi-component, Non-sag, Urethane Sealant: Type M; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, A, and (as applicable to joint substrates indicated) O.

Additional Movement Capability: Provide sealant with the capability to with-stand the following

percentage change in joint width existing at time of installation, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, and remain in compliance with other requirements of ASTM C 920 for uses indicated.

40 percent movement in extension and 25 percent in compression for a total of 65 percent movement.

Single Component, Non-sag, Urethane Sealant: Type S; Grade NS; Class 25; and Uses NT, M, A, and (as applicable to joint substrates indicated) O.

Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:

Single-Component, Neutral-Curing, Silicone Sealant:

Dow Corning 790, Dow Corning Corp.
Dow Corning 795, Dow Corning Corp.
Silpruf, General Electric Co.
Ultraglaze, General Electric Co.
864, Pecora Corp.

Multicomponent, Non-sag, Urethane Sealant:

Vulkem 922, Mameco International Inc.
Dynflex, Pecora Corp.
Dynatred, Pecora Corp.
Dynatrol II, Pecora Corp.
Sikaflex 2cn NS, Sika Corp.
Sonolastic NP 2, Sonnoborn Building Products Div., ChemRex Inc.
Dymeric, Tremco Inc.

Single-Component, Non-sag, Urethane Sealant:

Isoflex 880 GB, Harry S. Peterson Co., Inc.
Isoflex 881, Harry S. Peterson Co., Inc.
Vulkem 921, Mameco International Inc.
Sikaflex--15LM, Sika Corp.

2.04 MIXING:

For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

PART 3 EXECUTION

3.01 EXAMINATION:

Examine substrates and conditions with installer present, for compliance with requirements for opening

configurations, penetrating items, substrates, and other conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION:

(A) Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:

Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.

Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.

Remove laitance and form release agents from concrete.

(B) Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

(C) Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing firestopping's seal with substrates.

3.03 INSTALLING THROUGH-PENETRATION FIRESTOPS:

General: Comply with the "System Performance Requirements" article in Part 1 and the through-penetration firestop manufacturer's installation instructions and drawings pertaining to products and applications indicated.

Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross-sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.

Install fill materials for through-penetration firestop systems by proven techniques to produce the following results:

Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.

Apply materials so they contact and adhere to substrates formed by openings and penetrating items.

For fill materials that will remain exposed after completing work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.04 INSTALLING FIRE-RESISTIVE JOINT SEALANTS:

General: Comply with the "System Performance Requirements" article in Part 1, with ASTM C 1193, and with the sealant manufacturer's installation instructions and drawings pertaining to products and applications indicated.

Install joint fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire resistance rating required.

Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.

Tool Non-sag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire-resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.05 FIELD QUALITY CONTROL:

Inspecting agency will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.

Inspecting agency will report observations promptly to the contractor.

Do not proceed to enclose firestopping with other construction until reports or examinations are issued.

Where deficiencies are found, repair or replace firestopping so that it complies with requirements.

3.06 CLEANING:

Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturer of firestopping products and of products in which opening and joints occur.

Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of acceptance of the project. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to produce firestopping complying with specified requirements.

END OF SECTION 07 84 00

SECTION 07 90 00---CAULKING AND SEALANTS:

PART 1 GENERAL

1.01 SCOPE OF WORK:

(A) Extent: The work required under this section consists of the complete furnishing, installation and finishing of all exterior and interior caulking as indicated on the drawings or specified herein.

(B) List of Items Included: Without restricting the volume or generality of the above "Extent", the work to be performed under this section shall include, but is not limited to, the following:

1. Caulking between all metal door and window frames and masonry or concrete or other materials.
2. All joint filler.
3. All crevices formed by the junction of two dissimilar materials.
4. Caulking of all metal thresholds.
5. All other miscellaneous caulking required by the drawings and necessary for a complete watertight job.

(C) Work Not Included: Caulking and sealants furnished and installed as part of roofing system or other related assemblies and specified elsewhere in these specifications.

1.02 GENERAL REQUIREMENTS:

(A) The caulking work shall be performed by a Contractor who is regularly engaged and specializes in work of the character required by the contract and in the application of the materials specified herein. Material shall be delivered to job in manufacturer's original unopened containers with manufacturer's brand and name clearly marked thereon.

(B) The materials and methods shall be as specified herein, unless they are contrary to the manufacturer's directions or to approved trade practice; or unless the Contractor believes they will not produce a permanent and watertight job which he will guarantee as required. Where any of the above conditions occur, the Contractor shall notify the Architect in writing. Deviation from the procedure specified will be permitted only upon Architect's approval and providing the work is guaranteed by the Contractor as specified.

(C) If, prior to beginning work, the Contractor does not notify the Architect in writing of any proposed changes, it will be assumed that he agrees that the materials and methods specified will produce the results desired, and that he will furnish the required guarantee.

(D) The Contractor, if requested, shall furnish an affidavit from the Manufacturer, certifying that the materials or product delivered to the job meets the requirements specified. However, such certification shall not relieve

the Contractor from the responsibility of complying with any added requirements specified herein.

1.03 ACCEPTANCE OF SURFACES TO RECEIVE CAULKING:

Before beginning work, the caulking subcontractor shall inspect surfaces to receive the caulking specified; he shall notify the Architect and the General Contractor in writing of any serious defects or conditions that will interfere with, or prevent, a satisfactory installation. The beginning of application work shall imply acceptance of the surfaces to receive the caulking.

PART 2 PRODUCTS

2.01 MATERIALS:

(A) Exterior caulking shall be one of the following:

"790 Series" as manufactured by Dow Corning,

"890 Series" as manufactured by Pecora Chemical Corporation,

"Omniseal" as manufactured by Sonneborn Building Products, Inc.,

or equal.

(B) Interior caulking shall be one the following:

"Sonalac" as manufactured by Sonneborn Building Products, Inc.,

"Acrylic Latex" as manufactured by Gibson-Homans Company,

"AC-20" as manufactured by Pecora Chemical Corporation,

or equal.

(C) Equivalent products by other manufacturers which meet the specification requirements will be considered for approval by the Architect upon submittal or substantiating manufacturer's data and specifications.

(D) Backer rod shall be either a closed-cell polyethylene or an open-cell polyurethane rod as recommended by sealant manufacturer.

(E) Rope yarn as required shall be special untreated oakum caulking yarn free from any elements which will produce stains, glass fiber rope or extruded urethane foam.

(F) All primers shall be the type and make of the same manufacture of the caulking compound or as recommended by the manufacturer thereof.

(G) Caulking colors shall be selected by the Architect from the caulking/sealant manufacturer's full color range.

(H) Sample application showing the colors, workmanship and type of finish shall be applied at the job site for the Architect's approval before proceeding.

(I) Interior Expansion Joint Sealant

Products

Joint sealant to be used for sealing interior expansion joints between concrete floor slab and concrete block walls shall be Synthacalk GC-2+ as manufactured by Pecora Corporation or Architect approved equal.

Sealant shall be a durable, elastomeric, weather tight seal. Sealant shall maintain an effective bond between materials of similar and dissimilar porosities.

Synthacalk GC-24 is a two component joint sealant resistant to the effects of sunlight, rain, snow, ozone, aging, shrinkage, and cyclic temperature change.

Primer for joint sealant shall be Synthacalk P-53+ Primer as manufactured by Pecora Corporation or Architect approved equal. Primer shall be a synthetic rubber base and quick drying allowing sealing operations to begin within one (1) hour.

Installation

Joint interface must be clean, dry, and free from oils, loose mortar, laitance, waterproofing, and other contaminants. Surface may require thorough grinding, sand blasting, or solvent cleaning or order to provide a clean sound surface.

Apply primer to joint surfaces with brush after joint is clean and dry but within (8) hours prior to sealant application. Primer shall dry completely for approximately (1) hour. Install a perforated closed cell polyethylene foam expansion joint with a tear tab to control depth of sealant.

Remove tear tab to open the joint cavity for sealant application. Install backer rod as required and fill joint completely using sealant with standard caulking equipment and dry tool immediately.

Thorough blending of the base and activator components is essential for optimum sealant performance. Follow manufacturers written instructions for blending sealant components. Base and activator components from the same shipment only shall be mixed together. Components of one shipment shall not be mixed with components of another shipment.

Sealant shall be installed within temperature at 75°F for 2 -3 hours and surface temperatures between 50°F and 110°F.

PART 3 EXECUTION

3.01 WORKMANSHIP:

(A) Prior to the start of caulking, all surfaces to be caulked shall be properly raked out to a depth of 1/2 inch and cleaned and primed. Caulking shall then be applied in such manner and depth as indicated, specified or recommended by the manufacturer. All mixing, handling and application methods and equipment shall be in strict accordance with the manufacturer's specifications.

(B) Joints deeper than 1/2 inch shall be filled with backing rod to within 1/2 inch of the desired finish of the joint and then sealed as above specified.

(C) All caulking beds, beads and joints shall be finished in a uniformly true, straight and smooth harmonious finish in conformity with the above approved samples. Embed all metal thresholds in caulking.

3.02 CLEANING AND PROTECTION:

As the work is completed, cleaning, in accordance with the manufacturer's recommendations, shall be performed, removing all excess material from all adjacent surfaces, leaving no stains or objectionable blemishes. During the application processes, the work of all other trades shall be completely protected from damage, including any necessary or required masking, covering, etc.

END OF SECTION 07 90 00

SECTION 08 11 00---HOLLOW METAL WORK:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

The general provisions of the Contract, including General and Supplementary General Conditions and General Requirements, apply to the work specified in this section.

1.02 SCOPE:

The extent of hollow metal work is shown on the drawings and schedules.

This section includes hollow metal doors, pressed steel frames for doors and related openings, and metal panels and louvers installed therein.

1.03 QUALITY ASSURANCE:

Provide hollow metal work manufactured by a single firm specializing in the production of this type of work, unless otherwise acceptable to the Architect.

Manufacturers offering products to comply with the requirements for hollow metal work include the following:

- Amweld Building Products
- Ceco Door Company
- Curries Manufacturing, Inc.
- Fenestra Corporation
- Mesker Door, Inc.
- Republic Builders Products
- Steelcraft
- Concept Frames

Fire-Rated Assemblies:

Wherever a fire-resistance classification is shown or scheduled for hollow metal work, provide fire-rated hollow metal doors and frames investigated and tested as a fire door assembly, complete with type of fire door hardware to be used. Identify each fire door and frame with recognized testing laboratory labels, indicating applicable fire rating of both door and frame.

Construct assemblies to comply with NFPA Standard No. 80, and as herein specified.

Oversize Assemblies: Wherever hollow metal assemblies are larger than size limitations established by NFPA, provide manufacturer's certification that assembly has been constructed with materials and methods equivalent to labeled construction.

Temperature Rise Rating: At stairwell enclosures, provide doors which have a Temperature Rise Rating of not more

than 450 degrees F. maximum to 30 minutes of fire exposure.

1.04 SUBMITTALS:

Manufacturer's Data; Hollow Metal Work:

For information only, submit 2 copies of manufacturer's data for fabrication and installation instructions. Transmit one copy of instructions to the Installer.

Shop Drawings; Hollow Metal Work:

Submit shop drawings for the fabrication and installation of hollow metal work. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections.

Provide a schedule of doors and frames using same reference numbers for details and openings as those on the contract drawings.

Label Construction; Hollow Metal Work:

Submit manufacturer's certification for oversize fire-rated doors and frames that each assembly has been constructed with materials and methods equivalent to requirements for labeled construction.

1.05 DELIVERY, STORAGE AND HANDLING:

Deliver hollow metal work cartoned or crated to provide protection during transit and job storage.

Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided the finish items are equal in all respects to new work and acceptable to the Architect; otherwise, remove and replace damaged items as directed.

Store doors and frames at the building site under cover. Place units on at least 4" high wood sills or on floors in a manner that will prevent rust and damage. Avoid the use of non-vented plastic or canvas shelters which could create a humidity chamber. If the cardboard wrapper on the door becomes wet, remove the carton immediately. Provide a 1/4" space between stacked doors to promote air circulation.

1.06 JOB CONDITIONS:

Installer must examine the substrate and conditions under which hollow metal work is to be installed and notify the Contractor in writing of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

PART 2 PRODUCTS

2.01 MATERIALS:

Hot-Rolled Steel Sheets and Strips:

Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568.

Cold-Rolled Steel Sheets:

Commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.

Galvanized Steel Sheets:

Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A 526, with ASTM A 525, G90 zinc coating, mill phosphorized.

Supports and Anchors:

Fabricate of not less than 16 gauge sheet metal. Galvanize after fabrication units to be built into exterior walls, complying with ASTM A 153, Class B.

Inserts, Bolts and Fasteners:

Manufacturer's standard units, except hot-dip galvanize items to be built into exterior walls, complying with ASTM A 153, Class C or D as applicable.

Shop-Applied Paint:

For steel surfaces, use rust-inhibitive enamel or paint, either air-drying or baking, suitable as a base for specified finish paints.

Paint galvanized surfaces with zinc dust-zinc oxide primer.

2.02 FABRICATION:

General:

Fabricate hollow metal units to be rigid, neat in appearance and free from defects, warp or buckle. Accurately form metal to required sizes and profiles. Wherever practicable, fit and assemble units in the manufacturer's plant. Clearly identify work, that cannot be permanently factory-assembled before shipment, to assure proper assembly at the project site. Weld exposed joints continuously, grind, dress, and make smooth, flush and invisible. Metallic filler to conceal manufacturing defects is not acceptable.

Exposed Fasteners:

Unless otherwise indicated, provide countersunk flat Phillips or Jackson heads for exposed screws and bolts.

Finish Hardware Preparation:

Prepare hollow metal units to receive mortised and concealed finish hardware, including cutouts, reinforcing, drilling and tapping in accordance with final Finish Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A115 "Specifications for Door and Frame Preparation For Hardware".

Reinforce hollow metal units to receive surface-applied hardware. Drilling and tapping for surface-applied finish hardware may be done at project site.

Locate finish hardware as shown on final shop drawings, or if not shown, in accordance with "Recommended Locations for Builder's Hardware", published by National Builders' Hardware Association.

It is the intent of these specifications that all hollow metal work be custom prepared to accept the designated hardware as scheduled either in these specifications or as otherwise approved by the Architect.

Blank cover plates on frames and doors to conceal mortising for hardware not specifically required for this project shall not be accepted. Any non-conforming hollow metal work found on the job shall be removed and replaced with approved hollow metal at the contractor's expense.

Shop Painting:

Clean, treat and paint exposed surfaces of fabricated hollow metal units, including galvanized surfaces.

Clean steel surfaces of mill scale, rust, oil, grease, dirt and other foreign materials before the application of the shop coat of paint.

Apply pretreatment to cleaned metal surfaces, using cold phosphate solution (SSPC-PT2), hot phosphate solution (SSPC-PT 4) or basic zinc chromate-vinyl butyl solution (SSPC-PT 3).

Apply shop coat of prime paint within time limits recommended by pretreatment manufacturer. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 2.0 mils.

2.03 DOORS:

Provide flush design doors, 1-3/4" thick, seamless hollow construction, unless otherwise indicated.

For single-acting swing doors, bevel both vertical edges 1/8" in 2".

For double-acting swing doors, round vertical edges with a 2-1/8" radius.

Provide sound insulation filler of fiberboard, mineral-wool board, or other approved noncombustible material solidly packed full door height to fill the voids between inner core reinforcing members. Provide thermal insulation with a U factor of 0.24 BTU or better in exterior doors.

Reinforce doors with rigid tubular frame where stiles and rails are less than 8" wide. Form tubular frame with 16 gauge steel, welded to outer sheets.

Exterior Doors:

Exterior doors shall be Grade II, Heavy Duty, Model 2 – Seamless Design. Fabricate exterior doors of two outer galvanized, stretcher-leveled steel sheets not less than 16 gauge. Construct doors with smooth, flush surface without visible joints or seams on exposed faces, except around glazed or louvered panel inserts. Provide weep hole openings in the bottom of exterior doors to permit the escape of entrapped moisture.

Reinforce inside of doors with vertical galvanized sheet steel channel-shaped sections or interlocking Z-shaped sections not less than 22 gauge. Space vertical reinforcing 6" c.c. and extend full door heights. Spot-weld at not more than 5" o.c. to both face sheets.

Continuous truss-form inner core of 28 gauge galvanized sheet steel reinforcing may be provided as inner reinforcement, in lieu of above. Spot-weld truss-form reinforcement 3" o.c. vertically and horizontally over entire surface of both sides.

Reinforce tops and bottoms of doors with 16 gauge flush horizontal steel channels welded continuously to the outer sheets. Close top and bottom edges to provide weather seal, as integral part of door construction or by addition of inverted steel channels.

Interior Doors:

Interior doors shall be Grade II, Heavy Duty, Model 2 – Seamless Design. Fabricate interior doors of 2 outer cold-rolled, stretcher-leveled steel sheets not less than 18 gauge. Construct doors with smooth, flush surfaces, without visible joints or seams on exposed faces or stile edges, except around glazed or louvered panel inserts.

Reinforce inside of doors with vertical, hot-rolled, not less than 22 gauge steel channel-shaped sections or interlocking Z-shaped steel sections. Space vertical reinforcing 6" o.c. and extend full door height. Spot-weld at not more than 5" o.c. to both face sheets.

Continuous truss-form inner core of 28 gauge sheet metal reinforcing may be provided as inner reinforcement in lieu of above. Spot-weld truss-form reinforcement 3" o.c. vertically and horizontally over entire surface of both sides.

Reinforce tops and bottoms of doors with 18 gauge, flush horizontal steel channels, welded continuously to the outer sheets.

Finish Hardware Reinforcement:

Reinforce doors for required finish hardware, as follows:

Hinges: Steel plate 7 gauge x 1-1/2" x 10", secured by not less than 6 spot-welds.

Mortise Locksets and Dead Bolts: 14 gauge steel sheet, secured with not less than 2 spot-welds.

Cylinder Locks: 12 gauge steel sheet, secured with not less than 2 spot-welds.
Flush Bolts: 12 gauge steel sheet, secured with not less than 2 spot-welds.

Surface-Applied Closers: 10 gauge steel plate, secured with not less than 6 spot-welds.

Push Plates and Bars: 16 gauge steel sheet, (except when through bolts are shown or specified), secured with not less than 2 spot-welds.

Surface Panic Devices: 14 gauge sheet steel (except when through bolts are shown or specified), secured with not less than 2 spot-welds.

Automatic Door Bottoms: Reinforce for mortise-type units with 12 gauge steel, and 16 gauge for surface-applied units.

2.04 HOLLOW METAL PANELS:

Provide hollow metal panels of the same materials, construction, and finish as specified for hollow metal doors.

2.05 FRAMES:

Provide hollow metal frames for doors, transoms, side-lights, borrowed lights, and other openings, of size and profile as indicated.

Fabricate frames of full-welded unit construction, with corners mitered, reinforced, continuously welded full depth and width of frame, unless otherwise indicated.

Frames in gypsum drywall construction shall be "Drywall Frames" fabricated with a return on the frame leg that meets the surface of the drywall.

Form frames of galvanized steel sheets for exterior, and either cold or hot-rolled sheet steel for interior.

Gauge: Not less than 16, for exterior openings up to and including 6'-0" wide.

Gauge: Not less than 18, for interior openings up to and including 4'-0" wide.

For openings over above widths, increase thickness by at least two standard gauges.

Finish Hardware Reinforcement:

Reinforce frames for required finish hardware, as follows:

Hinges and Pivots: Steel plate 7 gauge x 1-1/2" wide x 10", secured by not less than 6 spot-welds for exterior doors and doors over 3'-0" wide. 10 gauge for all other doors secured as above.

Strike Plate Clips: Steel plate 10 gauge thick x 1-1/2" wide x 3" long.

Surface-Applied Closers: 10 gauge steel plate, secured with not less than 6 spot-welds.

Mullions and Transom Bars:

Provide closed or tubular mullions and transom bars where indicated. Fasten mullions and transom bars at crossings and to jambs by butt welding. Reinforce joints between frame members with concealed clip angles or sleeves same metal and thickness as frame.

Provide false head member to receive lower ceiling where frames extend to finish ceilings of different heights.

Head Reinforcing: Where installed in masonry, leave vertical mullions in frames open at the top so they can be filled with grout.

Jamb Anchors:

Furnish jamb anchors as required to secure frames to adjacent construction, formed of not less than 18 gauge galvanized steel.

Masonry Construction: Adjustable, flat or corrugated or perforated, t-shaped to suit frame size with leg not less than 2" wide by 10" long. Furnish at least 3 anchors per jamb up to 7'-6" height; 4 anchors up to 8'-0" jamb height; one additional anchor for each 24" or fraction thereof over 8'-0" height.

Metal Stud Partitions: Adjustable anchors by screw in frame stop plus fixed sill anchor.

In-Place Concrete or Masonry: Anchor frame jambs with minimum 3/8" concealed bolts into expansion shields or inserts at 6" from top and bottom and 26" o.c., unless

otherwise shown. Reinforce frames at anchor locations. Apply removable stop to cover anchor bolts unless otherwise indicated.

Floor Anchors:

Provide floor anchors for each jamb and mullion which extends to floor, formed of not less than 14 gauge galvanized steel sheet, as follows:

Monolithic Concrete Slabs: Clip type anchors, with 2 holes to receive fasteners, welded to bottom of jambs and mullions.

Separate Topping Concrete Slabs: Adjustable type with extension clips, allowing not less than 2" height adjustment. Terminate bottom of frames at finish floor surface.

Head Anchors:

Provide 2 anchors at head of frames exceeding 42" wide for frames mounted in steel stud walls.

Structural Reinforcing Members:

Provide structural reinforcing members as a part of frame assembly, where indicated at mullions, transoms, or other locations which are to be built into frame.

Head Reinforcing:

For frames over 4'-0" wide in masonry wall openings provide continuous steel channel or angle stiffener, not less than 12 gauge for full width of opening, welded to back of frame at head.

Spreader Bars:

Provide removable spreader bar across bottom of frames, tack welded to jambs and mullions.

Rubber Door Silencers:

Drill stop to receive 3 silencers on single-door frames and 4 silencers on double-door frames. Install plastic plugs to keep holes clear during construction.

Plaster Guards:

Provide 26 gauge steel plaster guards or dust cover boxes, welded to frame, at back of finish hardware cutouts where mortar or other materials might obstruct hardware installation.

2.06 LOUVERS: Not required.

2.07 STOPS AND MOLDINGS:

Provide stops and moldings around solid, glazed and louvered panels in hollow metal units and in frames to receive doors, where indicated.

Form fixed stops and moldings integral with frame, unless otherwise acceptable to the Architect. Provide fixed stops on inside of hollow metal units exposed to exterior and on corridor side of interior units, unless otherwise indicated.

Provide removable stops and molds at other locations, formed of not less than 20 gauge steel sheets; exterior, galvanized and interior cold-rolled. Secure with countersunk machine screws spaced uniformly not more than 12" o.c. Form corners with butted hairline joints.

Coordinate width of rabbet between fixed and removable stops with type of glass or panel and type of installation indicated.

PART 3 EXECUTION

3.01 INSTALLATION:

Install hollow metal units and accessories in accordance with the final shop drawings, manufacturer's data, and as herein specified.

Setting Masonry Anchorage Devices:

Provide masonry anchorage devices where required for securing hollow metal frames to in-place concrete or masonry construction.

Set anchorage devices opposite each anchor location, accordance with details on final shop drawings and anchorage device manufacturer's instructions. Leave drilled holes rough, not reamed, and free from dust and debris.

Floor anchors may be set with powder-actuated fasteners instead of masonry anchorage devices and machine screws, at the Contractor's Option.

Placing Frames:

Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreaders leaving surfaces smooth and undamaged.

In Masonry construction, building-in of anchors and grouting of frames is included in Division 4 of these specifications.

At in-place concrete or masonry construction, set frames and secure in place with machine screws and masonry anchorage devices.

Place frames at fire-rated openings in accordance with NFPA Standard No. 80.

Make field splices in frames as detailed on final shop drawings, welded and finished to match factory work.

Remove spreader bars only after frames or bucks have been properly set and secure.

Door Installation:

Fit hollow metal doors accurately in their respective frames, with the following clearances:

Jambs and Head: $3/32$ ".

Meeting Edges, Pairs of Doors: $1/8$ ".

Bottom: $1/2$ ", where no threshold or carpet.

Bottom: At thresholds or carpet: $1/8$ ".

Place fire-rated doors with clearances as specified in NFPA Standard No. 80.

Finish hardware installation is specified under Section 08700.

3.02 ADJUST AND CLEAN:

Final Adjustments:

Check and readjust operating finish hardware items in hollow metal work just prior to final inspection. Leave work in complete and proper operating conditions.

Remove and replace defective work, including doors or frames which are warped, bowed or otherwise unacceptable.

Prime Coat Touch-Up:

Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.

END OF SECTION 08 11 00

SECTION 08 14 00---FLUSH WOOD DOORS:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

The general provisions of the Contract, including General and Supplementary General Conditions and General Requirements apply to the work specified in this section.

1.02 SCOPE:

The extent and location of each type of wood door is shown on the drawings and in schedules.

The types of doors required include the following:

Solid core flush wood doors with veneer faces.

Louvers for wood doors are specified under Division 5, Section 'Miscellaneous Metals'. Installation is specified in this section.

1.03 QUALITY ASSURANCE:

General: Comply with the requirements of the following standards unless otherwise indicated.

Non-Fire Rated Wood Doors: NWMA Industry Standard I. S. I. "Wood Flush Doors" of the National Woodwork Manufacturer's Association.

Factory mark each door with the NWMA "Quality Certified" Seal of Approval for conformance with NWMA I. S. I.

Fire-Rated Wood Doors: Where fire-resistance classifications are shown or scheduled for wood door assemblies, provide doors which comply with the requirements of NFPA No. 80 "Standard for Fire Doors and Windows" and which have been tested and rated with single point hardware by UL.

Provide UL label on each door and panel.

Manufacturers: Provide wood doors as manufactured by one of the following:

Algoma
Eggers
Weyerhaeuser
IPIK
or Architect approved equal

1.04 SUBMITTALS:

Manufacturer's Data:

For information only, submit 2 copies of door manufacturer's specifications and installation instructions for each type of wood door required, including other data as may be required to show compliance with the specified requirements. Indicate by transmittal form that copy of each instruction has been transmitted to the Installer.

Include details of core and edge construction, trim for openings and louvers (if any) and similar components.

Include certifications as may be required to show compliance with the specifications.

Samples:

Samples will be reviewed for color and texture only. Compliance with other requirements is the exclusive responsibility of the Contractor. Submit samples for the following:

Transparent Finished Doors: Submit veneer sheet from each available flitch to be used for Premium grade face veneers. Also submit 3 strips of solid wood 3" x 1'-0" of species to be used for exposed edges, trim and other solid wood components.

Guarantees:

Submit 2 copies of written agreement in door manufacturer's standard form signed by the Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors which have warped (bow, cup or twist) or which show telegraphing of construction below in face veneers, as defined in NWMA Standard Door Guarantee, except the NWMA provision for refunding the price received by the door manufacturer for any defective door shall not apply. The guarantee shall also include refinishing and reinstallation which may be required due to repair or replacement of defective doors. Guarantee shall be in effect during the following period of time after the date of acceptance.

For Solid Core Flush Interior Doors: Life of installation.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING:

Protect wood doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with the "On-Site Care" recommendations of NWMA pamphlet "Care and Finishing of Wood Doors" and with manufacturer's instructions.

PART 2 PRODUCTS

2.01 MATERIALS AND COMPONENTS:

General: Provide wood doors complying with the applicable requirements of NWMA I.S.I. for the kinds and types of doors indicated and as further specified.

Construction: Manufacturer's standard 5-ply partical core (mineral core for rated doors) construction.

Exposed Surfaces: Provide the kind as further specified. Provide same exposed surface material on both faces of each door and both jamb edges, unless otherwise indicated.

Fire-Rated Doors: Provide exposed faces and both jamb edges to match non-fire-rated doors in the same area of the building, unless otherwise shown or scheduled. Provide trim for openings (if any) which have been tested and listed for the kind of door and rating indicated.

2.02 GENERAL FABRICATION REQUIREMENTS:

Transom and Side Panels: Wherever transom panels or side panels of wood are shown in the same framing systems as wood doors, provide panels which match quality and appearance of associated wood doors in all respects, unless otherwise shown.

Fabricate matching panels with same construction, exposed surfaces and finish as specified for associated doors.

Openings: Cut and trim openings through doors and panels as shown. Comply with the applicable requirements of the referenced standards for the kinds of doors required.

Light Openings: Factory cut openings. Trim openings for non-fire-rated doors with solid wood trim flush with each face of door to match door. Trim openings of fire rated doors with approved metal trim.

Metal Louvers: Factory cut openings.

2.03 SOLID CORE WOOD DOORS:

Solid Core Doors for Transparent Finish: Comply with the following requirements.

Faces: Red oak, plain sliced, Grade A book and running match veneer.
Double doors shall be pair matched.

AWI Grade: Custom.

Finish: Factory finish with manufacturer's standard stain – Stain color shall be selected by Architect from manufacturer's full range of standard stain colors."

PART 3 EXECUTION

3.01 INSPECTION:

Installer must examine door frames and verify that frames are of the correct type and have been installed as required for proper hanging of corresponding doors. Installer shall notify the Contractor in writing of conditions detrimental to the proper and timely installation of wood doors; do not proceed with installation until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

Install fire-rated doors in corresponding fire-rated frames in accordance with the requirements of NFPA No. 80.

3.02 INSTALLATION:

Condition doors to average prevailing humidity in installation area prior to hanging.

Hardware: Install all hardware as specified in Finish Hardware Section of these specifications.

Metal Louvers: Install metal louvers furnished under Miscellaneous Metals in prepared openings in doors.

Manufacturer's Instructions: Install wood doors in accordance with manufacturer's instructions and as shown.

Job Fit Doors: Fit doors to frames for proper fit and uniform clearance at each edge and machine for hardware. Seal cut surfaces after cutting and fitting.

Bevel non-fire rated doors 1/8" in 2" at lock and hinge edges. Bevel fire rated doors 1/16" in 2" at lock edge.

Clearances: For non-fire doors provide clearances of: 1/8" at jambs and heads; 1/8" at meeting stiles for pairs of doors; and 1/8" minimum - 1/4 maximum from bottom of door to top of decorative floor finish or covering, except where threshold is shown or scheduled provide 1/4" clearance from bottom of door to top of threshold.

For fire-rated doors, provide clearances complying with the limitations of the authority having jurisdiction.

Factory prefinished doors shall be wrapped and protected from damage during installation and

construction.

Job-Site Finished Doors: See Painting section of these specifications for requirements for finishing wood doors.

3.03 ADJUST AND CLEAN:

Operation: Rehang or replace doors which do not swing or operate freely, as directed by the Architect.

Factory Prefinished Doors: Any damage to door or door finish shall be repaired or replaced as directed by Architect.

Job Finished Doors: Refinish or replace doors damaged during installation, as directed by the Architect.

Protection of Completed Work: Installer shall advise Contractor of proper procedures required for protection of installed wood doors from damage or deterioration until acceptance of the work.

END OF SECTION 08 14 00

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SECTION 083300---OVERHEAD COILING DOORS:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK:

The extent of coiling doors are shown on drawings.

Provide complete operating door assemblies including insulated door curtains, guides, counterbalance mechanism, hardware, weather stripping, operators and installation accessories.

Electrical connections for powered operators and accessories are specified in Division 16.

1.03 QUALITY ASSURANCE:

Furnish each overhead coiling door as a complete unit produced by one manufacturer, including hardware, accessories, mounting and installation components.

Unless otherwise acceptable to Architect, furnish overhead coiling door units by one manufacturer for entire project.

Inserts and Anchorages: Furnish inserts and anchoring devices which must be built into masonry for installation of units. Provide setting drawings, templates, instructions and directions for installation of anchorage devices. Coordinate delivery with other work to avoid delay.

See masonry section of these specifications for installation of inserts and anchorage devices.

1.04 SUBMITTALS:

Product Data: Submit manufacturer's product data, roughing-in diagrams, and installation instructions, including electrical rough-in instructions and diagram, for each type and size of overhead coiling door. Include operating instructions and maintenance information.

Shop Drawings: Submit shop drawings for special components and installations which are not fully dimensioned or detailed in manufacturer's data sheets.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS:

Subject to compliance with requirements, provide products of one of the following:

Atlas Door Corp.
The Cookson Co.
Cornell Iron Works, Inc.
Overhead Door Corp.
McKeon Rolling Steel Door Co.
C.H.I. Overhead Doors
Raynor Worldwide

2.02 DOOR CURTAIN MATERIALS AND CONSTRUCTION:

Door Curtain: Fabricate overhead coiling door curtain of interlocking slats designed to withstand required wind loading, of continuous length for width of door without splices. Unless otherwise indicated, provide slats of material gauge recommended by door manufacturer for size and type of door required, and as follows:

Steel Door Curtain Slats: Structural quality, cold-rolled galvanized steel sheets complying with ANSI/ASTM A 446, Grade A, with G90 zinc coating, complying with ASTM A 525, and phosphate treated before fabrication.

Furnish manufacturer's standard "Flat-Face" slats all units and shall be formed with galvanized steel backing enclosing polyurethane insulation.

Endlocks: Malleable iron castings galvanized after fabrication, secured to curtain slat with galvanized rivets. Provide locks on alternate curtain slats for curtain alignment and resistance against lateral movement per UL procedure.

Bottom Bar: Consisting of 2 angles, each not less than 2" x 2" x 1/8" thick, either galvanized, gray polyester powder coating, stainless steel, or aluminum extrusions to suit type of curtain slats.

Provide a replaceable UL listed gasket of flexible vinyl or neoprene between angles as a smoke seal and cushion bumper for manually operated doors unless shown as an overlapping joint.

Provide manufacturer's standard sloping bottom bar to match existing concrete slope.

Curtain Jamb Guides: Fabricate curtain jamb guides of steel angles, or channels and angles with sufficient depth and strength to retain curtain loading. Build-up units with minimum 3/16" thick steel sections, galvanized after fabrication. Slot bolt holes for track adjustment.

Secure continuous wall angle to wall framing by 3/8" minimum bolts at not more than 18" o.c. unless closer spacing recommended by ULI or FM. Extend wall angles above door opening head to support coil brackets, unless otherwise shown. Place anchor bolts on exterior wall guides so they are concealed when door is in closed position. Provide removable stops on guides to prevent over-travel of curtain, and continuous bar for holding windlocks, if any.

2.03 COUNTERBALANCING MECHANISMS:

Counterbalance doors by means of adjustable steel helical torsion spring, mounted around a steel shaft and mounted in a spring barrel and connected to door curtain with required barrel rings. Use grease-sealed bearings of self-lubricating graphite bearings for rotating members.

Counterbalance Barrel: Fabricate spring barrel of hot-formed structural quality carbon steel, welded or seamless pipe, of sufficient diameter and wall thickness to support roll-up of curtain without distortion of slats and limit barrel deflection to not more than 0.03" per ft. of span under full load.

Provide spring balance of one or more oil-tempered, heat-treated steel helical torsion springs. Size springs to counterbalance weight of curtain, with uniform adjustment accessible from outside barrel. Provide cast steel barrel plugs to secure ends of springs to barrel and shaft.

Fabricate torsion rod for counterbalance shaft of case-hardened steel, or required size to hold fixed spring ends and carry torsional load.

Brackets: Provide mounting brackets of manufacturer's standard design, min. 1/4" steel plate with bell mouth guide groove for curtain.

Hood: Form to entirely coiled curtain and operating mechanism at opening head, and act as weather seal. Contour to suit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Provide closed ends for surface-mounted hoods, and any portion of between jamb mounting projecting beyond wall face. Provide intermediate support brackets as required to prevent sag. Equipment lintel with ULI listed smoke seal.

Fabricate steel hoods for doors of not less than 24 gauge hot-dip galvanized steel sheet with G 90 zinc coating, complying with ASTM A 525. Phosphate treat before fabrication.

2.04 PAINTING:

Shop clean and prime ferrous metal surfaces, exposed and unexposed, except faying an lubricated surfaces with door manufacturer's standard rust inhibitive primer.

2.05 ELECTRIC DOOR OPERATORS:

General: Furnish electric door operator assembly of size and capacity recommended and provided by door manufacturer; complete with electronic motor and factory-prewired motor controls, gear reduction unit, solenoid operated brake, remote control stations, control devices, conduit and wiring from controls to motor and central stations, and accessories required for proper operation. Operation shall be electric with the motor sized by the door manufacturer for 120 volt single phase operation.

Provide hand-operated disconnect or a mechanism for automatically engaging a sprocket and chain operator and releasing brake for emergency manual operation. Mount disconnect and operator so they are accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency auxiliary is engaged.

Design operator so that motor may be removed without disturbing limit-switch adjustment and without affecting emergency auxiliary operator.

Door Operator Type: Provide wall or bracket-mounted door operator units consisting of electric motor, worm gear drive from motor to reduction gear box, chain or worm gear drive from reduction box to gear wheel mounted on counterbalance shaft, and a disconnect-release for manual operation. Provide motor and drive assembly of horsepower and design as determined by door manufacturer for size of door required.

Electric Motors: Provide high-starting torque, reversible, constant duty, Class A insulated electric motors with overload protection, sized to move door in either direction, from any position, at not less than 2/3' nor more than 1' per second.

Coordinate wiring requirements and current characteristics of motors with building electrical system.

Furnish open-drip-proof type motor and controller with NEMA Type I enclosure.

Automatic Reversing Control: Furnish each door with automatic safety switch, extending full width of door bottom, and located within neoprene or rubber astragal mounted to bottom door rail. Contact with switch before fully closing will immediately stop downward travel and reverse direction to fully opened position. Connect to control circuit through retracting safety cord and reel, or self-coiling cable.

Provide electrically actuated automatic bottom bar.

Automatic fire-rated closure: Automatic closure shall be activated by fusible link. Doors shall not require a releasing device when activated by an alarm signal. Upon release of the solenoid brake, doors shall close automatically, maintaining an average closing speed of not more than 9" per second. When closure is activated by fusible link, electric sensing edge and push button are inoperable. When activated by alarm signal, sensing edge will stop the door if it contacts an obstruction. The door will continue to close if the obstruction is removed or power fails. Doors shall be fail safe and close upon power failure. Upon restoration of power, replacing the fusible link, or clearing the alarm, doors shall be immediately resettable by opening with the push button.

PART 3 EXECUTION

3.01 INSTALLATION:

Install door and operating equipment complete with necessary hardware, jamb and head mold strips, anchors, inserts, hangers, and equipment supports in accordance with final shop drawings, manufacturer's instruction, and as specified herein.

Upon completion of installation, including work by other trades, lubricate, test and adjust doors to operate easily, free from warp, twist, or distortion and fitting weathertight for entire perimeter.

All doors except kitchen office to be fully gasketed along the entire perimeter opening. Set jamb and head tracks in bead of acoustical caulk for sound and weather proofing.

END OF SECTION 083300

SECTION 08 41 00---ALUMINUM ENTRANCE AND WINDOW FRAMING SYSTEM:

PART 1 GENERAL

1.01 DESCRIPTION:

- A. Drawings and general provisions of the Contract, including General and Supplementary General Conditions and Division 1 Specification Sections, apply to this Section.
- B. Work Included: Furnish all necessary materials, labor and equipment for the complete installation of aluminum framing as shown on the drawings and specified herein.

1.02 QUALITY ASSURANCE:

- A. Installer Qualifications: Engage an experienced installer to assume engineering responsibility and perform work of this Section who has specialized in installing entrance and window systems similar to those required for this Project and who is acceptable to manufacturer.
 - 1. Engineering Responsibility: Prepare data for entrance and window systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Source Limitations: Obtain each type of entrance and window system through one source from a single manufacturer.

1.03 PERFORMANCE REQUIREMENTS:

- A. Air infiltration shall be tested in accordance with ASTM E283. Infiltration shall not exceed .06 CFM per square foot (.0003 m/sm) of fixed area.
- B. Water infiltration shall be tested in accordance with ASTM E331. No water penetration at a test pressure of 8 PSF.
 - 1. Structural performance shall be based on:
 - a. Maximum deflection of 1/175 of the span
and
 - b. Allowable stress with a safety factor of 1.65
 - 2. The system shall perform to these criteria under a 90 MPH windspeed per the N.C. Building Code.

PART 2 PRODUCTS

2.00 MANUFACTURERS:

- A. Drawings and specifications are based on the 451T thermally broken entrance framing and window

framing system as manufactured by Kawneer Company, Inc. Subject to compliance with these specifications, other products which may be incorporated in the project include, but are not limited to, the following:

1. Vistawall Architectural Products: FG-3000 Thermal Framing System
2. United States Aluminum: Series IT 451 Framing System
3. EFCO: System 403 Framing System
4. Substitutions as per Section 01600.

2.01 MATERIALS:

- A. Extrusions shall be 6063-T5 alloy and temper (ASTM B 221 alloy G.S. 10A-T5). Fasteners, where exposed, shall be aluminum, stainless steel or plated steel in accordance with ASTM A 164. Perimeter anchors shall be aluminum or steel, providing the steel is properly isolated from the aluminum. Glazing gaskets shall be elastomeric extrusions.

2.02 FINISH SPECIFICATIONS:

- A. All exposed surfaces shall receive an Architectural Class I Clear Anodic Coating conforming with Aluminum Association Standard AA-M12C22A42/44. Color shall be equal to Kawneer #40 Dark Bronze.
- B. All exposed surfaces shall be free of scratches and other serious blemishes.

2.03 FABRICATION:

- C. The 451T framing system shall provide for flush glazing on all sides with no projecting stops. Vertical and horizontal framing members shall have a nominal face dimension of 2" (50.8 mm). Overall depth shall be 4-1/2" (114.3 mm). Entrance framing members shall be compatible with glass framing in appearance. All single acting entrance frames shall include the Sealair positive barrier weathering. Unless otherwise required by field conditions, frame assembly shall be screw spline fabrication.

PART 3 EXECUTION

3.01 INSTALLATION:

- A. All glass framing shall be set in correct locations as shown in the details and shall be level, square, plumb, and in alignment with other work in accordance with the manufacturer's installation instruction and approved shop drawings. All joints between framing and the building structure shall be sealed in order to secure a watertight installation.
- B. All metal shall be screwed in place, using backing, masonry plugs, anchor straps, or other anchoring devices necessary to achieve structural performance of the framing system.

- C. Where moldings are joined, they shall be accurately cut and fitted to result in a tightly closed joint.
- D. Where aluminum comes in contact with dissimilar metal or masonry materials, coat aluminum with bituminous paint.
- E. After erection, the General Contractor shall adequately protect all exposed portions of the grid framing metal work from damage by grinding and polishing machines, plaster, lime, acid, cement, or other harmful compounds.

3.02 CLEANING:

- A. The General Contractor shall be responsible for removal of protective materials and cleaning of the aluminum.
- B. All aluminum shall be thoroughly cleaned with plain water, or water with soap or household detergent.
- C. The General Contractor shall be held responsible for damages resulting from the use of other cleaning materials.

3.03 SEALANTS:

- A. Any sealants required for sealing and pointing shall be as specified in Section 07550, in color approved by the Architect.

3.04 MISCELLANEOUS:

- A. All miscellaneous aluminum items shown in connection with framing and door frame drawings are included in this section of the work.

3.05 SHOP DRAWINGS:

- A. This Contractor shall, before proceeding with the manufacture of the framing and door components, prepare and submit complete manufacturing and installation drawings for the Architect's approval and no work shall be performed until the review comments of these drawings by the Architect is obtained.

END OF SECTION 08 41 00

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SECTION 08 71 00---FINISH HARDWARE:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provision of contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SCOPE:

This section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.

Hardware for the following items shall be furnished under other divisions:

- Toilet partitions
- Window hardware
- Cabinet hardware
- Hardware furnished by door manufacturer as part of door assembly
- Aluminum doors

1.03 SUBMITTALS:

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

Product Data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.

Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

Final Hardware Schedule Content: Based on hardware indicated, organize schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:

- Types, style, function, size, and finish of each hardware item.

- Name and manufacturer of each item.

- Fastenings and other pertinent information.

- Location of each hardware set cross referenced to indications on Drawings both on floor

plans and in door and frame schedule.

Explanation of all abbreviations, symbols, and codes contained in schedule.

Mounting locations for hardware.

Door and frame sizes and materials.

Submittal Sequence: Submit initial draft of final schedule along with essential product data in order to facilitate the fabrication of other work that is critical in the project construction schedule. Submit final schedule after samples, product data, coordination with shop drawings of other work, delivery schedules, and similar information has been completed and accepted.

Hardware Samples: Not required.

Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

The Finished Hardware Supplier shall provide to the manufacturer templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions be made for locating and installing door hardware to comply with indicated requirements.

1.04 INSPECTION OF THE WORK:

The hardware contractor shall examine all details and shall furnish all hardware to suit. He shall obtain all information required as to details, sizes, shapes and bevel, thickness, etc. of doors and all other items requiring hardware from various trades or from the Architect and shall make all hardware suitable and of perfect fit for each particular case using special design where necessary to accomplish this.

The hardware supplier shall notify the Architect, prior to bidding, of any observed code compliance conflicts.

1.05 QUALITY ASSURANCE:

Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer. Reference Volume 1C Accessibility Code.

Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quality, type, and quality to that indicated for this project and that employs an experienced architectural hardware consultant (AHC) who is available to Owner, Architect, and Contractor, at reasonable times during the course of the work, for consultation.

Require supplier to meet with Owner to finalize keying requirements and to obtain final instructions in writing.

Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard

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

1.06 PRODUCT HANDLING:

Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.

Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.

Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.

Deliver individually packaged door hardware items promptly to place of installation.

Provide secure lock-up for door hardware delivered to the project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the work will not be delayed by hardware losses both before and after installation.

1.07 MAINTENANCE:

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

PART 2 PRODUCTS

2.01 MANUFACTURERS:

Available Manufacturers and Product Designation: The product designation and name of one manufacturer are listed for each hardware type required for the purpose of establishing minimum requirements. Provide either the product designated or, where more than one manufacturer is specified for each hardware type, the comparable product of one of the other manufacturers that complies with requirements.

All locks shall be compatible with the Owner's present keying system.

Subject to requirements, other manufacturers whose products are acceptable for this project include, but are not limited to, the following:

Hinges -----Hager, McKinney

Locks -----	Sargent, Corbin
Exit Devices -----	Von Duprin, Dorma
O.H. Stops -----	Glynn Johnson
Door Silencers -----	Glynn Johnson
Closers -----	Dorma, CR Laurence Co., Inc.
Miscellaneous -----	Baldwin
Threshold and Weatherstripping -----	National Guard

2.02 MATERIALS:

Hinges: Stanley. All exterior doors shall have three (3) hinges per leaf - FBB 199 - 5" x 4-1/2" with non-removable pins. All interior doors shall have a minimum three (3) hinges per leaf - FBB - 4-1/2" x 4-1/2". Provide four (4) hinges for any door leaf that exceeds 7'-2" high. Provide 5" x 4-1/2" hinges for any door leaf that exceeds 3'-0" width. Use nonferrous heavy duty ball bearing hinges for all exterior doors. Use heavy duty ball bearing hinges for toilet doors with closers. Use standard duty ball bearing hinges for all other interior doors. All exterior door hinges shall be manufactured completely of non-ferrous metal and have non-removable pins. Provide NRP's on interior doors which open into corridors. All hinges to be button-type.

Exterior Locks: All locksets shall be Schlage "L" Series heavy duty mortise locks, meeting or exceeding ANSI 156.13 Series 1000 Grade 1. "L" Series Design shall be style 17 with standard "N" escutcheon meeting ADA requirements. Locks shall be 6 pin tumbler. Function of locks shall be as scheduled on the drawings.

Interior Locks: All locksets shall be Schlage "ND" Series heavy duty cylindrical locks, meeting or exceeding ANSI 156.13 Series 1000 Grade 1. "ND" Series Design shall be style Sparta (SPA) meeting ADA requirements. Locks shall be 6 pin tumbler. Function of locks shall be as scheduled on the drawings.

Closers: All closers to be equal and similar to LCN closers as listed below. Provide appropriate label for rated assemblies. Closers shall comply with ADA requirements. Non-electrically operated closers shall be furnished with "back-check" option. Furnish closers allowing maximum door swings according to plan locations. Provide all parts and accessories required for proper installation.

Closers shall be typically be mounted on room side (not on corridor side) of door opening. Where opening occurs between room, typically mount closer on smaller room side.

Type A: LCN 4040 Super Smoothee Series with stop where schedule does not require a wall, floor or overhead stop.

Exit Devices: Sargent 80 Series with appropriate head, stile and jamb strikes and other miscellaneous fittings required for proper installation. Where vertical rods extend into floor or thresholds, furnish dustproof strikes. Closer types as follows:

- A: 8800 Rim type for wood doors
- B: MD 8600 Concealed vertical rod for aluminum and metal doors

Furnish with cylinder dogging. Trim to be ET design to meet ADA requirements.

Push/Pulls: Ives 8300/8200

Recessed Door Pulls: Elmes T203

Recessed Door Track: Provide as per door manufacturer's recommendation.

Door Stops: Overhead stops and holders by Sargent, 590 surface mounted, or approved equal. Wall stops to be used wherever possible Ives #408 or #407-26D. Floor stops to be used where wall stops cannot be used, Ives #436 or #438-26D.

Silencers: Glynn-Johnson, or equal, 3 per single door, 4 per pair doors.

Flush Bolts: Ives #457-1/2, Baldwin, Builders Brass - ASA size - 26D.

Thresholds and Weatherstripping by Pemko:

Saddle Threshold: 151 - 3"

Thresholds: 2005 with Silicone Seal (at exterior doors)

Weatherstripping: Single leaf; 305CR (bronze) for jambs and head; 315CN for door bottom

Astragal: 355

Rain Drips: 345A mounted to door frame above unprotected out-swinging exterior doors.

2.03 KEYING:

All new locks shall be factory masterkeyed and grand masterkeyed as later directed by Architect and Owner. All locks shall also be construction masterkeyed. Furnish eight construction master keys and six building master keys.

Provide 4 change keys for each change with key code stamped on bow of cylinder and cylinder face.

Send all masterkeys, grand masterkeys and all change keys direct to the Owner from manufacturer by registered mail, return receipt requested.

2.04 FINISH:

Finish for all exposed metal hardware items shall be similar and equal to Builders Hardware Manufacturers' Association 630 Satin stainless steel. Items of hardware which are not metal, shall match this color as close as possible by selecting from the manufacturer's full available color range.

Special Finishes: Where indicated on the drawings or elsewhere within the specification, furnish knurled knobs suitable for identification by the visually impaired.

2.05 KEY CONTROL CABINET: Provide a steel, lockable key cabinet suitable for the number of keys required for this project.

PART 3 EXECUTION

3.01 INSTALLATION:

Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.

"Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.

NWWDA Industry Standard I.S.1.7., "Hardware Locations for Wood Flush Doors."

Install each hardware item in compliance with the manufacture's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing works specified in the Division 9 sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.

Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers."

Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirement are not otherwise indicated.

3.02 ADJUSTING, CLEANING, AND DEMONSTRATING:

Adjust and check each operating item of hardware on each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.

Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment to all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

Clean adjacent surfaces soiled by hardware installation.

Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.

Six-Month Adjustment: Approximately six months after the date of Substantial Completion, the Installer, accompanied by representatives of the manufacturers of latchsets and locksets and of door control

devices, and of other major hardware suppliers, shall return to the project to perform the following work:

Examine and readjust each item of door hardware as necessary to restore function of doors and hardware to comply with specified requirements.

Consult with and instruct Owner's personnel in recommended addition to the maintenance procedures.

Replace hardware items that have deteriorated or failed due to faulty design, materials, or installation of hardware units.

Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

3.03 HARDWARE SCHEDULE: See drawings.

END OF SECTION 08 71 00

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SECTION 08 81 00---GLASS AND GLAZING:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

- A. The general provisions of the Contract, including General and Supplementary General Conditions and General Requirements, apply to the work specified in this section.

1.02 DESCRIPTION OF WORK:

- A. The extent of glass and glazing work is shown on the drawings.
- B. The required applications of glass and glazing include (but are not necessarily limited to) the following:
 - 1. Glazing exterior doors.
 - 2. Glazing interior doors.
 - 3. Glazing interior partitions, and miscellaneous interior glazing.
 - 4. Glazing for aluminum windows and doors.

1.03 QUALITY ASSURANCE:

- A. Safety Glass: Comply with ANSI Z97.1, with label on each piece.
- B. Fire-Resistance Glass: Tested and listed by UL for "fire resistance".
- C. Manufacturer of Glass: One of the following:
 - PPG Industries, Inc.
 - AFG Industries, Inc.
 - Guardian Industries
 - Oldcastle
 - Pilkington
 - or approved equal.
- D. All glass shall be American made.

1.04 SUBMITTALS:

- A. Manufacturer's Data, Glass:
- B. For information only, submit two (2) copies of manufacturer's specifications and installation instructions for each type of glass required. Include test data substantiating that glass complies with specified requirements. Indicate by copy of transmittal that Glazier has received copy of handling and glazing instructions.

C. Manufacturer's Data, Glazing Materials:

D. For information only, submit two (2) copies of manufacturer's specifications, and installation instructions for each type of glazing sealant and compound, gasket and associated miscellaneous material required. Include manufacturer's published data, or letter of certification, or certified test laboratory report indicating that each material complies with the requirements and is intended generally for the applications shown. Show by transmittal that one copy of each recommendation and instruction has been distributed to the Glazier.

E. Glass Samples: Provide one (1) 12" X 12" sample of each type of glass required.

1.05 JOB CONDITIONS:

A. The Glazier must examine the framing and glazing channel surfaces, backing, removable stop design, and the conditions under which the glazing is to be performed, and notify the Contractor in writing of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the glazing until unsatisfactory conditions have been corrected in a manner acceptable to the Glazier.

B. Weather Conditions: Do not proceed with installation of liquid sealants under adverse weather conditions, or when temperatures are below or above manufacturer's recommended limitations for installation.

PART 2 PRODUCTS

2.01 GLASS:

A. Clear Float Glass:

1. Polished float glass; FS DD-G-451, Type I, Class I, Quality q3; 1/4" thick, except as otherwise indicated.

B. Tempered Glass:

1. Glass (FS DD-G-451, Type I), which has been heat-strengthened by manufacturer's standard process (after cutting to final size), to achieve a flexural strength of four times normal glass strength; clear (Class 1), except as otherwise indicated.

2. Provide 1/4" thick glass, except as otherwise indicated.

3. NOTE: Use tempered glass at all openings where 1/4" glazing is indicated.

C. Fire Resistant Glass: See Section 08810.

2.02 PERFORMANCE:

- A. Exterior glazing panels shall comply with the minimum performance criteria.
1. Summer U Value: 0.26
 2. Winter U Value: 0.28
 3. Shading Coefficient (SC): 0.23
 4. Solar Heat Gain Coefficient (SHGC): 0.20

2.03 GLAZING SCHEDULE:

- G-1 1" TINTED COATED INSULATING GLASS: Manufacturer's standard units of one (1) sheet of tinted float glass and one (1) sheet of clear float glass as above specified; permanently and hermetically sealed together at edges with spacers and sealant; to provide a dehydrated air space with -60 degrees F. dew point; fabricated to sizes and shapes indicated.
- Inboard lite: ¼" clear float glass
 - Air space: 1/2" airspace
 - Outboard lite: 1/4" Solarbronze tinted float glass w/ Solarban 70 Low-E coating (#2 surface).
- G-2 1" TINTED COATED TEMPERED INSULATING GLASS: Manufacturer's standard units of one (1) sheet of tinted tempered glass and one (1) sheet of clear tempered glass as above specified; permanently and hermetically sealed together at edges with spacers and sealant; to provide a dehydrated air space with -60 degrees F. dew point; fabricated to sizes and shapes indicated.
- Inboard lite: 3/16" clear tempered glass
 - Air space: 5/8" airspace
 - Outboard lite: 3/16" tempered Solarbronze tinted glass w/ Solarban 70 Low-E coating (#2 surface).
- G-3 CLEAR FIRE RATED GLASS: Manufacturer's standard unit of one (1) sheet of clear fire rated glass (no wire); fabricated to sizes and shapes indicated.
- Single lite: 1/4" clear fire rated glass

- A. Furnish manufacturer's 10-year warranty for each type of glazing specified above. Provide two (2) copies of warranty to Architect.
- B. Provide an inconspicuous etched label on each glass panel to indicate the type of glass with coating, tint, temper, fire rating, etc.

2.02 GLAZING SEALANTS/COMPOUNDS:

- A. General: Provide exposed glazing materials in color as selected by Architect from manufacturer's standard colors. Provide hardness of materials as recommended by the manufacturer for the required application and condition of installation in each case. Provide only compounds which are known (proven) to be fully compatible with surfaces contacted.
- B. Silicone Rubber Glazing Sealant: Silicone rubber, one-part elastomeric sealant, complying with FS TT-S-001543, Class A. Provide acid type for non-porous channel surfaces, and provide non-acid type for porous channel surfaces (where any of the channel surfaces are porous). Use for all exterior stop bead glazing.

- C. Acrylic-Latex Glazing Sealant: Modified latex rubber and acrylic emulsion-polymer, compounded specifically as a glazing sealant with permanent flexibility (non-hardening), non-staining and non-bleeding. Use for all interior stop bead glazing.

2.03 GLAZING GASKETS:

- A. Polyvinyl Chloride Glazing Gaskets: Extruded, flexible PVC gaskets of the profile and hardness shown, or as required for watertight construction; comply with ASTM D 2287.

2.04 MISCELLANEOUS GLAZING MATERIALS:

- A. Setting Blocks: Neoprene, 70-90 durometer hardness, with proven compatibility with sealants used.
- B. Spacers: Neoprene, 40-50 durometer hardness, with proven compatibility with sealants used.
- C. Compressible Filler Rods: Closed cell or waterproofed jacketed rod stock of synthetic rubber or plastic foam, flexible and resilient, with 5-10 psi compression strength for 25% deflection.
- D. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.

PART 3 EXECUTION

3.01 STANDARDS AND PERFORMANCE:

- A. Watertight and airtight installation of each piece of glass is required, except as otherwise shown. Each installation must withstand normal temperature changes, wind loading, impact loading (for operating sash and doors) without failure of any kind including loss or breakage of glass, failure of sealants or gaskets to remain water-tight and airtight, deterioration of glazing materials and other defects in the work.
- B. Protect glass from edge damage at all times during handling, installation and operation of the building.
- C. Glazing channel dimensions as shown are intended to provide for necessary minimum bite on the glass, minimum edge clearance and adequate sealant thicknesses, with reasonable tolerances. The Glazier is responsible for correct glass size for each opening, within the tolerances and necessary dimensions established.
- D. Comply with combined recommendations of glass manufacturer and manufacturer of sealants and other materials used in glazing except where more stringent requirements are shown or specified, and except where manufacturer's technical representatives direct otherwise.
- E. Comply with "Glazing Manual" by Flat Glass Marketing Association except as shown and specified otherwise, and except as specifically recommended otherwise by the manufacturers of the glass and glazing materials.
- F. Inspect each piece of glass immediately before installation, and eliminate any which have observable edge

damage or face imperfections.

- G. Unify appearance of each series of lights by setting each piece to match others as nearly as possible. Inspect each piece and set with pattern, drawn and bow oriented in the same direction as other pieces.

3.02 PREPARATION FOR GLAZING:

- A. Clean the glazing channel, or other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to the substrate.
- B. Remove lacquer from metal surfaces wherever elastomeric sealants are used.
- C. Apply primer or sealer to joint surfaces wherever recommended by sealant manufacturer.

3.03 GLAZING:

- A. Install setting blocks of proper size at quarter points of sill rabbet. Set blocks in thin course of the heel-bead compound, if any.
- B. Provide spacers inside and out, and of proper size and spacing, for all glass sizes larger than 50 united inches, except where gaskets are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.
- C. Voids and Filler Rods: Prevent exudation of sealant or compound by forming voids or installing filler rods in the channel at the heel of jambs and head (do not leave voids in the sill channels) except as otherwise indicated, depending on light size, thickness and type of glass, and complying with manufacturer's recommendations.
- D. Do not attempt to cut, seam, nip or abrade glass which is tempered, heat strengthened, or coated.
- E. Force sealants into channel to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces.
- F. Tool exposed surfaces of glazing liquids and compounds to provide a substantial "wash" away from the glass. Install pressurized tapes and gaskets to protrude slightly out of the channel, so as to eliminate dirt and moisture pockets.
- G. Clean and trim excess glazing materials from the glass and stops of frame promptly after installation, and eliminate stains and discolorations.
- H. Where wedge-shaped gaskets are driven into one side of the channel to pressurize the sealant or gasket on the opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when subjected to dynamic movement. Anchor gasket to stop with matching ribs, or by proven adhesives,

including embedment of gasket tail in cured heel bead.

- I. Gasket Glazing: Miter cut and bond ends together at corners where gaskets are used for channel glazing, so that gaskets will not pull away from corners and result in voids or leaks in the glazing system.

3.04 CURE, PROTECTION AND CLEANING:

- A. Cure glazing sealants and compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability.
- B. Protect exterior glass from breakage immediately upon installation, by attachment of crossed streamers to framing held away from glass. Do not apply markers of any type to surfaces of glass.
- C. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during the construction period, including natural causes, accidents and vandalism.
- D. Maintain glass in a reasonably clean condition during construction, so that it will not be damaged by corrosive action and will not contribute (by wash-off) to the deterioration of glazing materials and other work.
- E. Wash and polish glass on both faces not more than four days prior to Owner's acceptance of the work in each area. Comply with glass manufacturer's recommendations.

END OF SECTION 08 81 00

SECTION 09 29 00---GYPSUM DRYWALL:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

The general provisions of the Contract, including General and Supplementary General Conditions and General Requirements apply to the work specified in this section.

1.02 DESCRIPTION OF WORK:

The extent of the gypsum drywall work is shown on the drawings and in schedules, and is hereby defined to include gypsum board work with a tape-and-compound joint treatment system known as "drywall finishing" work.

The types of work required include the following:

Gypsum drywall including screw-type metal support system.

Drywall finishing (joint tape-and-compound treatment).

Interior gypsum drywall ceiling/soffits.

Exterior gypsum drywall sheathing.

1.03 RELATED SECTIONS

Division 5, Section Lightgauge Metal Framing

Division 7, Section Exterior Synthetic Stucco Finish Systems

Division 7, Section Thermoplastic Membrane Roofing

1.04 QUALITY ASSURANCE:

Fire-Resistance Rating: Where work is indicated for fire-resistance ratings, including those required to comply with governing regulations, provide materials and installations identical with applicable assemblies which have been tested and listed by recognized authorities, including UL and ASTM.

Industry Standard: Comply with applicable requirements of GA-216 "Application and Finishing of Gypsum Board" by the Gypsum Association, except where more detailed or more stringent requirements are indicated including the recommendations of the manufacturer.

Allowable Tolerances: 1/8 inch offsets between planes of board faces, and ¼ inch in 8 feet -0 inch for plumb, level, warp and bow.

Manufacturer: Where possible, obtain gypsum boards, trim accessories, adhesives and joint treatment products from a single manufacturer. U. S. Gypsum Company, Gold Bond Products, Flintkote, Georgia Pacific Corporation, or equal.

1.05 SUBMITTALS:

Manufacturer's Data, Gypsum Drywall: For information only, submit two copies of manufacturer's product specifications and installation instructions for each gypsum drywall component, including other data as may be required to show compliance with these specifications. Distribute an additional copy of each installation instruction to the Installer.

1.06 PRODUCT HANDLING:

Deliver gypsum drywall materials in sealed containers and bundles, fully identified with manufacturer's name, brand, type and grade; store in a dry, well ventilated space, protected from the weather, under cover and off the ground.

1.07 JOB CONDITIONS:

Installer must examine the substrates and the spaces to receive gypsum drywall, and the conditions under which gypsum drywall is to be installed; and shall notify the Contractor, in writing, of conditions detrimental to the proper and timely completion of the work. Do not proceed with the installation until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

For interior work, maintain ambient temperatures at not less than 55 degrees F., for the period of 24 hours before drywall finishing, during installation and until compounds are dry.

PART 2 PRODUCTS

2.01 METAL SUPPORT MATERIALS:

General: To the extent not otherwise indicated, comply with Gypsum Association Specification GA-203 "Installation of Screw-Type Steel Framing Members to Receive Gypsum-board" (as specified and recommended) for metal system supporting gypsum drywall work.

Ceiling and Soffit Suspension Main Runners: 1-1/2 inch steel channels, 0.500 lb. per ft., cold-rolled.

Hanger Wire: ASTM A 641, soft, Class 1 galvanized, pre-stretched; sized in accordance with GA-203.

Hanger Anchorage Devices: Size for 3 x calculated loads, except size direct-pull concrete inserts for 5 x calculated loads.

Studs (Non-Loadbearing Interior Walls): ASTM C 645; 20 gauge x 3-5/8 inch deep, except as otherwise indicated.

Runners: Match studs; type recommended by stud manufacturer for floor and ceiling support of studs, and for vertical abutment of drywall work at other work.

Stud System Accessories: Provide stud manufacturer's standard clips, shoes, ties, reinforcements, fasteners and other accessories as needed for a complete stud system.

Furring Members: ASTM C 645; 25 gauge, hat-shaped.

Fasteners: Type and size recommended by furring manufacturer for the substrate and application

indicated.

2.02 GYPSUM BOARD PRODUCTS:

General: To the extent not otherwise indicated, comply with GA-216, as specified and recommended.

Interior Exposed Gypsum Board:

Edge Profile: Special rounded or beveled edge.

Sheet Size: Maximum length available which will minimize end joints.

Thickness: 5/8 inch, except where otherwise indicated.

Interior Exposed Gypsum Board – Mold Resistant and Mildew Resistant:

Edge Profile: Special rounded or beveled edge.

Sheet Size: Maximum length available which will minimize end joints.

Thickness: 5/8 inch, except where otherwise indicated.

Gypsum Sheathing Board: Equal and similar to Georgia-Pacific Corp, Dens-Glass Gold.

Edge Profile: Square edge.

Thickness: 5/8 inch except as otherwise indicated.

Exterior Soffit Board: Equal and similar to Georgia-Pacific Corp, Dens-Glass Gold.

Thickness: 5/8 inch except as otherwise indicated.

Interior Cement Board: Equal and similar to Georgia-Pacific Corp, Dens-Glass Gold.

Edge Profile: Rounded.

Sheet Size: 4 feet wide x maximum length available.

Thickness: 5/8

2.03 TRIM ACCESSORIES:

General: Manufacturer's standard galvanized steel beaded units with flanges for concealment in joint compound, including corner beads, edge trim and control joints; except provide semi-finishing type (flange not concealed) where indicated.

2.04 JOINT TREATMENT MATERIALS:

General: ASTM C 475; type recommended by the manufacturer for the application indicated, except as otherwise indicated.

Joint Tape: Interior perforated paper tape. Exterior 2 inches wide, min. 10 x 10 glass mesh tape.

Grade: 2 separate grades; one specifically for bedding tapes and filling depressions, and one for topping and sanding.

Joint Compound: On interior work provide chemical-hardening-type for bedding and filling, ready-mixed vinyl-type for topping.

2.05 MISCELLANEOUS MATERIALS:

General: Provide auxiliary materials for gypsum drywall work of the type and grade recommended by the manufacturer of the gypsum board.

Gypsum Board Fasteners: Comply with GA-216. Provide non-corrosive fasteners for all sheathing and exterior soffits.

Concealed Acoustical Sealant: Mastic type; non-shrinking, non-drying, non-migrating and non-staining.

Exposed Acoustical Sealant: Latex, acrylic, or acrylic-latex type, permanently elastic and paintable.

Sound Attenuation Blankets: Semi-rigid mineral fiber blanket without membrane, Class 25 flame spread, 1-1/2 inch thick. Required in all walls and required above ceilings where indicated on drawings.

PART 3 EXECUTION

3.01 INSTALLATION OF METAL SUPPORT SYSTEMS:

General: To the extent not otherwise indicated, comply with GA-203, and manufacturer's instructions.

Space ceiling suspension main runners 4 feet - 0 inch o.c. and space hangers 4 feet - 0 inch o.c. along runners.

Isolate stud system from transfer to structural loading to system, both horizontally and vertically. Provide slip or cushioned type joints to attain lateral support and avoid axial loading.

Install runner tracks at floors, ceiling and structural walls and columns where gypsum drywall stud system abuts other work.

Extend partition stud system through ceilings to structural support above ceiling, except where indicated to terminate at ceiling.

Space studs 16 inches o.c., except as otherwise indicated.

Door Frames: Install additional jamb studs at door frames as indicated, but not less than 2 studs at each jamb. Space jack studs over door frames at same spacing as partition studs.

Space ceiling furring members 16 inches o.c., except as otherwise indicated.

Space wall furring members 16 inches o.c., except as otherwise indicated.

Screw furring members to structural support where possible; otherwise wire-tie or clip as recommended by manufacturer.

Install supplementary framing, runners, furring, blocking and bracing at opening and terminations in the work, and at locations required to support fixtures, equipment, services, heavy trim, furnishings and similar work which cannot be adequately supported directly on gypsum board alone.

3.02 GENERAL GYPSUM BOARD INSTALLATION REQUIREMENTS:

Pre-Installation Conference: Meet at the project site with the installers of related work and review the coordination and sequencing of work to ensure that everything to be concealed by gypsum drywall has been accomplished, and that chases, access panels, openings, supplementary framing and blocking and similar provisions have been completed.

Install sound attenuation blankets in all partitions, prior to gypsum board unless readily installed after board has been installed.

General Standards: In addition to compliance with GA-216, comply with manufacturer's instructions and requirements for fire-resistance ratings, whichever is most stringent.

Install wall/partition boards vertically to avoid end-butt joints wherever possible. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs.

Form control joints and expansion joints with space between edges of boards, prepared to receive trim accessories.

Cover both faces of steel studs with gypsum board in concealed spaces (above ceilings, etc.), except in chase walls which are properly braced internally.

Isolate perimeter of non-load-bearing drywall partitions at structural abutments. Provide 1/4inch to 3/8inch space and trim edge with J-type semi-finishing edge trim. Seal joints with acoustical sealant. Do not fasten drywall directly to stud system runner tracks.

Space fasteners in gypsum boards in accordance with GA-216 and manufacturer's recommendations, except as otherwise indicated.

Apply acoustical sealant around all electrical outlet box cut-outs.

3.03 SPECIAL GYPSUM BOARD APPLICATIONS:

Single-Layer Ceilings: Install exposed gypsum board prior to wall/partition board installation.

Fasten with screws.

Single-Layer Walls and Partitions: Install exposed gypsum board.

Fasten with screws at top and bottom.

Fasten to wood supports with adhesive and with either temporary or permanent nails or screws.

Wall Tile Base: Where drywall is base for thin-set ceramic tile and similar rigid applied wall finishes, install gypsum backing board.

In toilets and similar "wet" areas, install water-resistant backing board. Apply with uncut long edge at bottom of work. Seal ends, cut-edges and penetrations of each piece with water-resistant sealant before installation.

Double-Layer Walls and Partitions:

Install base layer with screws.

Install exposed gypsum board with adhesive with screws at top and bottom and in center as required to keep board in position until adhesive is set.

Do not align joint in gypsum board on opposite sides of walls.

Install sound batts in walls after one side of gypsum board is in place.

Direct-Bonding to Substrate: Where gypsum board is indicated to be directly adhered to a substrate (other than studs, joists, furring members or base layer of gypsum board), comply with gypsum board manufacturer's recommendations, and temporarily brace or fasten gypsum board until fastening adhesive has set.

Fasten with zinc-coated screws, or with zinc-coated nails where supports are available.

Exterior Soffits: Install sheathing in accordance with manufacturer's instructions and applicable instructions in GA-253.

Install using No. 6 Type S or S-12 bayle head, self-tapping rust resistant screws.

Use maximum lengths possible to minimize number and of joints. Locate edge joints parallel to and located on framing. Stagger intermediate end joints of adjacent lengths of panels.

Attach board to metal framing with screws spaced 8 inches o.c. at perimeter and 8 inches o.c. in field.

Drive fasteners to bear tight against and flush with surface of sheathing. Do not countersink.

Locate fasteners minimum 3/8 inch from edges and ends of sheathing panels.

Joint treatment and finish Preparation: Apply joint tape over joints and embed in joint compound specified.

Provide manufacturer's standard warranty covering materials for five years commencing on date of acceptance of the project.

3.04 INSTALLATION OF DRYWALL TRIM ACCESSORIES:

General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges by nailing or stapling in accordance with manufacturer's instructions and recommendations.

Install metal corner beads at external corners of drywall work.

Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed, and except where plastic trim is indicated. Provide type with face flange to receive joint compound except where semi-finishing type is indicated.

Install L-type trim where work is tightly abutted to other work, and install special kerf-type where other work is kerfed to receive long leg of L-type trim. Install U-type trim where edge is exposed, revealed, gasketed, or sealant-filled (including expansion joints).

Install J-type semi-finishing trim where indicated, and where exterior gypsum board edges are not covered by applied moldings.

Install metal control joint (beaded-type) where indicated.

3.05 INSTALLATION OF DRYWALL FINISHING:

General: Apply treatment at gypsum board joints (both directions) flanges of trim accessories, penetrations, fastener heads, surface defects and elsewhere as required to prepare work for decoration. Prefill open joints and rounded or beveled edges, using type of compound recommended by manufacturer.

Apply joint tape at joints between gypsum boards, except where a trim accessory is indicated.

Apply joint compound in 3 coats (not including prefill of openings in base), and sand between last 2 coats and after last coat.

Partial Finishing: Omit third coat and sanding on concealed drywall work which is indicated for drywall finishing, including sound, fire, air and smoke-rated work.

Refer to Painting and Wallcovering Sections for decorative finishes to be applied to drywall work.

Acoustical Type Drywall Finishing: Provide primer coat on drywall surface as recommended by the manufacturer. Mix texture finish material per manufacturer's specifications. Apply to drywall surface with recommended type spray equipment to a uniform texture without starved spots or other indications of thin application.

3.06 PROTECTION OF WORK:

Installer shall advise Contractor of required procedures for protection of the Gypsum drywall work from damage and deterioration during the remainder of the construction period.

3.07 SPECIAL REQUIREMENTS FOR DRYWALL WORK:

All corridor walls, fire walls and smoke walls shall run continuous from floor to bottom of roof deck or slab above and shall be finished on both sides of wall for entire height with thickness of board shown on plans. Portions of walls above ceilings shall be partially finished as above specified. Where walls meet metal deck voids in deck shall be filled with fireproofing material to completely fill voids.

Where drywall fireproofing of structure is shown, fireproofing shall turn up around all duct penetrations to slab or roof deck above to form a complete seal.

At penetrations of ducts or pipes in corridor walls, smoke walls or fire walls, fit gypsum board around penetration as tight as possible and seal remaining crack around penetration.

Where UL design or sound transmission design details are noted for particular areas, comply with all portions of the referenced details for construction.

END OF SECTION 09 29 00

SECTION 09 51 00---ACOUSTICAL CEILINGS:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

The general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this section.

1.02 DESCRIPTION OF WORK:

The extent of each type of acoustical ceiling is shown on the drawings and in schedules. See the Electrical drawings for ceiling layout.

The types of acoustical ceilings specified in this section include the following:

- Acoustical panel ceilings
- Exposed suspension systems.

1.03 QUALITY ASSURANCE:

Subcontract the installation of acoustical ceilings to an experienced installation firm which is acceptable to the manufacturer of the acoustical units, as shown by current written statement from the manufacturer.

Standards for Terminology and Performance: Applicable publications by the Acoustical and Insulating Materials Association (AIMA), including "Performance Data, Architectural Acoustical Materials".

ASTM E84: Class A, non-combustible.

UL-Rated Assemblies: Rated assemblies are not required for this project.

1.04 SUBMITTALS:

Manufacturer's Data, Acoustical Ceilings:

For information only, submit 2 copies of manufacturer's product specifications and installation instructions for each acoustical ceiling material required, and for each suspension system, including certified laboratory test reports and other data as required to show compliance with these specifications. Distribute one additional copy of each installation instruction to the Installer.

Include manufacturer's recommendations for cleaning and refinishing acoustical units, including precautions against materials and methods which may be detrimental to finishes and acoustical performances.

Samples, Acoustical Ceilings:

Submit three sets of 12" square samples for each acoustical unit required. In each set of samples show the full

range of exposed color and texture to be expected in the completed work. Sample submittal and Architect's review will be for color and texture only. Compliance with other requirements is the exclusive responsibility of the Contractor.

Maintenance Stock; Acoustical Ceilings:

At time of completing the installation, deliver stock of maintenance material to the Owner. Furnish full size units matching the units installed, packaged with protective covering for storage, and identified with appropriate labels.

Acoustical Units: Furnish 5 full cartons of each ceiling type.

1.05 JOB CONDITIONS:

Space Enclosures: Do not install interior acoustical ceilings until space has been enclosed and is weather-tight, and until wet-work in the space has been completed and is nominally dry, and until work above ceilings has been completed, and until ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

PART 2 PRODUCTS

2.01 CEILING UNITS:

Acoustical Panels (For Exposed Grid):

General: Except as otherwise indicated, provide manufacturer's standard lay-in panels of the type recommended by the manufacturer for the application indicated. Provide sizes shown by reflected ceiling plans or, if not otherwise indicated, 24" x 24" grid-size panels.

Provide panels which are similar and equal to the following:

ACT-1 Armstrong Fine Fissured Tegular 1732 – Angled Tegular 2' x 2'x5/8" Lay-In (White) with 15/16" Prelude (White) Grid

Subject to compliance with these specifications, other manufacturers whose products may be incorporated in the work include, but are not limited to the following:

Celotex
USG

2.02 CEILING SUSPENSION MATERIALS:

General: Comply with ASTM E 580, as applicable to the type of suspension system required for the type of ceiling units indicated. Coordinate with other work supported by or penetrating through the ceilings, including light fixtures, HVAC equipment, and partition system.

Structural Class: Heavy-duty system, non-fire rated.

Attachment Devices: Size for 5 times the design load indicated in ASTM C 635, Table 1, Direct Hung.

Hanger Wires: Galvanized carbon steel, ASTM A 641, soft temper, pre-stretched yield-stress load of at least 3 times design load, but not less than 12 gauge.

Type of System: Direct-hung exposed suspension system, hot dipped galvanized.

Subject to requirements, manufacturers whose products may be incorporated in the work include, but are not limited to the following:

USG – Dorm DX
Chicago Metallic Corporation - 250
Armstrong – Prelude XL

Exposed Suspension System: Manufacturer's standard exposed T & T runners, cross-runners and accessories with exposed cross runners coped to lay flush with main runners.

Finish of Exposed Members: Provide uniform factory-applied finish on exposed surfaces of ceiling suspension system including moldings, trim and accessories.

Finish: Manufacturer's standard baked enamel white finish.

2.03 MISCELLANEOUS MATERIALS:

Edge Trim Molding: Metal angle type, finish to match grid.

Acoustical Sealant: A heavy-bodied, non-shrinking, non-drying, non-sag grade mastic compound intended for interior sealing of concealed construction joints.

Sound Attenuation Blankets: Semi-rigid 3# density spun mineral fiber mat, 1-1/2" thick, Class 25 flame spread.

PART 3 EXECUTION

3.01 INSPECTION AND PREPARATION WORK:

Installer must examine the conditions under which the acoustical ceiling work is to be performed and notify the Contractor in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid the use of less-than-half width units at borders and comply with reflected ceiling plans wherever possible.

3.02 INSTALLATION:

General: Install materials in accordance with manufacturer's printed instructions, and to comply with governing regulations, fire resistance rating requirements as indicated, and industry standards applicable to the work. All

work to comply with applicable North Carolina State Seismic Design Criteria.

Arrange acoustical units in the manner shown by reflected electrical ceiling plans.

Coordinate installation of hanging devices in poured concrete structure with General Contractor or use powder activated holding devices for fastening hanger devices in place.

Install suspension systems to comply with ASTM E 580, with hangers supported only from building structural members as indicated. Locate hangers near each end and spaced 4'-0" along each carrying channel or direct-hung runners, unless otherwise indicated.

Install hangers at each corner of all recessed lighting fixtures and 4'-0" o.c. along rows of fixtures.

Secure wire hangers by looping and wire-tying directly to structures or to Inserts, eye-screws or other devices which are secure and appropriate for the substrate, and which will not deteriorate or fail with age or elevated temperatures.

Install edge moldings of the type indicated at edges of each acoustical ceiling area, and at locations where edge of units would otherwise be exposed after completion of the work.

Sealant Bed: Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before fastening to vertical surface.

Secure moldings to building construction by fastening with screw-anchors into the substrate, through holes drilled in vertical leg. Space holes not more than 3" from each end and not more than 24" o.c. along each molding.

Level moldings with ceiling suspension system, to a level tolerance of 1/8" in 12'-0".

Miter corners of moldings accurately to provide hairline joints, securely connected to prevent dislocation.

Cope exposed flanges of intersecting suspension system members, so that flange faces will be flush (cope flange of member supported by other member).

Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at penetrations.

Install hold-down clips at all entrances to a distance of 10 feet from door.

Install sound attenuation blankets over all ceilings where indicated on drawings.

Install edge trim moldings as needed to conceal edges of acoustical units which would otherwise be exposed to view after completion of the work. Anchor with fasteners or, if not possible, secure in place with permanent adhesive.

3.03 CLEANING AND PROTECTION:

Clean exposed surfaces of acoustical ceilings, including trim, edge moldings and suspension members: comply with

manufacturers' instructions for cleaning and touch-up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

The Installer shall advise the Contractor of required protection for the acoustical ceilings, including temperature and humidity limitations and dust control, so that the work will be without damage and deterioration at the time of acceptance by the Owner.

END OF SECTION 09 51 00

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SECTION 09 65 01---RESILIENT WALL BASE AND ACCESSORIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

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

1.02 SUMMARY:

This section includes the following:

- Resilient wall base.
- Resilient stair accessories.
- Resilient flooring accessories.
- Resilient carpet accessories.

Related Sections include the following:

- Division 9 Section Resilient Tile Flooring
- Division 9 Section Sheet Vinyl Floor Coverings
- Division 9 Section Carpet
- Division 11 Section Wood for Laboratory Casework and Equipment

1.03 SUBMITTALS:

Product Data: For each type of product specified.

Samples for Initial Selection: Manufacturer's standard sample sets consisting of sections of units showing the full range of colors and patterns available for each type of product indicated.

Samples for Verification: In manufacturer's standard sizes, but not less than 12 inches (300 mm) long, of each product color and pattern specified.

1.04 QUALITY ASSURANCE:

Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing resilient products similar to those required for this Project and with a record of successful in-service performance.

Source Limitations: Obtain each type and color of product specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the work.

Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.

Critical Radiant Flux: 0.45 W/sq. cm or greater when tested per ASTM E 648.

Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.

1.05 DELIVERY, STORAGE, AND HANDLING:

Deliver products to project site in manufacturer's original, unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.

Store products in dry spaces protected from weather, with ambient temperatures maintained between 50 and 90 deg F (10 and 32 deg C).

Move products into spaces where they will be installed at least 48 hours before installation, unless longer conditioning period is recommended in writing by manufacturer.

1.06 PROJECT CONDITIONS:

Maintain a temperature of not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C) in spaces to receive resilient products for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless manufacturer's written recommendations specify longer time periods. After post-installation period, maintain a temperature of not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).

Do not install products until they are at the same temperature as the space where they are to be installed.

For resilient products installed on traffic surfaces, close spaces to traffic during installation and for time period after installation recommended in writing by manufacturer.

Coordinate resilient product installation with other construction to minimize possibility of damage and soiling during remainder of construction period. Install resilient products after other finishing operations, including painting, have been completed.

1.07 EXTRA MATERIALS: Not required for this project.

PART 2 PRODUCTS

2.01 MANUFACTURERS:

Products: Subject to compliance with requirements, provide products equal and similar to those products indicated for each designation in the Resilient Wall Base and Accessory Schedule at the end of Part 3.

Available Manufacturer's: Subject to compliance with requirements, manufacturer's whose products may be incorporated into the work include, but are not limited to, the following:

Mercer Products, Inc.
Johnsonite
Roppe Corporation

2.02 RESILIENT WALL BASE:

Rubber Wall Base: Products complying with FS SS-W-40A, 100% thermoset vulcanized and with requirements specified in the Resilient Wall Base and Accessory Schedule.

2.03 RESILIENT STAIR ACCESSORIES:

Rubber Stair Treads: Products of style suitable for use indicated and complying with FS RR-T-650, Composition A and with requirements specified in the Resilient Wall Base and Accessory Schedule.

Risers: Not required.

Stringers: Not required.

2.04 RESILIENT ACCESSORIES:

Rubber Accessories: Products complying with requirements specified in the Resilient Wall Base and Accessory Schedule.

2.05 INSTALLATION ACCESSORIES:

Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by resilient product manufacturer for applications indicated.

Stair-Tread-Nose Filler: Two-part epoxy compound recommended by resilient tread manufacturer to fill nosing substrates that do not conform to tread contours.

Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

PART 3 EXECUTION

3.01 EXAMINATION:

Examine substrates, areas, and conditions where installation of resilient products will occur, with Installer present, for compliance with manufacturer's requirements, including those for maximum moisture content. Verify that substrates and conditions are satisfactory for resilient product installation and comply with requirements specified. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION:

General: Comply with manufacturer's written installation instructions for preparing substrates indicated to receive

resilient products.

Use trowelable leveling and patching compounds, according to manufacturers written instructions, to fill cracks, holes, and depressions in substrates.

Use stair-tread-nose filler, according to resilient tread manufacturer's written instructions, to fill nosing substrates that do not conform to tread contours.

Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

Broom and vacuum clean substrates to be covered immediately before installing resilient products. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.03 INSTALLATION:

General: Install resilient products according to manufacturers written installation instructions.

Apply resilient wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

Do not stretch base during installation.

On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.

Form outside corners on job, from straight pieces of maximum lengths possible, without whitening at bends. Shave back of base at points where bends occur and remove strips perpendicular to length of base that are only deep enough to produce a snug fit without removing more than half the wall base thickness.

Form inside corners on job, from straight pieces of maximum lengths possible, by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.

Place resilient products so they are butted to adjacent materials and bond to substrates with adhesive. Install reducer strips at edges of flooring that would otherwise be exposed.

Apply resilient products to stairs as indicated and according to manufacturers written installation instructions.

3.04 CLEANING AND PROTECTING:

Perform the following operations immediately after installing resilient products:

Remove adhesive and other surface blemishes using cleaner recommended by resilient product manufacturers.

Sweep or vacuum horizontal surfaces thoroughly.

Do not wash resilient products until after time period recommended by resilient product manufacturer.

Damp-mop or sponge resilient products to remove marks and soil.

Protect resilient products against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by resilient product manufacturer.

Cover resilient products installed on floors and stairs with undyed, untreated building paper until inspection for Substantial Completion.

3.05 RESILIENT WALL BASE AND ACCESSORY SCHEDULE:

Rubber Wall Base: Provide rubber wall base similar and equal to the following:

Color and Pattern: As selected by Architect from manufacturer's full range of colors.

Style: Cove with top-set toe

Minimum Thickness: 1/8 inch (3.2 mm)

Height: 4 inches (101.6 mm)

Lengths: Coils in lengths standard with manufacturer, but not less than 96 feet (29.26m)

Outside Corners: Job formed

Inside Corners: Job formed

Ends: Premolded.

Surface: Smooth.

Rubber Stair Treads: Provide rubber stair treads similar and equal to the following:

Color: As selected by Architect from manufacturer's full range of colors.

Nosing Style: Square, adjustable to cover angles between 60 and 90 degrees

Nosing Height: 1-1/2 inches, measured from top of tread to bottom edge of nosing.

Thickness: 5/16 inch tapering to 3/16 inch at back edge

Size: Lengths and depths to fit each stair tread in one piece or, for treads exceeding maximum lengths manufactured, in equal-length units.

Rubber Risers: Not required.

Rubber Stringers: Not required.

Rubber Accessory Molding: Provide rubber accessory molding similar and equal to the following:

Product Description: Carpet edge for glue-down applications; Carpet nosing; Nosing for rubber tile; Reducer strip for resilient flooring; and, Tile and carpet joiner.

Profile and Dimensions: As indicated on drawings or if not designated, manufacturer's standard profile for indicated application.

END OF SECTION 096501

**Section 096620 – Resilient Tile Flooring
(Solid Vinyl Plank)**

PART 1 GENERAL

1.01 THIS SECTION INCLUDES

- A. Flooring and accessories as shown on the drawings and schedules and as indicated by the requirements of this section.

1.02 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract (including General and Supplementary Conditions and Division 1 sections) apply to the work of this section.

1.03 RELATED SECTIONS

- A. Other Division 9 sections for floor finishes related to this section but not the work of this section.
- B. Division 3 Concrete; not the work of this section.
- C. Division 6 Wood and Plastics; not the work of this section.
- D. Division 7 Thermal and Moisture Protection; not the work of this section.

1.04 QUALITY ASSURANCE AND REGULATORY REQUIREMENTS

- A. Select an installer who is competent in the installation of Mannington solid vinyl flooring with acrylic adhesive or two part polyurethane.
- B. If required, provide resilient flooring and accessories supplied by one manufacturer, including leveling and patching compounds, and adhesives.
- C. If required, provide flooring material to meet the following fire test performance criteria as tested by a recognized independent testing laboratory:
 - a. ASTM E 648 Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I.
 - b. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less.

1.05 SUBMITTALS

- A. Submit shop drawings, seaming plan, coving details, and manufacturer's technical data, installation and maintenance instructions (latest edition of "Mannington's Professional Installation Guide,") for flooring and accessories.
- B. Submit the manufacturer's standard samples showing the required colors for flooring and applicable accessories.
- C. If required, submit the manufacturer's certification that the flooring has been tested by an independent laboratory and complies with the required fire tests.

1.06 ENVIRONMENTAL CONDITIONS

- A. Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.
- B. Store materials in a clean, dry, enclosed space off the ground, and protected from the weather and from extremes of heat and cold. Protect adhesives from freezing. Store flooring, adhesives and accessories in the spaces where they will be installed for at least 48 hours before beginning

installation.

- C. Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65°F (18°C) and a maximum temperature of [100°F (38°C)] [85°F (29°C)] for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55°F (13°C) in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances.
- D. Install flooring and accessories after the other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring. Do not install flooring over concrete slabs until they are sufficiently dry to achieve a bond with the adhesive, in accordance with the manufacturer's recommended bond and moisture tests.

PART 2 PRODUCTS

2.01 RESILIENT FLOORING MATERIALS

Specifications for luxury vinyl plank are based on "Nature's Path" by Mannington Commercial. Subject to compliance with these specifications, other products which may be incorporated in the project include, and are limited to, the following:

Tandus / Centiva, Contour Plank
Flexco, Natural Elements
Shaw Contract, Grain

a. Construction (Plank & Tile)	Luxury Vinyl Plank with micro bevel
b. Overall Thickness (Plank & Tile)	.100 inches (2.5mm)
c. Wearlayer Thickness	.020 inches (0.51mm)
d. Size (Plank 5" Width)	4" x 48" (127 mm x 1219.3 mm)
h. Finish Layer	Quantum Guard HP urethane aluminum oxide topcoat cured by ultraviolet process
i. Static Load Limit	750 psi
j. Specification (ASTM 1700)	Class 3, Type B
k. Heat Stability (ASTM F-1514)	Passes
l. Stain Chemical Stability (ASTM F-925)	Passes
m. HUD/FHA Requirements	Exceeds
n. Flooring Radiant Panel (ASTM-E-648)	≥.45 watts/cm ² , Passes (Class 1)
n. N.B.S. Smoke Chamber (ASTM-E-662)	<450 – Passes
o. Flooring shall meet composition, size, thickness, squareness, flexibility, dimensional stability, and resistance to chemicals requirements of ASTM F 1700, "Standard Specification for Solid Vinyl Tile," Class III, Type B – Embossed Surface.	

2.02 ADHESIVES

- A. Provide Mannington Commercial **M-Guard V-88** under the flooring. Wall Base Adhesive at the wall base as recommended by manufacturer.

2.03 ACCESSORIES

- A. For patching, smoothing, and leveling monolithic subfloors (concrete, terrazzo, quarry tile, ceramic tile, and certain metals), provide Mannington MVP-2023 Cement-Based Underlayment.
- B. For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.
- C. Provide transition/reducing strips tapered to meet abutting materials.
- D. Provide threshold of thickness and width as shown on the drawings.
- E. Provide resilient edge strips of width shown on the drawings, of equal gauge to the flooring,

homogeneous vinyl or rubber composition, tapered or bullnose edge, with color to match or contrast with the flooring, or as selected by the Architect from standard colors available.

- F. Provide metal edge strips of width shown on the drawings and of required thickness to protect exposed edges of the flooring. Provide units of maximum available length to minimize the number of joints. Use butt-type metal edge strips for concealed anchorage, or overlap-type metal edge strips for exposed anchorage. Unless otherwise shown, provide strips made of extruded aluminum with a mill finish.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.
- B. Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds; residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.
- C. Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- D. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.02 PREPARATION

- A. Smooth concrete surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints, and other defects with Mannington [MVP-2023 Cement-Based Underlayment] as recommended by the flooring manufacturer.
- B. Remove paint, varnish, oils, release agents, sealers, and waxes. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations for flooring. Avoid organic solvents.
- C. Perform subfloor Calcium Chloride Tests (and Bond Tests) as described in "Mannington's Professional Installation Guide," to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring.
- D. Vacuum or broom-clean surfaces to be covered immediately before the application of flooring. Make subfloor free from dust, dirt, grease, and all foreign materials.

3.03 INSTALLATION OF FLOORING

- A. Install flooring in strict accordance with "Mannington's Professional Installation Guide."
- B. Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings.
- C. If required, install flooring on pan-type floor access covers. Maintain continuity of color and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to covers.
- D. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets.

- E. Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's instructions. Observe the recommended adhesive trowel notching, open times, and working times.

3.04 INSTALLATION OF ACCESSORIES

- A. Apply top set wall base to walls, columns, casework, and other permanent fixtures in areas where top-set base is required. Install base in lengths as long as practical, with inside corners fabricated from base materials that are mitered or coped. Tightly bond base to vertical substrate with continuous contact at horizontal and vertical surfaces.
- B. Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates.
- C. Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.
- D. Apply [butt-type] [overlap] metal edge strips where shown on the drawings, [before] [after] flooring installation. Secure units to the substrate, complying with the edge strip manufacturer's recommendations.

3.05 CLEANING AND PROTECTION

- A. Perform initial maintenance according to the latest edition of the manufacturer's maintenance and warranty literature. Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings.

SECTION 09 91 00---PAINTING:

PART I GENERAL

1.01 RELATED DOCUMENTS:

The general provisions of the Contract, including General and Supplementary General Conditions and General Requirements, apply to the work specified in this section.

1.02 DESCRIPTION OF WORK:

The extent of painting work is shown on the drawings and schedules, and as herein specified.

The work includes painting and finishing of interior and exterior exposed items and surfaces throughout the project, except as herein specified.

Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections, except as otherwise specified.

The work includes field painting of all bare and covered pipes and ducts, and of hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under the mechanical and electrical work, except in Mechanical Rooms.

"Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

Paint all exposed surfaces whether or not colors are designated in "schedules", except where the natural finish of the material is obviously intended and specifically noted as a surface not to be painted. Where items or surfaces are not specifically mentioned, paint these the same as adjacent similar materials or areas. If color or finish is not designated, the Architect will select these from standard colors available for the materials systems as specified.

1.03 PAINTING NOT INCLUDED:

The following categories of work are not included as part of the painter-applied finish work, unless otherwise shown or specified.

Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under the various sections for structural steel, miscellaneous metal, hollow metal work, and similar items. Also, for fabricated components such as architectural woodwork, wood casework, and shop-fabricated or factory-built mechanical and electrical equipment or accessories.

Pre-finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer-finishing is specified for such items as (but not limited to) metal toilet enclosures, acoustic materials, architectural woodwork and casework, wood and synthetic athletic flooring products, finished mechanical and electrical equipment including light fixtures, switchgear and distribution cabinets.

Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and inaccessible areas, foundation spaces, furred areas, utility tunnels, pipe spaces, and duct shafts.

Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting, except as otherwise indicated.

Operating Parts and Labels: Do not paint any moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts, unless otherwise indicated.

Do not paint over any code-required labels, such as Underwriter's Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

1.04 SUBMITTALS:

Manufacturer's Data; Painting: For information only, submit 2 copies of manufacturer's specifications, including paint label analysis and application instructions for each material specified. Indicate by transmittal that a copy of each manufacturer's instructions has been distributed to the Paint Applicator.

Samples; Painting: Submit samples for Architect's review of color and texture only. Compliance with all other requirements is the exclusive responsibility of the Contractor. Provide a listing of the material and application for each coat of each finish sample.

On 12" x 12" hardboard, provide 2 samples of each color and material, with texture to simulate actual conditions. Resubmit each sample as requested until required sheen, color and texture is achieved.

On actual wood surfaces, provide two 4" x 8" samples of each natural and stained wood finish as required. Label and identify each as to location and application.

On concrete masonry, provide two 4" square samples of masonry for each type of finish and color, defining filler, prime and finish coats.

1.05 DELIVERY AND STORAGE:

Deliver all materials to the job site in original, new and unopened packages and containers bearing manufacturer's name and label.

Provide labels on each container with the following information:

- Name or title of material.
- Fed. Spec. number, if applicable.
- Manufacturer's stock number.
- Manufacturer's name.
- Contents by volume, for major pigment and vehicle constituents.
- Thinning instructions.
- Application instructions.

1.06 JOB CONDITIONS:

Do not apply water-base paints when the temperature of surfaces to be painted and the surrounding air temperatures are below 50 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions. Do not apply solvent-thinned paints when the temperature of surfaces to be painted and the surrounding air temperatures are below 45 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions.

Do not apply paint in snow, rain, fog or mist; or when the relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer's printed instructions. Painting may be continued during inclement weather only if the areas and surfaces to be painted are enclosed and heated within the temperature limits specified by the paint manufacturer during application and drying periods.

PART 2 PRODUCTS

2.01 COLORS AND FINISHES:

Paint surface treatments and finishes are shown on the drawings and indicated in the Schedule included at the end of this Section.

Prior to beginning work the Architect will furnish sample color chips for surfaces to be painted. Match the colors of the chips and submit samples, as specified herein, before proceeding with the work.

Proprietary names used to designate colors or materials are not intended to imply that products of the manufacturers are required to the exclusion of equivalent products of other manufacturers.

Paint Coordination: Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coating system for various substrates. Upon request from other trades furnish information on characteristics of specified finish materials, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and reprime as required. Notify the Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

2.02 MATERIAL QUALITY:

- A. Provide the best quality grade of the various types of coatings as regularly manufactured by approved paint materials manufacturers. Materials not displaying the manufacturer's identification as a standard, best-grade product will not be acceptable.

Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer, and use only within recommended limits.

Paint materials shall be from one of the following manufacturers or approved equal:

Benjamin Moore Company
Devoe Paint Div., Celanese Coatings Company
ICI DULUX Paints
Minnesota Paint Company

PPG Industries, Inc.
Sherwin-Williams Company

Materials: See "schedule" following this section for material types required.

B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:

1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
3. 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).
4. Restricted Components: Paints and coatings shall not contain any of the following:
 - a. Acrolein.
 - b. Acrylonitrile.
 - c. Antimony.
 - d. Benzene.
 - e. Butyl benzyl phthalate.
 - f. Cadmium.
 - g. Di (2-ethylhexyl) phthalate.
 - h. Di-n-butyl phthalate.
 - i. Di-n-octyl phthalate.
 - j. 1,2-dichlorobenzene.
 - k. Diethyl phthalate.
 - l. Dimethyl phthalate.
 - m. Ethylbenzene.
 - n. Formaldehyde.
 - o. Hexavalent chromium.
 - p. Isophorone.
 - q. Lead.
 - r. Mercury.
 - s. Methyl ethyl ketone.
 - t. Methyl isobutyl ketone.
 - u. Methylene chloride.
 - v. Naphthalene.
 - w. Toluene (methylbenzene).
 - x. 1,1,1-trichloroethane.
 - y. Vinyl chloride.

PART 3 EXECUTION:

3.01 INSPECTION:

Applicator must examine the areas and conditions under which painting work is to be applied. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed

with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Applicator.

Starting of painting work will be construed as the Applicator's acceptance of the surfaces and conditions within any particular area.

Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to the formation of a durable paint film.

3.02 SURFACE PREPARATION:

General: Perform preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.

Remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for the complete painting of the items and adjacent surfaces.

Following completion of painting of each space or area, reinstall the removed items by workmen skilled in the trades involved.

Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program the cleaning and painting so that contaminants from the cleaning process will not fall onto wet, newly-painted surfaces.

Cementitious Materials: Prepare cementitious surfaces of concrete, concrete block, and cement plaster to be painted by removing all efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze.

Determine the alkalinity and moisture content of the surfaces to be painted by performing appropriate tests. If the surfaces are found to be sufficiently alkaline to cause blistering and burning of the finish paint, correct this condition before application of paint. Do not paint over surfaces where the moisture content exceeds that permitted in the manufacturer's printed directions.

Clean concrete floor surfaces scheduled to be painted with a 5% solution of muriatic acid, or other etching cleaner. Flush floor with clean water to neutralize acid and allow to dry before painting.

Wood: Clean wood surfaces to be painted of all dirt, oil or other foreign substances with scrapers, mineral spirits, and sandpaper as required. Sandpaper smooth those finished surfaces exposed to view and dust off. Scrape and clean small, dry seasoned knots and apply a thin coat of white shellac or other approved sealer, before application of the priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.

Prime, stain, or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends, face, undersides, and backsides of such wood, including cabinets, counters, cases, paneling, etc. When transparent finish is required, use spar varnish for backpriming.

Backprime paneling on interior partitions only where masonry, plaster, or other wet wall construction occurs on backside.

Seal tops and bottoms of wood doors with a heavy coat of varnish or equivalent sealer immediately upon delivery to job.

Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.

Touch-up shop-applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch-up with the same type shop primer.

Galvanized metal to be painted shall be thoroughly washed with a solution of 1/2 pint Blue Vitrol, 2 oz. 30% Muriatic Acid in one gallon of water, or other approved solution, then thoroughly washed with clean water. Metal shall be dry before paint is applied.

Dents, cracks, hollow places, open joints and other irregularities in metal work to be painted shall be filled with an approved metal filler suitable for the purpose, which after setting, shall be sanded to a smooth, hard finish.

3.03 MATERIALS PREPARATION:

Mix and prepare painting materials in accordance with manufacturer's directions.

Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.

Stir materials before application to produce a mixture of uniform density, and stir as required during the application of the materials. Do not stir surface film into the material. Remove the film and if necessary, strain the material before using.

3.04 APPLICATION:

General: Apply paint in accordance with the manufacturer's directions. Use applicators and techniques best suited for the type of material being applied.

Apply additional coats when undercoats, stains or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance.

Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only.

Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.

Paint the back sides of access panels, and removable or hinged covers to match the exposed surfaces.

Finish exterior doors on tops, bottoms and side edges the same as the exterior faces, unless otherwise indicated.

Sand lightly between each succeeding enamel or varnish coat.

Omit the first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise specified.

Minimum Coating Thickness: Apply each material at not less than the manufacturer's recommended spreading rate, to provide a total dry film thickness of not less than 5.0 mils for the entire coating system of prime and finish coats for 3-coat work.

Prime Coats: Apply a prime coat to material which is required to be painted or finished, and which have been prime coated by others.

Recoat primed and sealed walls and ceilings where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no-burn-through or other defects due to insufficient sealing.

Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture.

Leave no evidence of rolling such as laps, irregularity in texture, skid marks, or other surface imperfections.

Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.

Transparent (Clear or Stained) Finishes: Use multiple coats to produce glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.

Provide satin finish for final coats, unless otherwise indicated.

Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

3.05 CLEAN-UP AND PROTECTION:

Clean-Up: During the progress of the work, remove from the project daily all discarded paint materials, rubbish, cans and rags.

Upon completion of painting work, clean all window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

Protection: Protect other work against damage by painting and finishing work. Correct any damages by cleaning, repairing or replacing, and repainting, as directed by the Architect.

Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.

3.06 PAINTING AND FINISHING SCHEDULE:

Plans, schedules, and details on the drawings indicate the extent of work to be performed. The Architect shall select colors from the manufacturer's full color line available for the product furnished.

Provide the scheduled paint systems for the various substrates indicated. The schedule is general in nature;

therefore, some of the listed substrates and/or areas listed may not be incorporated in the work of this project.

Except as noted otherwise on the drawings or in these specifications, furnish products equal and similar to ICI DULUX products denoted in the following schedule.

SUBSTRATE MATERIAL	PAINT MATERIALS		
	Finish	Number of Coats	Description/Type
METALS			
Exterior Ferrous Metal		1 coat	DULUX Alkyd Metal Primer No. 590
		2 coats	DULUX Pro Water Reducible Acrylic Enamel Series No. 6900
Interior Ferrous Metal including doors		1 coat	DULUX Alkyd Metal Primer No. 590
	[Semi-Gloss]	2 coats	DULUX Pro Water Reducible Acrylic Enamel Series No. 6900
Aluminum		1 coat	DULUX All-Purpose Metal Primer No. 5229
		2 coats	DULUX Pro Water Reducible Acrylic Enamel Series No. 6900
Interior And Exterior Ferrous Metal Handrails		1 coat	DULUX Alkyd Metal Primer No. 4160
		2 coats	LifeMaster Pro HB Tile Like Acrylic Coating Series #5440
Miscellaneous Galvanized Metal		1 coat	DULUX Guard DPG #4160 Series
GYPSUM BOARD			
Walls and bulkhead soffits		1 coat	DULUX Spred Ultra Primer Sealer No. 5111
	[Eggshell]	2 coats	DULUX Spred Ultra Latex Eggshell Wall and Trim Paint Series No. 1403
	[Semi-Gloss]	2 coats	DULUX Spred Ultra Latex Semi-Gloss Wall and Trim Paint Series No. 1407
Janitors closets, custodial rooms		1 coat	DULUX Insul-Aid Latex Vapor Barrier Primer Sealer No. 1000-1200
	Semi-Gloss	2 coats	DULUX LifeMaster Pro HB Tile-Like Acrylic Coating Series No. 5440
Kitchen and Detention Areas (walls and ceilings)		1 coat	DULUX Insul-Aid Latex Vapor Barrier Primer Sealer No. 1000-1200
		2 coats	DULUX LifeMaster Pro HB Tile-Like Acrylic Coating Series No. 5440
Exterior Soffits (Gypsum board)		1 coat	DULUX Alkali Resistant Primer No. 4160-7100
	[Flat]	2 coats	DULUX Spred Ultra Exterior Acrylic Latex Flat Series No. 2200

	[Satin]	2 coats	DULUX Spred Ultra Exterior Acrylic Latex Satin Series No. 2402
	[Gloss]	2 coats	DULUX Spred Ultra Exterior Acrylic Latex Gloss Series No. 2406
Exterior Soffits (Wood hardboard, etc.)		1 coat	DULUX Exterior Alkyd Primer No. 2110-1200
	[Flat]	2 coats	DULUX Spred Ultra Exterior Acrylic Latex Flat Series No. 2200
	[Satin]	2 coats	DULUX Spred Ultra Exterior Acrylic Latex Satin Series No. 2402
	[Gloss]	2 coats	DULUX Spred Ultra Exterior Acrylic Latex Gloss Series No. 2406
Interior wood doors			Factory Finish
MASONRY			
Interior block and concrete		2 coat	DULUX Ultra-Hide Acrylic Block Filler #3010-1200
	Eggshell	2 coats	DULUX Spred Ultra Eggshell Latex Wall and Trim Paint Series No. 1403

3.07 CONTRACTORS PAINT SCHEDULE:

Prior to beginning any painting operation, submit to the Architect for review and for the Owner's Maintenance records, four copies of a complete painting schedule which includes actual products proposed for use on this project. Schedule shall be similar to the schedule included within these specifications and shall completely identify each product by name, catalog number, etc. Identify fillers, primers, finish coats, etc.

In addition to this schedule, submit complete manufacturer's product description including recommended usage and compatible products for each material proposed for this project.

3.08 FIRE AND SMOKE IDENTIFICATION OF WALLS AND PARTITIONS:

In concealed spaces where corridor partitions, smokestop partitions, horizontal exit partitions, exit access corridors, and exit enclosure walls, extend above decorative ceilings, identify these walls with permanent signs or stenciling with red paint in a manner acceptable to the local authority having jurisdiction over the project.

If stenciling is used, letters shall be a minimum 1-1/2 inches high and shall read "Fire and Smoke Barrier - Protect all Openings."

Locate signs on both sides of partition above decorative ceiling, at intervals not exceeding 25 feet on center and a minimum of one location in any room having a wall length less than 25 feet.

END OF SECTION 09 91 00

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SECTION 10 14 00 – SIGNS (CAST ALUMINUM)

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

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

1.02 SUMMARY:

- A. This section includes the following types of signs:
 - 1. Exterior dimensional letters.
- B. Related Sections: The following sections contain requirements that relate to this section:
 - 1. Section Division 10, Section "Miscellaneous Specialties" for interior room identification signage and plaque.
 - 2. See Division 15 Sections for labels, tapes, and nameplates for plumbing and mechanical equipment.

1.03 SUBMITTALS:

- A. General: Submit the following according to the Conditions of the Contract and Division 1 specification Sections.
- B. Product data for each type of sign specified, including details of construction relative to materials, dimensions of individual components, profiles, and finishes.
- C. Shop drawings showing fabrication and erection of signs. Include plans, elevations, and large-scale sections of typical members and other components. Show anchors, grounds, layout, reinforcement, accessories, and installation details.
 - 1. Provide message list for each sign required, including large-scale details of wording and lettering layout.
 - 2. For signs supported by or anchored to permanent construction, provide setting drawings, templates, and directions for installation of anchor bolts and other anchors to be installed as a unit of work in other sections.
- D. Samples: Provide the following samples of each sign component for initial selection of color, pattern and surface texture as required and for verification of compliance with requirements indicated.

1. Samples for initial selection of color, pattern, and texture:
2. Aluminum: Samples of each finish type and color, on 6-inch long sections of extrusions and not less than 4-inch squares of sheet or plate, showing the full range of colors available.

1.04 QUALITY ASSURANCE:

- A. Sign Fabricator Qualifications: Firm experienced in producing signs similar to those indicated for this project, with a record of successful in-service performance, and sufficient production capacity to produce sign units required without causing delay in the work.
- B. Single-Source Responsibility: For each separate sign type required, obtain signs from one source of a single manufacturer.
- C. Design Concept: The drawings indicate sizes, profiles, and dimensional requirements of signs and are based on the specific types and models indicated. Signs by other manufacturers may be considered provided deviations in dimensions and profiles do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.

1.05 PROJECT CONDITIONS:

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication to ensure proper fitting. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay.

PART 2 PRODUCTS

2.01 MANUFACTURERS:

- A. Available Manufacturers: Products specified are based on those manufactured by A.R.K. Ramos Manufacturing Co., Inc. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, the following:
 1. Andco Industries Corp.
 2. ASI Sign Systems, Inc.
 3. Gemini, Inc.
 4. Best Sign Systems
 5. Substitutions as per Section 01600.

2.02 DIMENSIONAL LETTERS:

- A. Cast Letters and Numbers: Form individual letters and numbers by casting. Produce characters with smooth, flat faces, sharp corners, and precisely formed lines and profiles, free from pits, scale, sand holes, or other defects. Cast lugs into the back of characters and tap to receive threaded mounting studs. Comply with requirements indicated for finish, style, and size.

1. Metal: Aluminum.
 2. Letter Height: Height shall be as indicated on drawings
 3. Letter Style: Helvetica
 4. Mounting:
 - a. Mount flush to wall on exterior.
- B. Aluminum Finishes: Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.
- C. Organic Coating: Thermosetting-modified acrylic enamel primer/topcoat system complying with AAMA 603.8 except with a minimum dry film thickness of 1.5 mils, medium gloss.
- D. Color: As selected by the Architect from the manufacturer's full color chart.

2.03 CAST PLAQUE: Not Required.

PART 3 EXECUTION

3.01 INSTALLATION:

- A. General: Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.
- B. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance.
- C. Provide all mounting and support hardware and devices necessary for proper installation of the sign as detailed by the manufacturer. Furnish to the General Contractor, instructions and anchor devices which are to be built into his work prior to assembly of signs.
- D. Dimensional Letters and Numbers: Mount letters and numbers using standard fastening methods recommended by the manufacturer for letter form, type of mounting, wall construction, and condition of exposure indicated. Provide heavy paper template to establish letter spacing and to locate holes for fasteners.
- E. Flush Mounting: Mount letters with backs in contact with the substrate surface.

3.02 CLEANING AND PROTECTION:

- A. After installation, clean soiled sign surfaces according to the manufacturer's instructions.
- B. Protect units from damage until acceptance by the Owner.

3.03 REQUIRED LETTERING:

- A. Lettering shall be similar. Lettering shall be verified with Architect prior to manufacturing.

END OF SECTION 10 14 00

SECTION 10 14 01 - INTERIOR SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Interior signage of the following types:
 - 1. ADA compliant interior signage, without borders.
 - 2. Fire evacuation, area of rescue assistance and specialty signs.

1.02 REFERENCES

- A. ANSI/ICC A117.1 - Accessible and Useable Buildings and Facilities; 1998.
- B. ATBCB ADAAG - Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG); U.S. Architectural Transportation Barriers Compliance Board; 2004.

1.03 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements of ANSI/ICC A117.1 and ADAAG.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Inspect products upon receipt. Store products in manufacturer's packaging until ready for installation.

1.06 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. Best Sign Systems
 - 2. Andco
 - 3. AOA
 - 4. Signage Industries
 - 5. Gemini
 - 6. ASI Sign Systems
 - 7. Avalis Wayfinding Solutions, Inc.
- B. Substitutions: See Section 01600 - Product Requirements.

2.02 INTERIOR SIGNS

- A. ADA-Compliant Interior Signage, Borderless:

1. Style: HC200 ADA System by Best Sign Systems.
 2. Type: Three-in-one construction without borders; three-ply melamine plastic laminate with phenolic core signs with lettering and symbols raised 1/32 inch from sign plate face.
 3. Sign Thickness: 1/8 inch thick or 1/4 inch thick as required.
 4. Construction: One-piece; added-on or engraved characters not acceptable.
 5. Lettering Style: Helvetica Medium, upper case.
 6. Braille: Grade 2 Braille, placed directly below last line of letters or numbers.
 7. Performance: Non-static, fire-retardant, and self-extinguishing.
 8. Contrast: Letters numbers and symbols shall contrast with background.
 9. Corners: Square.
 10. Color of Plastic: As selected from manufacturer's standard colors.
 11. Finish of Plastic: Matte.
 12. Color of Background: As selected from manufacturer's standard paint colors.
 13. Letter and Number Sizes:
 - a. Room numbers and floor name on floor module, 7/8 inch high.
 - b. Lettering for room usage and directional identification, 5/8 inch high
 - c. Lettering for restroom identification, 7/8 inch high; corresponding symbols 4 inches high; symbol on symbol only signs minimum 3-1/2 inch high.
 14. Sign Margins: Letters and numbers, 1/2 inch left margin and 3/8 inch top margin.
 15. Sign Sizes:
 - a. Restroom and symbol signs, 8 by 8 inches.
 - b. Room identification signs, 8 by 8 inches.
 - c. Room number signs, 8 by 8 inches.
 - d. Changeable message signs, 8 by 8 inches. Provide fixed room name along top of sign. Provide a slot with see through cover for interchangeable messages. Slot shall be full width of sign and 1-1/2" high.
 - e. Signage shall be verified with Architect.
- B. Fire Evacuation and Specialty Signs:
1. Style: Fire Evacuation Signs by Best Sign Systems.
 2. Fire Evacuation Signs: 8 by 10 inches satin bronze with copy and maps surface oxidized brown. (Not required)
 3. Evacuation Plans Signs: 12 by 12 inches 'MP' plastic with copy and map engraved and paint-filled 2 standard paint colors. (Not required)
 4. Emergency Exit Only Signs: 'MP' plastic with copy raised with background and symbol painted 2 standard paint colors. See drawings for size and details.
 5. Lettering Style: Typeface as selected, upper case.
 6. Lettering Location: Centered on sign..
 7. Corners: Square.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine installation areas to ensure that conditions are suitable for installation.
- B. Examine signage for defects prior to installation. Do not install damaged signage.

3.02 PREPARATION

- A. Verify mounting heights and locations for interior signage will comply with referenced standards.
- B. Clean mounting locations of dirt, dust, grease or similar conditions that would prevent proper installation.

3.03 INSTALLATION

- A. Install signs level, plumb, without distortion, and in proper relationship with adjacent surfaces using manufacturer's recommended standard mounting system.
 - 1. Mounting: Mount with vinyl foam tape.
- B. Remove adhesive from exposed sign surfaces as recommended by manufacturer.
- C. Clean signs after installation as recommended by manufacturer.
- D. Replace damaged products before Substantial Completion.

3.04 INTERIOR SIGNAGE SCHEDULE

- A. Provide unisex accessible toilet signs. Not required for this project.
- B. Provide gender appropriate accessible toilet signs.
- C. Provide tactile signs stating "EXIT" and complying with ICCA117.1.
- D. Provide room identification signs for non offices. Room name only. Not required for this project.
- E. Provide room identification sign with interchangeable name plate for offices. Room name and personal name. Not required for this project.

END OF SECTION 10 14 01

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SECTION 10 21 00 - TOILET COMPARTMENTS (SOLID POLYMER RESIN)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes solid-polymer units as follows:
 - 1. Toilet Enclosures: Overhead braced.
 - 2. Urinal Screens: Post supported.
- B. Related Sections include the following:
 - 1. Division 6 Section "Miscellaneous Carpentry" for blocking.
 - 2. Division 10 "Toilet and Bath Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Show locations of cutouts for compartment-mounted toilet accessories.
 - 2. Show locations of reinforcements for compartment-mounted grab bars.
- C. Samples for Initial Selection: For each type of unit indicated.

1.4 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating toilet compartments without field measurements. Coordinate wall, floor, ceilings, and other contiguous construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 SOLID-POLYMER UNITS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include the following:
 - 1. Bradley Corporation; Mills Partitions.
 - 2. Capitol Partitions, Inc.
 - 3. Comtec Industries.
 - 4. General Partitions Mfg. Corp.
 - 5. Global Steel Products Corp.
 - 6. Metpar Corp.
 - 7. Santana Products, Inc.
 - 8. Columbia Partitions

- B. Door, Panel, and Pilaster Construction: 58" high, solid, high-density polyethylene (HDPE) panel material, not less than 1 inch (25 mm) thick, seamless, with eased edges, and with homogenous color and pattern throughout thickness of material.
 - 1. Color and Pattern: One color and pattern in each room as selected by Architect from manufacturer's full range of colors and patterns.

- C. Pilaster Shoes and Sleeves (Caps): Manufacturer's standard design; polymer.
 - 1. Polymer Color and Pattern: Matching pilaster.

- D. Brackets (Fittings):
 - 1. Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.

- E. Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum strip fastened to exposed bottom edges of solid-polymer components to prevent burning.

2.2 ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories.
 - 1. Material: Stainless steel and/or heavy duty aluminum.

- B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.

- C. Support Posts for Urinal Screens: Manufacturer's standard aluminum post with floor shoe for anchoring to floor construction. Include escutcheon for installation around post where post penetrates finished ceiling.

- D. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match hardware, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use hot-dip galvanized or other rust-resistant, protective-coated steel.

2.3 FABRICATION

- A. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, fasteners, and anchors at pilasters to suit floor conditions. Make provisions for setting and securing continuous head rail at top of each pilaster. Provide shoes at pilasters to conceal supports and leveling mechanism.
- B. Doors: Unless otherwise indicated, provide 24-inch- (610-mm-) wide in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide out-swinging doors with a minimum 32-inch- (813-mm-) wide clear opening for compartments indicated to be accessible to people with disabilities.
 - 1. Hinges: Manufacturer's heavy duty wrap-around aluminum self-closing type that can be adjusted to hold doors open at any angle up to 90 degrees.
 - 2. Latch and Keeper: Manufacturer's standard surface-mounted latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be accessible to people with disabilities.
 - 3. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
 - 4. Door Bumper: Manufacturer's standard rubber-tipped bumper at out-swinging doors.
 - 5. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with accessibility requirements of authorities having jurisdiction. Provide units on both sides of doors at compartments indicated to be accessible to people with disabilities.
- C. Urinal Screens: 24" deep by height to match toilet panels.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters and Panels: 1 inch (25 mm).
 - b. Panels and Walls: 1 inch (25 mm).

- B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Secure continuous head rail to each pilaster with not less than two fasteners. Hang doors to align tops of doors with tops of panels and adjust so tops of doors are parallel with overhead brace when doors are in closed position.
- C. Post-Supported Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb and to resist lateral impact. Provide additional steel framing attached to floor structure above finished ceiling to attach urinal screen support post.

3.2 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION 10 21 00

SECTION 10 28 00---TOILET AND BATH ACCESSORIES:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division 1 Specification sections, apply to work of this section.

1.02 SUMMARY:

This section includes toilet and bath accessory items as scheduled on the drawings and as specified herein.

1.03 SUBMITTALS:

General: Submit the following according to Conditions of the Contract and Division 1 Specifications Sections.

Product data for each toilet accessory item specified, including construction details relative to materials, dimensions, gages, profiles, mounting method, specified options, and finishes.

Samples and Schedules: (Not required for this project)

Setting drawings where cutouts are required in other work, including templates, substrate preparation instructions, and directions for preparing cutouts and installing anchorage devices.

Maintenance instructions including replaceable parts and service recommendations,

1.04 QUALITY ASSURANCE:

Inserts and Anchorages: Furnish accessory manufacturers' standard inserts and anchoring devices that must be set in concrete or built into masonry or structural bracing for other construction. Coordinate delivery with other work to avoid delay.

Single-Source Responsibility: Provide products of same manufacturer for all listed accessories except where other manufacturers are specified for particular products in these specifications.

1.05 PROJECT CONDITIONS:

Coordination: Coordinate accessory location, installation, and sequencing with other work to avoid interference with and ensure proper installation, operation, adjustment, cleaning, and servicing of toilet accessory items.

1.06 WARRANTY:

Warranty: Submit a written warranty executed by mirror manufacturer, agreeing to replace any mirrors that develop visible silver spoilage defects within warranty period.

Warranty Period: 15 years from date of Acceptance of the Project.

The warranty shall not deprive the owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

Provide manufacturer's standard warranties for other specified accessories.

PART 2 PRODUCTS

2.01 MANUFACTURERS:

Furnish and install toilet accessories as scheduled which are equal and similar to products manufactured by Bobrick Washroom Equipment, Inc. Bobrick model numbers for each accessory is given in the schedule.

Subject to compliance with requirements of these specifications, other manufacturers offering products that may be incorporated in the work include, but are not limited to, the following:

A & J Washroom Accessories
American Specialties, Inc.
Bradley Corporation
McKinney/Parker

2.02 MATERIALS:

Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 0.034-inch (22 gage) minimum thickness.

Brass: Leaded and unleaded, flat products, ASTM B 19; rods, shapes, forgings, and flat products with finished edges, ASTM B16; Castings, ASTM B30.

Sheet Steel: Cold-rolled, commercial quality ASTM A 366, 0.04 inch (20 gage) minimum. Surface preparation and metal pretreatment as required for applied finish.

Galvanized Steel Sheet: ASTM A 527, G60.

Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.

Baked Enamel Finish: Factory-applied, gloss white, baked acrylic enamel coating.

Mirror Glass: Nominal 6.0-mm (0.23-inch) thick, conforming to ASTM C 1036, Type I, Class 1, Quality q2, and with silvering, electro-plated copper coating, and protective organic coating.

Galvanized Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.

Fasteners: Screws, bolts, and other devices of same material as accessory unit, or of galvanized steel where concealed.

2.03 FABRICATION:

General: Only a maximum 1-1/2 inch diameter, unobtrusive stamped manufacturer logo, as approved by the Architect, is permitted on exposed face of toilet or bath accessory units. On either interior surface not exposed to view or back surface, provide additional identification by either a printed, waterproof label or a stamped name-plate, indicating manufacturer's name and product model number.

Surface-Mounted Toilet Accessories, General: Except where otherwise indicated, fabricate units with tight seams and joints, exposed edges rolled. Hang door or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.

Recessed Toilet Accessories, General: Except where otherwise indicated, fabricate units of all-welded construction, without mitered corners. Hang doors or access panels with full-length, stainless steel piano hinge. Provide anchorage that is fully concealed when unit is closed.

Framed Mirror Units, General: Fabricate frames for glass mirror units to accommodate wood, felt, plastic, or other glass edge protection material. Provide mirror backing and support system that will permit rigid, tamper proof glass installation and prevent moisture accumulation as follows:

Provide galvanized steel backing sheet, not less than 0.034 inch (20 gage) and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not an acceptable filler material.

Mirror Unit Hangers: Provide system for mounting mirror units that will permit rigid, tamper proof, and theftproof installation, as follows:

Heavy-duty wall brackets of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.

Keys: Provide universal keys for access toilet accessory units requiring internal access for servicing, resupply, etc. Provide minimum of six keys to Owner's representative.

PART 3 EXECUTION

3.01 INSTALLATION:

Install toilet accessory units according to manufacturer's instructions, using fasteners appropriate to substrate as recommended by unit manufacturer. Install units plumb and level, firmly anchored in locations and at heights indicated. Comply with mounting heights required by ADA Guidelines where indicated on drawings.

Secure mirrors to walls in concealed, tamper proof manner with special hangers, toggle bolts, or screws. Set units plumb, level and square at locations indicated, according to manufacturer's instructions for type of substrate involved.

Install grab bars to withstand a downward load of at least 250 lbf, complying with ASTM F 446.

3.02 ADJUSTING AND CLEANING:

Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.

Clean and polish all exposed surfaces strictly according to manufacturer's recommendations after removing temporary labels and protective coatings.

END OF SECTION 10 28 00

SECTION 10 44 00---FIRE EXTINGUISHERS, CABINETS, AND ACCESSORIES:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this section.

1.02 SUMMARY:

This section includes the following:

- Fire extinguishers.
- Fire extinguisher cabinets.
- Fire extinguisher mounting brackets.

1.03 SUBMITTALS:

General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.

Product Data for fire extinguisher cabinets include rough-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style, door construction, panel style, and materials.

Samples for initial selection purposes in the form of manufacturer's color charts consisting of actual units or sections of units showing full range of colors, textures, and patterns available for each type of fire extinguisher cabinet finish indicated or exposed to view.

1.04 QUALITY ASSURANCE:

Single-Source Responsibility: Obtain extinguishers, if required, and cabinets from one source from a single manufacturer. If both are required for the project, verify that specified cabinets will accommodate specified extinguishers.

UL-Listed Products: Fire extinguishers shall be UL listed with UL Listing Mark for type, rating, and classification of extinguisher.

PART 2 PRODUCTS

2.01 MANUFACTURERS:

- J.L. Industries
- Modern Metal Products by Muckle.
- Potter-Roemer, Inc.
- Samson Metal Products, Inc.
- Watrous Inc.

2.02 FIRE EXTINGUISHERS:

Extinguishers: Provide (1) Series Multi-Purpose Dry Chemical Model No. MP10 within each fire extinguisher cabinet.

2.03 FIRE EXTINGUISHER CABINETS:

General: Provide fire extinguisher cabinets or wall mounted hangers as indicated on drawings.

Provide fire extinguisher cabinets or fire extinguisher hangers of suitable size for housing fire extinguishers of types and capacities indicated.

Subject to compliance with requirements of these specifications, other manufacturers whose products may be incorporated in the work include, but are not limited to, the following:

Construction: Box shall be made of cold rolled enameled steel with $\frac{3}{4}$ " wide flange with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth. Miter and weld perimeter door frames. All components shall be furnished in compliance with ADA standards.

Fire-Rated Cabinets: UL-listed with UL Listing Mark with rating of wall where it is installed. All cabinets shall be rated to comply with the fire rated partition it is to be installed within. Cabinets shall be certified and listed by Warnock-Hersey for one and two hour combustible and non-combustible wall systems to meet the requirements of UBC Standard 7-5 (ASTM E-814-83). All fire-rated cabinets to have trims with reinforced corners and factory supplied anchoring devices

Cabinet Type: Suitable for mounting conditions indicated of the following type:

Semi Recessed: Furnish and install fire extinguisher cabinets equal and similar to "Architectural" Series Model AL-2409-6R semi-recessed 2-1/2" rolled edge as manufactured by "Larsens". Cabinet box (tub) fully recessed in walls of sufficient depth to suit style of trim indicated.

Trim Style: Fabricate trim in one piece with corners mitered, welded, and ground smooth.

Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).

Door Material and Construction:

Manufacturer's standard door construction, of material indicated, coordinated with cabinet types and trim styles selected.

Lettering to comply with authorities having jurisdiction for letter style, color, size, spacing, and location. Lettering to be black on white background except as otherwise required by local ordinance.

Application Process: Manufacturers standard application for product specified.

Door Style: Manufacturer's standard design.

Door type shall be solid clear anodized aluminum with pull handle, latch and red vertical die cut letters, "FIRE EXTINGUISHER".

Door Hardware:

Provide manufacturer's standard door operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide either lever handle with cam-action latch, or door pull, exposed or concealed, and friction latch. Provide concealed or continuous type hinge permitting door to open 180 deg.

2.04 FINISHES FOR FIRE EXTINGUISHER CABINETS, GENERAL:

Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designating finishes.

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

2.05 ALUMINUM FIRE EXTINGUISHER CABINET FINISHES:

Finish designations prefixed by AA conform to the system established by the Aluminum Association for designating aluminum finishes.

Class II Clear-Anodized Finish: AS-M12C22A31 (Mechanical Finish: as fabricated, nonspecular; Chemical Finish: etched, medium matte; Anodic Coating: Class II Architectural, clear film thicker than 0.4 mil).

Surface Preparation: Solvent clean surfaces complying with SSPS-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel complying with SSPC-SP 5 (white metal blast cleaning) or SSPC-SP 8 (pickling).

Baked Enamel Finish (for cabinet interior): Immediately after cleaning and pretreatment, apply manufacturer's standard two-coat baked enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's instructions for applying and baking to achieve a minimum dry film thickness of 2.0 mils.

Color and Gloss: Manufacturer's standard color and gloss designations.

PART 3 EXECUTION

3.01 INSTALLATION:

Follow manufacturer's printed instruction for installation.

Install in locations and at mounting heights indicated on drawings or, if not indicated, at heights to comply with

applicable regulations of governing authorities, including Americans with Disabilities Act requirements.

Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer's instructions.

Fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb.

END OF SECTION 10 44 00

SECTION 12 24 00 – MANUAL ROLLER SHADES

PART 1 – GENERAL

1.01 SCOPE

- A. SUPPLIER: Furnish and install Manual Roller Shades
- B. RELATED WORK SPECIFIED ELSEWHERE:
 - 1. Section 06100: Rough Carpentry
 - 2. Section 08410: Aluminum Entrance and Window Framing System
 - 3. Section 08450: Aluminum Doors

1.02 REFERENCES

- A. FLAME-RESISTANT MATERIALS SHALL PASS OR EXCEED ONE OR MORE OF THE FOLLOWING TESTS:
 - National Fire Protection Association (NFPA) 701 (small scale for horizontal applications)
 - Department of Transportation Motor Vehicle Safety Standard 302 Flammability of Interior Materials
 - California Administrative Code Title 19
 - Federal Standard 191 Method 5903 (used by Port Authority of New York and New Jersey for drapery, curtain, and upholstery material)
 - Boston Fire Department Teat BFD IX-1
 - New York State Uniform Fire Prevention and Building Code

1.03 SUBMITTALS

- A. PRODUCT DATA: Manufacturer's descriptive literature shall be submitted indicating materials, finishes, construction and installation instructions and verifying that product meets requirements specified. Manufacturers recommendations for maintenance and cleaning shall be included.
- B. DRAWINGS AND DIAGRAMS: Wiring diagrams of any motorized components or units, working and assembly drawings shall be supplied as requested.
- C. SAMPLE: Responsible contracting officer or agent shall supply one sample shade of each type specified in this contract for approval. Supplied units shall be furnished complete with all required components, mounting and associated hardware, instructions and warranty.

1.04 QUALITY ASSURANCE:

- A. Supplier: Manufacturer, subsidiary or licensed agent shall be approved to supply the products specified, and to honor any claims against product presented in accordance with warranty.
- B. INSTALLER: Installer or agent shall be qualified to install specified products by prior experience, demonstrated performance and acceptance of requirements of manufacturer, subsidiary, or licensed agent. Installer shall be responsible for an acceptable installation.
- C. UNIFORMITY: Provide Manual Roller Shades of only one manufacturer for entire project.

1.05 DELIVERY, STORAGE AND HANDLING:

- A. Product shall be delivered to site in manufacturer's original packaging.
- B. Product shall be handled and stored to prevent damage to materials, finishes and operating mechanisms.

1.06 JOB CONDITIONS:

- A. Prior to shade installation, building shall be enclosed.
- B. Interior temperature shall be maintained between 60° F. and 90° F. during and after installation; relative humidity shall not exceed 80%. Wet work shall be complete and dry.

1.07 WARRANTY:

- A. Lifetime Limited Warranty. Fabrics warranted for 5 years. Specific product warranties available from manufacturer or its authorized agent.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

- A. Hunter Douglas Contract/ 12250 Parkway Centre Dr. / Poway, CA 92064/ Phone: 800-727-8953 Fax: 800-205-9819/ (www.hunterdouglascontract.com).
- B. MechoSystems (www.mechoshade.com).
- C. Solarfective (<http://www.solarfective.com/>).

D. Draper

E. Product substitutions as per Section 01600.

2.02 MANUAL ROLLER SHADES

A. PRODUCT: For basis of design Hunter Douglas "Manual Roller Shades"

B. MATERIALS:

1. FABRICS: Inherently anti-static, flame retardant, fade and stain resistant, light filtering, room darkening, & blackout fabrics providing 0% - 15% openness factors. Fabric weights to range between 6.00 oz/sq.yd. – 20.70 oz/sq.yd. containing fiberglass, PVC, polyester, acrylic, vinyl laminates, cotton, & vinyl coatings. Finish selected by architect from manufacturer's available contract colors.
2. CONTROL SYSTEM: Adjustment-free continuous qualified #10 stainless steel ball chain ((90-lb. test)) and pulley clutch operating system allows precise control and ensures a uniform look. Clutch will develop no more than ½ pound drag for ease of lifting. Glass reinforced polyester thermopolymer (PBT) plastic components conform to military specification MIL M-24519 and designed for smooth, trouble-free operation.
3. ROLLER: Circular-shaped painted extruded aluminum tubes with thicker wall & ribs provide additional strength while locking into place the clutch & end plug. 3" outside diameter extruded tube to have a .090 wall thickness. 2" outside diameter extruded tube to have a .072" wall thickness (1 ½" & 1 1/8" tubes have .055" wall thickness) providing strength & durability.
4. END PLUG: Heat stabilized fiber reinforced plastic outside sleeve and center shaft provide bearing surfaces on which the roller rides ensuring smooth, wear resistant operation.
5. BOTTOM ROD: Extruded aluminum weight in a Sealed Pocket Hem Bar (excluding thicker fabric) for tracking adjustments and provides uniform look.
6. MOUNTING HARDWARE: Manufacturer's standard .07" nickel-plated, C1008/1010 cold rolled steel universal brackets including end plug bracket with lock down retainer device.
7. ADDITIONAL AVAILABLE OPTIONS:
 - a. Fascia – Provide
 - b. Top & Bottom Covers – not required
 - c. Blackout Systems – not required.
 - d. Motorization – not required

- e. 3 Clutch Sizes – not required
- f. Fabric Wrapped Hembar – not required
- g. Dual Shades – not required
- h. Coupled Shades – not required
- i. Banded Shades – not required
- j. Extruded Pockets – not required
- k. Reverse Roll – not required

2.03 FABRICATION

- A. Shade measurements shall be accurate to within $\pm 1/8"$ or as recommended in writing by manufacturer.
- B. Shades shall be provided in one continuous width to provide full coverage for each window and window/door unit opening.
- C. Any shade which is not able to be made to cover window opening with one continuous width shall be approved by Architect.

2.04 FABRICS

- A. FABRIC selection from the following: E Screen 7503

PART 3 - EXECUTION

3.01 INSPECTION:

- A. SUBCONTRACTOR shall be responsible for inspection on site, approval of mounting surfaces, installation conditions and field measurement for this work.
- B. OTHER INTERACTING TRADES shall receive drawings of shade systems, dimensions, assembly and installation methods from subcontractor upon request.

3.02 INSTALLATION:

- A. INSTALLATION shall comply with manufacturer's specifications, standards and procedures as detailed on contract drawings.
- B. ADEQUATE CLEARANCE shall be provided to permit unencumbered operation of shade and hardware.
- C. CLEAN finish installation of dirt and finger marks. Leave work area clean and free of debris.
- D. Install roller shades as top mount (ceiling mount) to head of window opening within window opening for horizontal top window.

3.03 DEMONSTRATION:

- A. Demonstrate operation method and instruct owner's personnel in the proper operation and maintenance of the blinds.

3.04 SCHEDULE:

A. EXTERIOR WINDOWS:

- 1. Install top mount (ceiling mount) roller shades at all head of window openings within the window opening.

ROOM	ROOM	WINDOW	REMARKS
101	OFFICE	A	Mount w/in wall opening

- B. INTERIOR RELIGHTS: None required.

END OF SECTION 12 24 00

SECTION 12 32 00---MANUFACTURED WOOD CASEWORK:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

Drawings and General provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.02 SCOPE:

Work Included:

The extent of laminate clad casework as shown on the drawings.

The work includes the fabrication and installation of laminate clad casework components of base cabinets, wall cabinets, tall cabinets, shelf units, miscellaneous storage shelving and hardware, countertops and other units as specified.

Work Not Included:

Furnishing or installation of rubber base on all casework.

Furnishing or installation of general millwork items.

Furnishing or installation of mechanical items such as piping, fittings and ducts, unless specifically specified.

Furnishing or installation of electrical items such as wiring, outlets and fixtures, unless specifically specified.

Furnishing or installation of plumbing items such as piping, fittings and sinks, unless specifically specified.

The Prime General contractor shall be responsible for coordinating the construction of other prime contractors and subcontractors whose work is to be fitted in or to the casework. In the case of certain items of general millwork such as window stools and jambs or casings which may be covered in plastic laminate and fitted to casework, the General Contractor may, at his option, provide those items as part of the work of the casework vendor.

1.03 MANUFACTURERS:

Furnish and install plastic laminate casework equal and similar to the standard designs of products manufactured by TMI Systems Dsign Corp., Dickinson, ND.

Subject to compliance with requirements of these specifications, other manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

LSI Corp. Of America, Inc.

Steven Industries, Teutopolis, ILL

Nolen Products, Knoxville, TN

Southside Cabinets, Danville, VA

AR Byrd Company, Inc., Lincolnton, NC
Carolina Heritage Cabinetry, North Wilkesboro, NC
Cleora Sterling Corporation, Mebane, NC

Manufacturers shall show evidence of minimum five (5) years experience in providing manufactured casework systems for similar type projects.

Substitutions: Manufacturers not listed and wishing to bid on the casework shall submit data and cabinet samples to the Architect for approval to bid not less than seven (7) days prior to date set for opening bids. Any proposed changes in cabinet configuration must be detailed at time of submittal. In order to provide a means of evaluation, all bidders proposing to bid substitutions shall submit sample units showing in full scale - joinery, general construction, material and finish of the manufacturer. Failure of this sample to meet specification requirements shall be cause for rejection.

Shop Drawings: Shop drawings shall be submitted to the Architect for review prior to fabrication. These drawings will show size, arrangement and type of material, cross sections, connections, anchorage, and relationship to adjacent work. After review, copies of the drawings will be returned in accordance with the General Conditions.

Dimensions: The Casework supplier shall verify dimensions of all cabinet locations in the building prior to fabrication.

Samples: Samples of plastic laminate, hardware, etc. shall be submitted to the Architect for selection and approval as requested.

Plastic laminate colors and patterns shall be as selected by the Architect from the casework manufacturer's standard palette. The Architect shall be allowed to choose for each contiguous unit, a separate color for cabinet body, doors and drawer, and cabinet top - total three (3) colors. The total number of different colors that may be chosen by the Architect for the entire project shall not be limited.

Standards: Plastic laminate casework shall comply with AWI quality standard 1600 "Modular Casework".

Guarantee: The casework manufacturer shall guarantee all materials and workmanship covered by this section, normal wear and tear excluded, for a period of one (1) year from date of acceptance.

PART 2 PRODUCTS

2.01 MATERIALS:

Plastic Laminates:

Exposed exterior vertical surfaces shall have Formica, or approved equal, high pressure plastic laminate .028" inch thick (GP-28).

Countertops shall have Formica, Wilsonart, Nevamar or approved equal, high pressure plastic laminate .050" inch thick (GP-50).

Countertops shall be balanced with an acceptable balance sheet.

Interior sides, bottoms, shelves, backs, exposed bottoms of wall units, and intermediates of closed cabinets (i.e., concealed surfaces) shall be Formica or approved equal, melamine laminate in light beige or dove grey. (Vinyl overlays are not acceptable).

Interior sides, bottoms, shelves, backs and intermediates of all open cabinets (i.e. exposed surfaces) shall be Formica, or approved equal, high pressure plastic laminate .0280" thick (GP-28).

Particle Board:

Particle board shall have a minimum density of 45 lbs. per cubic foot with a moisture content not to exceed 8% and shall meet or exceed ANSI A208.1-1979. Aspen Board is not acceptable. Laminate as above specified.

Pre-finished Hardboard:

Pre-finished wood fiber hardboard shall be .250 inch thick.

Finished surfaces shall be smooth, hard, moisture resistant and a uniform tan color. Laminate as above specified.

Rails and Sub-Top:

Rails shall be used only on sink bases and then supported by a reinforcing aluminum "Z" bar to prevent countertop deflection. All rails will be .750 inch particle board, laminated top and bottom as specified above and edge banded with .050 inch high pressure laminate.

Each unit, other than sink units, shall have a full-depth sub-top of .750 inch particle board, laminated top and bottom as specified above and edge banded on the front edge with .050 inch high pressure laminate. Sub-top is to be let into sides, glued and screwed for secure fit.

Plastic Edging:

Exposed shelf edges shall be .050 inch high pressure laminate edge banding.

Side, partition, top and bottom edges to be .050 inch high pressure laminate edge banding.

All edges of door and drawer faces to be 3mm PVC solid, high-impact, purified and color-thru and shall be machine applied with hot melt adhesives and machine trimmed (all edges) for uniform appearance. 1mm PVC shall not be accepted.

Hardware:

Pin Tumbler Locks - (Where noted on drawings)

Locks shall be keyed differently (each lock furnished with two keys), and master-keyed.

Drawers and Doors: National Lock No. M4-7054C tumbler.

Hinges -

Heavy duty five knuckle style, with interlaying leaves capable of 270° swing. Hinge shall be minimum .090" thick, hospital tipped with non-removable pin. Hinges shall have epoxy finish. Color to be selected by the Architect.

Doors less than 36" in height shall have 2 hinges per door; doors 37" to 62" in height shall have 3 hinges per door and doors 63" to 80" shall have 4 hinges per door.

Pulls -

Drawer and door pulls: equal to "Berenson" Classic Comfort Tempo #0804-28PN-P (7-3/8" long x 1/2" wide x 1-1/4" high). Finish shall be brushed nickel.

Drawer Slides -

Typical Drawers: Blum bottom mount BS230E.

File Drawers: Blum bottom mount BS430E.

Paper Storage Drawer: Blum bottom mount BS230E.

Index Followers - (provide in all file drawers)

File Drawers: National No. 61-081 or approved equal.

Clothes Hanging Rod -

Rods: 1.250 inch - 14 gauge chrome plated steel, Parker No. 245S.

Flanges: Parker No. 308.

Adjustable Shelving -

Holes bored on 1 inch centers.

Supports: Nylon/plastic.

"Captive" non-tip shelf supports.

Coat Hooks -

Manufacturer's standard double prong.

PART 3 EXECUTION

3.01 CONSTRUCTION:

Type of Construction:

Flush Overlay - All units shall be Flush Overlay Construction such that door and drawer faces cover all of the cabinet body members with spaces between face surfaces sufficient for operation clearances only (nominally 1/8").

Workmanship:

All parts shall be machined for accurate fit and assembled with appropriate fastenings and adhesives to result in true, level and plumb units with no discernible tool marks. (See Cabinet Joinery.)

Modified or special units shall be constructed with similar detail and finish.

Base: All cabinets which set on floor shall have a separate subbase constructed of exterior plywood. Subbase shall be set and leveled for entire cabinet before base cabinets are placed.

Sides and Bottom: All cabinet sides and cabinet bottoms shall be 3/4" particle board. All surfaces shall be laminated as above specified.

Bottom: All cabinet bottoms shall be 3/4" particleboard. All surfaces shall be laminated as above specified.

Backs: Backs exposed on the exterior shall be 3/4" particleboard. Backs on drawer cabinets shall be 1/4" prefinished hardboard and backs on all open cabinets and door cabinets shall be 1/2" particleboard. All surfaces shall be laminated as above specified.

Doors: Doors shall be 3/4" particleboard with all surfaces and exposed edges treated as above specified.

Drawers: Drawer fronts shall be 3/4" particleboard. Drawer box (sides, back and sub-front) shall be 1/2" thick particleboard and the drawer bottom shall be 1/4" hardboard. All surfaces and exposed edges shall be treated as above specified.

Shelves and Intermediates: All intermediates shall be 3/4" particleboard. Shelves less than 30" long shall be 3/4" particleboard. Shelves 30" and longer shall be 1" particleboard. All shelves shall be adjustable. All surfaces and exposed edges shall be treated as above specified.

Countertops and Splashes: (Plastic Laminate as indicated on drawings)

In-line installation shall have continuous tops with tite-joint fasteners. Sink cutouts shall be made by the casework contractor. Tops and splashes shall be 3/4" particleboard with built-up exposed edge 1-1/2". Tops at sinks shall be 3/4" exterior plywood with waterproof glue, edge and backsplash to match other counter-tops. Top and splash shall be laminated as above specified. Apply sealant to backside of all splashes.

Cabinet Joinery: Tops and bottoms shall be joined to cabinet ends using a minimum of (6) six 10mm fluted hardwood dowels (industrial grade) for 24" deep cabinets and (4) four dowels for 12" deep cabinets. Cases shall be

assembled using glue and case clamping for secure joints and cabinet squareness. Attach countertops securely to base units.

Spline and glue joints in countertops; provide concealed mechanical clamping of joint. Internal cabinet components such as fixed horizontals, intermediates, rails, sub-tops, etc. shall be glued and doweled in place. Drawer boxes shall also be glued and doweled and bottom shall be fully housed into a 1/4" x 1/4" dadoed groove in sides, front and back. A seal of hot-melt adhesive shall be applied to exposed bottom joints following assembly. Should bottom width exceed 30", 3/8" thick material and or stretchers must be applied.

Joints in plastic laminate finish in countertop shall not exceed 1/32" width. Matching seam fill material recommended by laminate manufacturer may be used to fill joints less than 1/32" provided color match and workmanship is found to be acceptable by the Architect. Joints in countertops shall not be accepted except where length of countertop exceeds the maximum manufactured length of the plastic laminate finish.

3.02 INSTALLATION:

Work Force: Shall be manufacturer's authorized representative, installed per manufacturer's standard procedure.

Workmanship: Provide connecting and attaching devices, closures and trim as required. Set casework accurately in place, scribe and permanently secure to wall and/or floor. Fasten splashes to countertops with concealed screws. Set splashes in waterproof sealant to prevent water from entering the joint between countertop and splash.

Clean-Up: Remove all debris from the site as it accumulates. Clean all casework exterior and interior at completion of installation.

END OF SECTION 12 32 00

SECTION 12 36 00---SOLID SURFACE FABRICATIONS

PART 1 — GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including general and supplementary conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following horizontal and trim solid surface product types.

- 1. Countertops with sinks in toilets – Base Bid
- 2. Windowsills – Base Bid

- B. Related Sections include the following:

- 1. Division 6 Section "Rough Carpentry" for Blocking.
- 2. Division 15 Section "Plumbing Fixtures."
- 3. Division 16 Section "Wiring Devices."

- C. Alternates:

- 1. Refer to Division 1 Section "Alternates" for description of work in this Section affected by alternates.

1.3 DEFINITION

- A. Solid surface is defined as nonporous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment.

1.4 SUBMITTALS

- A. Product data:

- 1. For each type of product indicated provide manufacturer's product data.

- B. Shop drawings:

- 1. Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices and other components.
 - a. Show full-size details, edge details, thermoforming requirements, attachments, etc.

- b. Show locations and sizes of furring, blocking, including concealed blocking and reinforcement specified in other Sections.
- c. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, waste receptacle and other items installed in solid surface.

C. Samples:

1. For each type of product indicated.
 - a. Submit minimum 6-inch by 6-inch sample in specified gloss.
 - b. Cut sample and seam together for representation of inconspicuous seam.
 - c. Indicate full range of color and pattern variation.
2. Approved samples will be retained as a standard for work.

C. Product data:

1. Indicate product description, fabrication information and compliance with specified performance requirements.

D. Product certificates:

1. For each type of product, signed by product manufacturer.

E. Manufacturer certificates:

1. Signed by manufacturers certifying that they comply with requirements.

F. Maintenance data:

1. Submit manufacturer's care and maintenance data, including repair and cleaning instructions.
 - a. Maintenance kit for finishes shall be submitted.
2. Include in project closeout documents.

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Shop that employs skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.

B. Fabricator/installer qualifications:

1. Work of this section shall be by a certified fabricator/installer, certified in writing by the manufacturer.

C. Applicable standards:

1. Standards of the following, as referenced herein:

- a. American National Standards Institute (ANSI)
- b. American Society for Testing and Materials (ASTM)
- c. National Electrical Manufacturers Association (NEMA)
- d. NSF International

2. Fire test response characteristics:

- a. Provide with the following Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E84) or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1) Flame Spread Index: 25 or less.
 - 2) Smoke Developed Index: 450 or less.

D. Job mock-up:

1. Prior to fabrication of architectural millwork, erect sample unit to further verify selections made under sample submittals and to demonstrate the quality of materials and execution.
2. Mock-up shall be for one window sill of each type and one counter top.
3. Build the mock-up to comply with the contract documents and install in a location as directed by the architect.
4. Notify the architect two weeks in advance of the date of when the mock-up will be delivered.
5. Should mock-up not be approved, re-fabricate and reinstall until approval is secured.
 - a. Remove rejected units from project site.
6. After approval, the mock-up may become a part of the project. Approved mock-up must be protected as required from any type of damage until final acceptance.
7. This mock-up, once approved, shall serve as a standard for judging quality of all completed units of work.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver no components to project site until areas are ready for installation.
- B. Store components indoors prior to installation.
- C. Handle materials to prevent damage to finished surfaces.
 - 1. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

1.7 WARRANTY

- A. Provide manufacturer's warranty against defects in materials.
 - 1. Warranty shall provide material and labor to repair or replace defective materials.
 - 2. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.
- B. Installed Warranty:
 - 1. Fabrication and installation must be performed by a DuPont Certified Fabrication/Installation source who will provide a brand plate for the application.
 - 2. This warranty covers all fabrication and installation performed by the certified/approved source subject to the specific wording contained in the Installed Warranty Card.
- C. Manufacturer's warranty period:
 - 1. Ten years from date of substantial completion.

1.8 MAINTENANCE

- A. Provide maintenance requirements as specified by the manufacturer.

PART 2 — PRODUCTS

2.1 MANUFACTURERS

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

- a. Corian® solid surfaces from the DuPont company (basis of design).
- b. Gibraltar acrylic solid surfaces from Wilsonart.
- c. Hi-macs acrylic solid surfaces from LG.

2.2 MATERIALS

A. Solid polymer components

1. Cast, nonporous, filled polymer, not coated, laminated or of composite construction with through body colors meeting ANSI Z124.3 or ANSI Z124.6, having minimum physical and performance properties specified.
2. Superficial damage to a depth of 0.010 inch (.25 mm) shall be repairable by sanding and/or polishing.

B. Thickness:

1. Thickness shall be provided as recommended by manufacturer for each installation but no less than as indicated on drawings.

C. Edge treatment:

1. Edge treatment shall be as indicated on drawings.

G. Backsplash:

1. Applied.

H. Sidesplash:

1. Applied.

I. Performance characteristics:

Property	Typical Result	Test
Tensile Strength	6,000 psi	ASTM D 638
Tensile Modulus	1.5×10^{-6} psi	ASTM D 638
Tensile Elongation	0.4% min.	ASTM D 638
Flexural Strength	10,000 psi	ASTM D 790
Flexural Modulus	1.2×10^{-6} psi	ASTM D 790
Hardness	>85	Rockwell "M" Scale
	56	ASTM D 785 Barcol Impressor ASTM D 2583

Thermal Expansion	3.02 x 10 ⁻⁵ in./in./°C (1.80 x 10 ⁻⁵ in./in./°F)	ASTM D 696
Gloss (60° Gardner)	5–75 (matte—highly polished)	ANSI Z124
Light Resistance	(Xenon Arc) No effect NEMA LD 3-2000	
Wear and Cleanability	Passes	Method 3.3 ANSI Z124.3 & Z124.6
Stain Resistance: Sheets	Passes	ANSI Z124.3 & Z124.6
Fungus and Bacteria Resistance	Does not support microbial growth	ASTMG21&G22
Boiling Water Resistance	No visible change	NEMA LD 3-2000 Method 3.5
High Temperature Resistance	No change	NEMA LD 3-2000 Method 3.6
Izod Impact (Notched Specimen)	0.28 ft.-lbs./in. of notch	ASTM D 256 (Method A)
Ball Impact	No fracture—1/2 lb. ball:	NEMA LD 3-2000
Resistance: Sheets	1/4" slab—36" drop 1/2" slab—144" drop	Method 3.8
Weatherability	ΔE* ₉₄ <5 in 1,000 hrs.	ASTM G 155
Specific Gravity †	1.7	
Water Absorption	Long-term 0.4% (3/4") 0.6% (1/2") 0.8% (1/4")	ASTM D 570
Toxicity	99 (solid colors) 66 (patterned colors)	Pittsburgh Protocol Test ("LC50" Test)
Flammability	All colors (Class I and Class A)	ASTM E 84, NFPA 255 & UL 723
Flame Spread Index	<25	
Smoke Developed Index	<25	

† Approximate weight per square foot: 1/4" (6 mm) 2.2 lbs., 1/2" (12.3 mm) 4.4 lbs.
Shapes meet or exceed the ANSI Z124.3 and ANSI Z124.6 standards for plastic sinks and lavatories.

NEMA results based on the NEMA LD 3-2000

2.3 ACCESSORIES

A. Joint adhesive:

1. Manufacturer's standard one- or two-part adhesive kit to create inconspicuous, nonporous joints.

B. Sealant:

1. Manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone — any type), UL-listed silicone sealant in colors matching components.

C. Conductive tape:

1. Manufacturer's standard aluminum foil tape, with required thickness, for use with cutouts near heat sources.

D. Insulating felt tape:

1. Manufacturer's standard for use with conductive tape in insulating solid surface material from adjacent heat source.

2.4 FACTORY FABRICATION

A. Shop assembly

1. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.
2. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.
 - a. Reinforce with strip of solid polymer material, 2" wide.
3. Provide factory cutouts for plumbing fittings and bath accessories as indicated on the drawings.
4. Rout and finish component edges with clean, sharp returns.
 - a. Rout cutouts, radii and contours to template.
 - b. Smooth edges.
 - c. Repair or reject defective and inaccurate work.

2.5 FINISHES

A. Colors shall be selected by Architect from the manufacturer's full line of colors chart.

B. Finish:

1. Provide surfaces with a uniform finish.
 - a. Matte; gloss range of 5–20.

PART 3 — EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.
 - 1. Provide product in the largest pieces available.
 - 2. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work.
 - a. Exposed joints/seams shall not be allowed.
 - 3. Reinforce field joints with solid surface strips extending a minimum of 1 inch on either side of the seam with the strip being the same thickness as the top.
 - 4. Cut and finish component edges with clean, sharp returns.
 - 5. Rout radii and contours to template.
 - 6. Anchor securely to base cabinets or other supports.
 - 7. Align adjacent countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop.
 - 8. Carefully dress joints smooth, remove surface scratches and clean entire surface.
 - 9. Install countertops with no more than 1/8-inch (3 mm) sag, bow or other variation from a straight line.
- B. Applied sidesplashes:
 - 1. Install applied sidesplashes at all walls and adjacent millwork using manufacturer's standard color-matched silicone sealant.
 - 2. Adhere applied sidesplashes to countertops using manufacturer's standard color-matched silicone sealant.

3.3 REPAIR

- A. Repair or replace damaged work which cannot be repaired to architect's satisfaction.

3.4 CLEANING AND PROTECTION

- A. Keep components clean during installation.
- B. Remove adhesives, sealants and other stains.

END OF SECTION 12 36 00

SECTION 13 34 00---PRE-ENGINEERED METAL BUILDING SYSTEM:

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK:

- (A) This specification defines the design requirements and materials standards for the design, supply, fabrication, delivery and erection of building systems.
- (B) Acceptable manufacturers are
 - 1. Varco-Pruden
 - 2. Osteel
 - 3. Metallic
 - 4. Chief
 - 5. Kirby
 - 6. Butler Buildings
- (C) NOTE: The design live, dead and wind loads specified on Structural drawings supersede the specifications.

1.03 ABBREVIATIONS:

The abbreviations listed below shall mean:

AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BOCA	Building Officials & Code Administrators Int'l., Inc.
MBMA	Metal Building Manufacturers Association
SBCCI	Southern Building Code Congress Int'l., Inc.
UBC	Uniform Building Code

1.04 CODES AND STANDARDS:

The latest edition of the following codes and standards shall apply to the extent indicated herein:

AISC	Steel Construction Manual
AISI	Cold-Formed Steel Design Manual
AWS D1.1	Structural Welding Code
FS TT-P	Federal Specification for Primer Coating. 664C
BOCA	Building Officials & Code Administrators Int'l., Inc.
MBMA	Metal Building Systems Code of Standard Practice
SBCCI	Southern Building Code Congress Int'l., Inc.
UBC	Uniform Building Code

1.05 DESIGN REQUIREMENTS:

Building Structures:

(A) The design of the metal building structure and system shall be by a registered professional engineer currently registered to practice in the State of North Carolina.

(B) The building structure frame types shall be multi-span rigid frame, solid web, with straight or tapered sections designed in accordance with AISC type 1 construction. Interior column spacing shall be as indicated on the drawings. Column bases shall be designed as pin connected.

(C) Design of structural steel sections and welded plate members shall be based upon the applicable specifications of AISC Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings as determined by the manufacturer.

(D) Light-gage, cold-formed structural members and exterior coverings shall be designed based upon the applicable sections of AISI Specifications for the Design of Cold-formed Steel Structural members as determined by the manufacturer.

Steel bar joists shall be designed in accordance with Steel Joists Institute Standard.

(E) The design of primary and secondary structural framing as well as roof covering shall be per manufacturer's standard and shall be based upon the provisions of the specified code.

(F) The primary and secondary structural framing as well as roof covering shall be designed for all applicable loads and combinations of these loads as set forth in the latest Edition of the MBMA Recommended Design Practice Manual.

(G) Bracing in the plane of the roof shall be round rods or angle bracing as determined by the building

manufacturer. Bracing in the plane of the vertical wall bracing shall be portal frames as designed by the building manufacturer. Vertical wall bracing shall be located as per drawings. Bracing shall be located such that it does not interfere with window or door openings.

(H) Design Loads:

(a) Roof Live Load: 20 PSF without tributary area reduction.

(a) Roof Live Load: 20 PSF with tributary area reduction.

(b) Wind Load:

Basic wind Velocity -- 90 MPH
Design Wind Pressure - 28 PSF
Exposure Category: C

(c) Importance Factor:

Wind 1.15
Snow 1.20
Seismic 1.50

(c) Seismic Load:

Design Category C
Occupancy Category II
In accordance with latest edition of NC State Building Code

(d) Collateral Load: 5 PSF

Additional dead load above the dead weight of the steel structure.

(e) Mezzanine Loads: Not required for this project.

(f) Crane Loads: Not required for this project.

(I) Deflections:

(a) Live Load:

Roof Purlins Span/180
Roof Joists Span/240
Mezzanine Beams & Joists Span/360

(b) Wind Load:

Masonry Wind Girt Span/240

(c) Crane Load: Not required.

Cab Operated Drift H/240
Pendant Operated Drift H/100
Runway Beam Vertical Span/600

Runway Beam Horizontal Span/400

(J) Connections:

(a) Bolted moment connections shall be designed in accordance with accepted industry standards utilizing flush plate design methods or extended plate design methods as determined by the manufacturer.

(b) Field connections, made with high strength bolts, shall be made in accordance with the AISC Specification For Structural Joints Using ASTM A325 or A490 bolts. Recommended method of installation, "Turn-of-Nut" method.

(K) Foundations:

Foundation loads, anchor bolt diameters, and anchor bolt patterns shall be determined by the building manufacturer. Footing sizes, anchor bolt lengths, and method of transferring lateral and uplift forces from the anchor bolts to the concrete foundation shall be determined by the foundation engineers.

Metal Siding and Roofing:

(A) Metal siding and roofing shall be designed for loads in accordance with the specified code.

(B) All metal siding and roofing shall be designed, fabricated and erected to withstand the loading conditions without loss of weathertightness, without permanent distortion and without damage to any part of the installation.

(C) Submittals and Shop Drawings:

Shop drawings and submittals for the design, fabrication, and erection of the metal building system required for this project shall be sealed by a currently licensed professional engineer registered to practice in the State of North Carolina. Submit required documents in accordance with requirements of Section 01010 of this project specification.

PART 2 MATERIALS

2.01 STRUCTURAL

(A) Structural steel shall generally conform to ASTM A529, ASTM A572, and/or ASTM A36.

(B) Cold-formed structural steel shall generally conform to ASTM A570 or A607 and shall have a minimum yield strength of 50 KSI.

(C) Bolts: Bolts and nuts shall conform to ASTM A325 for high strength bolts, and ASTM A307 for common bolts.

(D) Anchor Bolts: Anchor bolts shall be designed using allowable loads for A36 threaded parts per AISC.

2.02 METAL ROOFING AND SIDING:

(A) Metal roof panels shall be minimum 24 gauge standing seam. Standing seam joints shall be sealed and mechanically seamed. Colors shall be selected from the manufacturers full color range.

(B) Exterior wall panels shall be furnished as manufacturer's standard profile sheet with recommended gauge thickness and size suitable to withstand all design forces applied to wall panels. Panel rib configuration shall be not less than 1-1/2 inch deep ribs spaced not more than 12 inches on center.

(C) Flashing and Trim: Exposed flashings and trim shall be minimum 26 gauge. and shall be of the same finish as the walls. Trim colors shall be as selected from the manufacturer's standard colors.

(D) Fasteners: Fasteners shall be self-drilling structural fasteners for panel to secondary connections. Panel to panel connections shall be self-tapping screws. Wall fasteners shall have colored heads to match the colors of the material fastened.

(E) Sealants, Mastics and Closures:

(1) Tube sealant shall be a synthetic elastomer based material which becomes tack-free in less than 2 hours at 75 degree F, but remains flexible. Service range shall be -30 deg. F to 160 degree F.

(2) Tape mastic shall be performed butyl rubber based compound. Service range shall be -30 degree F to 160 degree F.

(3) Panel closures shall be Ethylene-Propylene-Diene-Monomer or equivalent closed cell strips formed to match panel configuration.

Sealants, mastics and closures shall be applied in strict accordance with manufacturer's drawings.

(F) Liner Panels: Panels shall be 26 gauge. Panel rib configuration with not less than 1-1/4 inch deep ribs spaced not more than 12 inches on center. Panels shall be furnished to minimize end laps up to 40 feet in length. Material shall be 50 KSI minimum yield steel. Panels shall be finished smooth.

2.03 FINISHES:

(A) Roof Panels: Roof panels shall be standing seam Galvalume[®] sheet steel, approximately 50% aluminum and 50% zinc by weight.

Finish shall be warranted for minimum 20 years against rupture, structural failure, or perforation due to normal atmospheric corrosion.

(B) Exterior Wall Panels: Wall panels shall be galvanized per ASTM A525, Class G90.

(C) Panel Finish: Panel color shall be selected from manufacturer's standard colors and finish shall meet

the following minimum standards:

- (1) Panels shall have a high performance oven baked acrylic primer on both surfaces.
- (2) Exposed panel surface shall have a 50% minimum KYNAR[®] fluorocarbon resin oven baked over the primer for a total dry film thickness of not less than 1 mil.
- (3) Panels shall also have an oven baked silicon polyester backer coating for a total dry film thickness of not less than 0.5 mil. Color shall be White-Gray.
- (4) Finish shall be warranted for minimum 20 years against chalking, fading blistering, or cracking, when exposed to normal atmospheric conditions.

(D) Interior Liner Panels: Liner Panels are required within spaces indicated on the Room Finish Schedule. Panels shall extend from top of wall or finish floor up to bottom of purlin framing. Panel color shall be selected from manufacturer's standard color and finish shall meet the following minimum standards.

- (1) Panels shall have a high performance oven baked epoxy primer on both sides.
- (2) Exposed panel surface shall have a silicone polyester coating oven baked over the primer for a total dry film thickness of not less than 1 mil.
- (3) Panels shall also have an oven baked silicone polyester backer coating for a total dry film thickness of not less than 0.5 mil. Color shall be off white.
- (4) Finish shall be warranted for 5 years against chalking, fading, blistering, peeling or cracking when exposed to normal atmospheric conditions

2.04 INSULATION:

(A) Roof Insulation: Roof insulation must provide a thermal value of R = 19.0 installed over purlins and thermal blocks. R11.0 unfaced fiberglass to be installed between purlins and held in place by continuous vinyl vapor barrier installed along bottom side of purlins.

- (1) Insulation shall consist of 0.6 pcf density fiberglass blanket installed over purlins/joists. Blanket tabs shall be attached to each other by pull through and staple methods.
- (2) Thermal Blocks: Thermal blocks shall be installed over roof purlins to provide a minimum R value of R = 5.0.

Flame spread must be 25 or less with smoke developed 50 or less per UL 723 and ASTM E-84.

(B) Wall Insulation: Exterior wall insulation shall be minimum R-19.0 fiberglass batt insulation with vinyl faced vapor barrier.

Flame spread must be 25 or less with smoke developed 50 or less per UL 723 and ASTM E-84.

2.05 ROOF VENTS: Not required.

2.06 DOORS: Furnished under Section 08100. Not required by metal building fabricator.

2.07 LOUVERS: Not applicable.

2.08 GUTTERS AND DOWNSPOUTS: All Pre-Engineered Metal building trim, gutters and downspouts shall be 26 gauge prefinished painted galvalume.

PART 3 EXECUTION

3.01 FABRICATION:

Steel fabricators shall have been engaged in steel fabrication for the past 10 years, and shall have ICBO approval as a steel fabricator and must be a member of the Metal Building Manufacturers Association. Fabricators shall also have on staff a qualified Professional Engineer registered in the State of North Carolina in charge of engineering.

Fabricator shall be based on approved drawings in accordance with AISC Code of Standard Practice.

All steel members shall be prefabricated into subassemblies of the largest practical size suitable for transportation, handling and field erection. Field cutting, welding and drilling shall be kept to the minimum.

Light gage cold formed sections shall be manufactured by precision roll or brake forming.

Structural steel shall be detailed and fabricated in accordance with the MBMA Code of Standard Practice.

The detailing and fabrication of anchor bolt assemblies shall be in accordance with AISC.

All welders shall be AWS Certified in the positions and type of welding they will be performing during fabrication.

3.02 SHOP PAINTING:

Shop primer shall be a nominal 1 mil. thick and conform to Federal Specifications TT-P-664c and TT-P-636c.

3.03 ASSEMBLY:

Erection shall be done by a contractor who has a minimum of 5 years experience in the erection of pre-engineering buildings. The building shall be erected in accordance with the MBMA Code of Standard Practice.

Side laps for roofing shall be one full corrugation.

End laps shall be installed in a down hill lapping manner and properly sealed.

Accessories for roofing, necessary for a complete installation, and as shown, shall be furnished and installed with the roofing. Cutouts and flashing shall be provided for vents, ventilator ducts, roof hatches and all other penetrations as shown and required. Joints shall be caulked as shown and required for a weathertight installation. Field-cut edges of roofing and siding, including penetrations, shall be touched up with manufacturer's coating compatible with sheet finish.

Mechanisms shall be fully lubricated after installation and the assembly tested and adjusted to demonstrate smooth operations to the Project Manager.

3.04 TOUCH UP PAINTING:

Structural steel connections and all areas damaged subsequent to shop painting shall be repaired, cleaned, and touch up painted, prior to roofing/siding installation.

Damaged or stained areas of roofing and accessories shall be touched up with the manufacturer's coating in accordance with manufacturer's current published instructions.

END OF SECTION 133400

SECTION 31 31 16 – TERMITE CONTROL

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

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

1.02 SUBMITTALS:

Product Data: Submit Manufacturer's technical data and application instructions.

1.03 QUALITY ASSURANCE:

In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work, including preparation of substrate and application.

Engage a professional pest control operator, licensed in accordance with regulations of governing authorities for application of soil treatment solution.

Use only termiticides which bear a Federal registration number of the U.S. Environmental Protection Agency. Comply with requirements of the "North Carolina Department of Agriculture and Consumer Services, Structural Pest Control Division."

1.04 JOB CONDITIONS:

Restrictions: Do not apply soil treatment solution until excavating, filling and grading operations are completed, except as otherwise required in construction operations.

To insure penetration, do not apply soil treatment to frozen or excessively wet soils or during inclement weather. Comply with handling and application instruction operations.

To insure penetration, do not apply soil treatment to frozen or excessively wet soils or during inclement weather.

Comply with handling and application instructions of the soil toxicant manufacturer.

1.05 SPECIFIC PRODUCT WARRANTY:

Furnish written warranty certifying that applied soil termiticide treatment will prevent infestation of subterranean termites and, that if subterranean termite activity is discovered during warranty period, Contractor will retreat soil and repair or replace damage caused by termite infestation. Provide warranty for a period of 1 year from date of treatment, signed by Applicator and Contractor.

PART 2 PRODUCTS

2.01 SOIL TREATMENT SOLUTION:

Termiticide: Provide an EPA- registered termiticide complying with requirements of authorities having jurisdiction, in a soluble or emulsible, concentrated formulation that dilutes with water or foaming agent, and formulated to prevent termite infestation. Use only soil treatment solutions that are not harmful to plants. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use according to the products EPA-Registered Label.

Available Manufactures: Subject to compliance with requirements, manufactures offering products that may be

Incorporated into the Work includes, but are not limited to, the following:

AgroEvo Environmental Health, Inc.; a company of Hoechst and Schreing, Berlin.
America Cyanamid Co.; Agricultural Products Group ' Specialty Products Dept.
Bayer Corp.' Garden and Professional Care.
DowElanco.
FMC Corp,; Pest Control Specialties.
Zenaca Professional Products.

Use only soil treatment solutions which are not injurious to planting.

PART 3 EXECUTION

3.01 APPLICATION:

Surface Preparation: Remove foreign matter which could decrease effectiveness of treatment on areas to be treated. Loosen, rake and level soil to be treated, except previously compacted areas under slabs, foundations and footings.

Application Rates: Apply soil treatment solution as follows:

Under slab-on-grade structures, treat soil before concrete slabs are placed, using the following rates of application:

Apply 4 gallons of chemical solution per 10 lin. Ft. to soil in critical areas under slab, including entire inside perimeter inside of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating slab, and around interior column footers.

Apply one gallon of chemical solution per 10 sq. ft. as an overall treatment under slab and attached slab areas where fill is soil or unwashed gravel. Apply 1 ½ gallons of chemical solution to areas where fill is washed gravel or other coarse absorbent material.

Apply 4 gallons of chemical solution per 10 lin. ft. of trench, for each foot of depth from grade to footing, along outside edge of building. Dig a trench 6" to 8" wide along outside of foundation to a depth of not less than 12".

Punch holes to top of footing at not more than 12" OC. And Apply Chemical Solution. Mix chemical solution With the soil as it is being replaced in trench.

At hollow masonry foundation or grades beams, treat voids at rate of 2 gal. Per 10 lin. ft. poured directly into the hollow spaces.

At expansion joints, control joints, and areas where slabs will be penetrated, apply at rate of 4 gals. per 10 lin. ft. of penetration.

Post signs in areas of application to warn workers that soil termiticide treatment has been applied. Remove signs when areas are covered by other construction.

Reapply soil treatment solution to areas disturbed by subsequent excavation, landscape grading, or other construction activities following application.

END OF SECTION 31 31 16

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