NOTICE TO BIDDERS

Single Prime sealed proposals will be received by **Asheville City Schools** ("Owner) at the Asheville City Schools **Board Room, located** at **85 Mountain Street, Asheville, NC 28801** on **June 15, 2023,** no later than **3:00 PM local time**, for the ***Asheville High School, Media Center Renovations,*** at 419 McDowell Street, Asheville, NC 28803.

The Base Bid project consists of interior finish demolition, construction of interior partitions, new finish and modifications to the mechanical and electrical systems.

A pre-bid conference is scheduled for **June 9, 2023**, at **2:00 PM local time**, on site at Asheville High School. Meet outside at the front of the school, Main Building entrance.

It is anticipated that the Contractor will be instructed to commence work approximately **July 10, 2023**, Work will need to be Substantially Complete within 90 calendar days with Final Completion not later than 30 calendar days after Substantial Completion. The Contractor will be required to work with Asheville City Schools to finalize the construction schedule based on the campus calendar dates and limited work hours.

All work is in the Contract for General Construction. All proposals shall be lump sum per the bid form. Single Prime Contract Bids (to include General Contract, Mechanical, Plumbing, and Electrical).

The Owner reserves the right to award additional prime contracts which may be performed concurrently with the construction.

The selected Contractor for this project shall submit to the Architect a schedule of estimated values of all material, equipment, and labor included in the main divisions of this contract, totaling the amount of the contract price.

Complete plans and specifications for this project can be examined at the following locations beginning **May 25, 2023**.

Henco Reprographics
54 Broadway
Asheville, NC 28801

Copies of the Contract Documents may be purchased, for a purchase price of $ 65.30, beginning **May 25, 2023**, from:

Henco Reprographics
54 Broadway
Asheville, NC 28801
Phone: 828-253-0449
Hours of Business: M-F 8am- 5:30pm

NOTE: In an effort to save on printing cost and encouraging paperless projects, drawings and specifications in PDF format are available for a purchase price of $25.00, which can also be purchased/obtained from Henco Reprographics' FTP website (www.hencoplanroom.com). Registration ***and*** payment are required ***before*** release of PDF documents. If you need further clarification, please contact Greg Underhill at Henco Reprographics.

All Addenda shall be posted through Henco Reprographics Plan Room. All questions for Bidding shall be directed to:
Native Forms Architecture, PLLC
Attention: Chip Howell
nativeformsarch@gmail.com
(828)777-8984

NOTICE TO BIDDERS

Contractors are reminded that the Bid Documents are copyrighted material and shall not be copied by any party other than Native Forms Architecture, PLLC. Contractors shall not place the documents on file at reprographic shops or on display at Construction Trade Associations.

The selected Contractor for this project shall submit to the Architect a schedule of estimated values of all material, equipment, and labor included in the main divisions of this contract, totaling the amount of the contract price.

All Bidders are notified that they must have proper General Contractor **Unlimited** licensure (**Classification for Building**) under the laws of the State of North Carolina to perform not only General Contract work, but also Electrical, Mechanical, Plumbing, Fire Protection, etc. (as noted in the requirements for Scope of Work specified on this project).

All BIDS must be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, ant the BID form must be fully completed and executed when submitted. Only one copy of the BID form is required.

Each proposal shall be accompanied by a cash deposit, a cashier's check or a certified check drawn on some bank or trust company insured by the Federal Deposit Insurance Corporation of an amount equal to not less than five percent (5%) of the proposal or in lieu thereof, a bidder may offer a bid bond of five percent (5%) of the maximum amount 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 obliges upon said bond if the bidder fails to execute the contract in accordance with the bid bond. 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 (10) days after the award or to give satisfactory surety as required by law.

A Performance Bond and a Payment Bond will be required for one hundred percent (100%) of the contract price, with a Corporate Surety approved by the Owner, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign Bid Bonds or payment bond and performance bonds must file with each bond a certified and effective dated copy of their Power of Attorney.

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

BIDDER further agrees to pay as liquidated damages, the sum of $ 500.00 for each consecutive calendar day thereafter as provided in Article 23 of the General Conditions, as modified in the 00 7300 – Supplementary Conditions.

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of Sixty (60) days without the consent of the Owner.

The Owner reserves the right to reject any or all bids and to waive informalities.

Signed:

Project Manual for:

AHS MEDIA CENTER RENOVATIONS
for
Asheville City Schools

Asheville, North Carolina

Construction Documents

May 18, 2023

native forms architecture PLLC
PO Box 8211
Asheville, NC 28814
t. 828.777.8984
e. nativeformsarch@gmail.com

NOTICE TO BIDDERS

Single Prime sealed proposals will be received by **Asheville County Schools** ("Owner) at the Buncombe County Permit & Inspections **Board Room, located** at **30 Valley Street, Asheville, NC 28801** on **DAY MONTH YEAR,** no later than **X:00 AM/PM local time**, for the Asheville High School, Media Center Renovations, at 419 McDowell Street, Asheville, NC 28803.

The Base Bid project consists of interior finish demolition, construction of interior partitions, new finish and modifications to the mechanical and electrical systems.

A pre-bid conference is scheduled for **DAY MONTH YEAR**, at **X:00 AM/PM local time**, on site at Asheville High School. Meet outside at the front of the school.

It is anticipated that the Contractor will be instructed to commence work approximately **DAY MONTH YEAR**, Work will need to be Substantially Complete within 120 calendar days with Final Completion not later than 30 calendar days after Substantial Completion. The Contractor will be required to work with Buncombe County/Asheville City Schools to finalize the construction schedule based on the campus calendar dates and limited work hours.

All work is in the Contract for General Construction. All proposals shall be lump sum per the bid form. Single Prime Contract Bids (to include General Contract, Mechanical, Plumbing, and Electrical).

The Owner reserves the right to award additional prime contracts which may be performed concurrently with the construction.

The selected Contractor for this project shall submit to the Architect a schedule of estimated values of all material, equipment, and labor included in the main divisions of this contract, totaling the amount of the contract price.

Complete plans and specifications for this project can be examined at the following locations beginning **DAY MONTH YEAR**.

Henco Reprographics
54 Broadway
Asheville, NC 28801

Copies of the Contract Documents may be purchased, for a purchase price of $ XXX, beginning **DAY MONTH YEAR**, from:

Henco Reprographics
54 Broadway
Asheville, NC 28801
Phone: 828-253-0449
Hours of Business: M-F 8am- 5:30pm

NOTE: In an effort to save on printing cost and encouraging paperless projects, drawings and specifications in PDF format are available for a purchase prices of $XXX.00, which can also be purchased/obtained from Henco Reprographics' FTP website (www.hencoplanroom.com). Registration ***and*** payment are required ***before*** release of PDF documents. If you need further clarification, please contact Greg Underhill at Henco Reprographics.

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Each proposal shall be accompanied by a cash deposit, a cashier's check or a certified check drawn on some bank or trust company insured by the Federal Deposit Insurance Corporation of an amount equal to not less than five percent (5%) of the proposal or in lieu thereof, a bidder may offer a bid bond of five percent (5%) of the maximum amount 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 obliges upon said bond if the bidder fails to execute the contract in accordance with the bid bond. 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 (10) days after the award or to give satisfactory surety as required by law.

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BIDDER further agrees to pay as liquidated damages, the sum of $ 500.00 for each consecutive calendar day thereafter as provided in Article 23 of the General Conditions, as modified in the 00 7300 – Supplementary Conditions.

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of Sixty (60) days without the consent of the Owner.

The Owner reserves the right to reject any or all bids and to waive informalities.

Signed:

SECTION 00 0110

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END OF TABLE OF CONTENTS

AIA® Document A201® – 2017

General Conditions of the Contract for Construction

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

THE OWNER:
(Name, legal status and address)

THE ARCHITECT:
(Name, legal status and address)

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

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

TABLE OF ARTICLES

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(Topics and numbers in bold are Section headings.)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both 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 Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The 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.

§ 1.1.4 The 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 and by Separate Contractors.

§ 1.1.5 The Drawings

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

§ 1.1.6 The Specifications

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

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 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; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining

provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 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 trade.

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

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 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.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building

information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, 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.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the

site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 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 ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

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

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's

capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 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. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 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 or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 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.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes

remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

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

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that 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, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that 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 that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect 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 Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 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 to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 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 but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 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.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 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.

§ 3.12.2 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.

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

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, 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.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 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 Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the

time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 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 construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

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

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that 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), but only to the extent caused by the 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, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 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 Section 3.18.1 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.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect 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 any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect 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 Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect 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 Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect'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 Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under

Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; 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 pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect 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 Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

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

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

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 the 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, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the

Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, 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 of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect 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 that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

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 term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 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 Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate

Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its 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, Separate Contractors, and the Owner 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 or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 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 notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 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, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 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 Architect. A Construction Change Directive requires agreement by the Owner and Architect 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 Architect alone.

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

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, 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 Contract Time 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 Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment 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, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
.5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect 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 Contract Time.

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

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. 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.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The

Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time 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.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 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 Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

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

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 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.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 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 the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 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, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. 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 correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

.1 defective Work not remedied;
.2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
.3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
.5 damage to the Owner or a Separate Contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

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

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect 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 Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

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

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers

to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 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.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

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

§ 9.8.2 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 Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and 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.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 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 consented to by the insurer and authorized by public authorities having jurisdiction over the Project. 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 Architect as provided under Section 9.8.2. 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 Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect 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.

§ 9.9.3 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.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (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 Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no 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, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising 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, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance 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 the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 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 Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the 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 Architect 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.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

.1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
.2 failure of the Work to comply with the requirements of the Contract Documents;
.3 terms of special warranties required by the Contract Documents; or
.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a 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

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

§ 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

.1 employees on the Work and other persons who may be affected thereby;
.2 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, a Subcontractor, or a Sub-subcontractor; and
.3 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 comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and 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 implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the 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 (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a 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 Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, 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 Section 3.18.

§ 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 unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that 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), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting 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 Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the

endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The

Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the

Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, 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 Section 9.9.1, or by terms of any 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 notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work 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 completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

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

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 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.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that 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 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 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.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right 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 upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. 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 shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect 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 Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 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 Architect.

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

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

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner 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 days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 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.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of 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.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract 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 Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section

15.1.3 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.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly

consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

SUPPLEMENTARY GENERAL CONDITIONS - 2019

AMENDMENT (MODIFICATIONS) TO GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION AIA DOCUMENT A201-2017

NOTE: All references to "Article", "§", and "Section" refer to the matching Article number and Section number in AIA Document A201-2017 General Conditions of the Contract for Construction

1. The General Conditions of the Contract for Construction, AIA Document A201-2017, are altered by the modifications, deletions, additions, and substitutions contained in these Supplementary General Conditions.

2. § 1.1.1 is amended by deleting the words "Agreement between the Owner and Contractor" in the first line of the first sentence and adding "AIA Document A101-2017 Standard Form of Agreement Between Owner and Contractor" in their place.

3. § 1.1.2 is amended by adding "(the Contract)" after the last word of the first sentence.

   Delete the fourth sentence of the paragraph.

   Delete ", however," from the fifth sentence of the paragraph.

4. § 1.1.5 is deleted and replaced with the following:

   § 1.1.5 The Drawings
   The Drawings are the technical, graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, including, but not limited to, plans, elevations, sections, details, schedules, diagrams, and other information which defines the requirements for the Work.

5. § 1.1.6 is deleted and replaced with the following:

   § 1.1.6 The Specifications
   The Specifications are that portion of the Contract Documents consisting of explicit and detailed written requirements for materials, equipment, systems, standards, and workmanship requirements for the Work, performance standards, specific warranties, and performance of related services.

6. § 1.1.8 is amended by adding the words "and certify termination of the Contract under Section 14.2.2" before the period in the first sentence of the paragraph.

7. A new § 1.1.9 is added as follows:

§ 1.1.9 Project Manual

The Project Manual is a printed volume or volumes assembled for the Work of the Project which includes the bidding or proposal requirements, sample forms, Conditions of the Contract, Specifications and other Contract Documents. The Project Manual is part of the Contract Documents.

8. A new § 1.1.10 is added as follows:

§ 1.1.10 Project Manual Addenda

Project Manual Addenda are written or graphic instruments issued prior to the execution of the Contract, which modify or interpret the bidding or proposal documents, including Drawings and Specifications, by additions, deletions, clarifications, or corrections. Addenda are part of the Contract Documents.

9. A new § 1.1.11 is added as follows:

§ 1.1.11 Abbreviations

The following abbreviations and their meanings are:

AIA:	American Institute of Architects
ACI:	American Concrete Institute
AHERA:	Asbestos Hazardous Emergency Response Act
AISI:	American Iron and Steel Institute
AISC:	American Institute of Steel Construction
ASA:	American Standards Association
ASTM:	American Society of Testing Materials
AWSC:	American Welding Society Code
CERCLA:	Comprehensive Environmental Response, Compensation, and Liability Act
EPA:	Environmental Protection Agency
NC DEQ	North Carolina Department of Environmental Quality
NC DOI	North Carolina Department of Insurance
FS:	Federal Specification
NEC:	National Electrical Code
NIC:	Not in Contract. Indicates work not to be done by this Contractor under this contract.
OSHA:	Occupational Safety and Health Administration
SPR:	Simplified Practice Recommendation
UL:	Underwriters Laboratories, Inc.

10. A new § 1.2.4 is added as follows:

§ 1.2.4 Current Editions

When the Contract Documents refer to standards, building codes, manufacturers' instructions, or other documents, unless otherwise specified, then the current edition as of the date of execution

of the Agreement by the last party to execute said Agreement shall apply. It shall be the responsibility of the Architect to address revisions or amendments to applicable codes or standards which arise after the date of execution of the Agreement and until Final Completion, pursuant to the terms of the Agreement between Owner and Architect. Requirements of public authorities apply as minimum requirements only and do not supersede more stringent specified requirements.

11. § 1.3 is amended by capitalizing the letter "A" in the word "Articles" and by adding the words "and Sections" after the word "Articles".

12. § 1.5, § 1.5.1, and § 1.5.2 are deleted and replaced with the following § 1.5:

§ 1.5 Ownership and Use of the Contract Documents
The Contract Documents are the property of the Owner which may be used by the Contractor, Subcontractors, materials and equipment suppliers, and service providers for the Project only, and not for other projects or work.

13. § 2.1.1 is deleted and replaced with the following:

§ 2.1.1 The Owner is the body corporate board of education described in the Agreement. The Owner acts through vote of a majority of its board members (hereinafter "the Board") at official meetings of the Board. The Board, by majority vote, is the only representative of the Owner having the power to enter into or amend the Contract, to approve changes in the scope of the Work, to approve and execute a Change Order or Construction Change Directive modifying the Contract Sum or Guaranteed Maximum Price, or to agree to an extension to the dates of Substantial or Final Completion. The Board will act when requested in writing to do so as soon as reasonably possible to avoid undue delays. The Board will designate an authorized representative to act on its behalf for day-to-day operations under the Contract. Unless otherwise designated in the Contract Documents, the Owner's authorized representative shall be the Superintendent of Schools. The Owner's authorized representative, or their delegate, has the authority to approve changes to the Work in accordance with Board Policy 9030. Any such change shall be confirmed in writing between the Contractor and the Owner's Superintendent or designee and notice of such approved changes shall be given to the Board at its next regular meeting. The Architect does not have such authority except as otherwise provided in the Contract Documents. Neither the Architect nor the Contract Documents may rely upon direction of any employee of the Owner who has not been designated in writing by the Superintendent or the Board; the Owner shall not be financially responsible for actions taken by the Architect or the Contractor in reliance upon direction from unauthorized persons.

14. § 2.1.2 is deleted and replaced with the following:

§ 2.1.2 It shall be distinctly understood that no mechanic, Contractor, Subcontractor, material or equipment supplier, supplier of labor services, and suppliers of surveying, engineering, and other professional services shall ever in any manner have, claim, or acquire any lien upon the buildings, equipment, or furnishings or any of the improvements of whatsoever nature or kind so erected or to be erected by virtue of this Contract or upon any of the land on which said buildings or any of

its improvements are to be erected, built or situated, such property belonging to a political subdivision of the State of North Carolina.

15. A new § 2.1.3 is added as follows:

§ 2.1.3 The Owner shall require the Contractor, the Subcontractors, the Architect and the Architect's consultants to meet periodically at mutually-agreed-upon intervals, for the purpose of establishing procedures to facilitate cooperation, communication, and timely responses among the participants in the performance of the Work.

16. A new § 2.1.4 is added as follows:

§ 2.1.4 The Owner may require that the Contractor use and/or respond to certain Owner furnished forms or inquiries regarding the status of the Work during the course of the Project. From time to time, there may be future revisions, changes, additions, or deletions to these forms. The fact that the Owner modifies and increases reasonable reporting requirements shall not serve as the basis for a claim for additional time or compensation by the Contractor.

17. A new § 2.1.5 is added as follows:

§ 2.1.5 The Contractor stipulates and agrees that the Owner has no duty to discover any design defects, errors, or omissions whether in the Drawings, Plans, Specifications and other Construction Documents. The Owner will, however, notify the Contractor and the Architect of design defects, errors or omissions of which the Superintendent of the Board or the Board have actual knowledge. By entering into the Contract Documents or any Agreement with any Architect, the Owner does not warrant the adequacy and accuracy of any Drawings, Plans, Specifications or other Construction Documents.

18. §§ 2.2, 2.2.1, 2.2.2, 2.2.3, and 2.2.4 are deleted in their entirety.

19. § 2.3.6 is amended by deleting the words "pursuant to Section 1.5.2" from the sentence.

20. §§ 3.1.1, 3.1.2, and 3.1.3 are amended by deleting the word "Documents" in all three sections.

21. A new § 3.1.4 is added as follows:

§ 3.1.4 The Contractor represents and warrants the following to the Owner (in addition to the other representations and warranties contained in the Contract Documents), as an inducement to the Owner to execute this Contract, which representations and warranties shall survive the execution and delivery of the Contract and the Final Completion of the Work:

.1 that it is financially solvent, able to pay its debts as they mature, and possessed of sufficient working capital to complete the Work and perform its obligations under the Contract;

.2 that it is able to furnish the tools, materials, supplies, machinery, equipment and labor required to timely complete the Work and perform its obligations hereunder and has sufficient experience and competence to do so;

.3 that it is authorized to do business in the State where the Project is located and properly licensed by all necessary governmental, public, and quasi-public authorities having jurisdiction over it, the Work, or the site of the Project; and

.4 that the execution of the Contract and its performance thereof are within its duly authorized powers.

22. § 3.2.1 shall be amended by adding the following at the end of the existing paragraph:

The Contractor represents and warrants by submission of a Proposal that he has performed due diligence by carefully examining the Project Manual and Addenda, the Contract Documents, any soil test reports, drainage studies, geotechnical or other reports, the site of the Work, to become familiar with the nature and location of the Work, the condition of the site, the scope of the Work, weather conditions at the site of the Work, the character, quality and quantity of surface and subsurface materials likely to be encountered, the character of machinery and equipment and other facilities needed for the performance of the Work, the character, quality, quantity, and availability of labor and Subcontractors required for the Work, the character, quality and quantity of labor required for the Work, the character, quality and quantity of professional services required for the Work, and the character, quality, quantity and availability of materials, machinery, equipment and furnishings required for the Work. Should the Contractor find discrepancies, omissions or conflicts within the Contract Documents, or be in doubt as to their meaning, the Contractor shall at once notify in writing the Architect and the Owner, and the Architect will issue a written addendum to all parties that is consistent with the Owner's Scope of the Work. The Contractor shall not be entitled to any additional time or compensation for the Contractor's failure to visit the site, or any additional Work caused by the Contractor's fault, by improper construction, or by the Contractor's failure to visit the site or to carefully study and compare Contract Documents prior to execution of the Work.

23. § 3.2.2 is amended by deleting "not" and deleting "; however," in the second sentence of the paragraph; adding a period after the word "Documents"; capitalizing the letter "t" in the second sentence following the deleted word "however"; and adding the words "and Owner" after the word "Architect" in the second sentence.

Sec. 3.2.2 is further amended by adding the following at the end of the existing paragraph:
"The Contractor shall not perform any work involving an error, inconsistency, or omission without further instructions from the Architect or revised Contract Documents from the Architect."

24. § 3.2.3 is amended by inserting "Neither the Owner nor" at the beginning of the paragraph; changing the upper case "T" to a lower case "t" for the word "The"; and add "and Owner" following the words "report to the Architect".

25. § 3.2.4 is amended by adding the following at the beginning of the existing paragraph:

If the Contractor has knowledge that any of the products or systems specified will perform in a manner that will limit the Contractor's ability to satisfactorily perform the Work or to honor its warranties, or will result in a limitation of or interference with the Owner's intended use, then the Contractor shall promptly notify the Architect and the Owner in writing, providing substantiation for its position. Any necessary changes in the Work, including substitutions, shall be accomplished by appropriate Modification.

Add the words "changes in the Work," after the words "because of" and a comma after the word "clarifications" in the original first sentence;

Add the words "or this section" after the number 3.2.3 in both the original first sentence and the original second sentence;

Add the words "and the Contractor shall not be entitled to additional compensation or time for performance of the Work." at the end of the original second sentence.

26. Add a new § 3.2.5 as follows:

§ 3.2.5 Prior to performing any Work, the Contractor shall locate all utility lines as shown and located on the plans and specifications, including telephone company lines and cables, sewer lines, water pipes, gas lines, electrical lines, including, but not limited to, all buried pipelines and buried telephone cables, and shall perform any Work in such a manner so as to avoid damaging any such lines, cables, pipes and pipelines during its Work, and shall be responsible for any loss, damage or extra expense resulting from such damage. Repairs shall be made immediately to restore all service. Any delay for such break shall be attributable to the Contractor. In addition, the Contractor shall review appropriate AHERA and hazardous material surveys for the Project, and shall notify all Subcontractors and Sub-Subcontractors of the necessity to review said surveys. The Contractor shall perform any Work in such a manner as to avoid damaging, exposing, or dislodging any asbestos-containing materials or other hazardous materials that are clearly identified and located in AHERA and other hazardous material surveys. Before performing any portion of the Work, based on available information and physical observation, the Contractor shall fully investigate all physical aspects of the Project Site and verify all dimensions, measurements, property lines, grades, and elevations, existing improvements, and general suitability of existing conditions at the Project site.

27. Add a new § 3.2.6 as follows:

§ 3.2.6 The Contractor shall arrange meetings prior to commencement of the Work of all major Subcontractors to allow the Subcontractors to demonstrate an understanding of the Work and Contract Documents to the Architect and to allow the Subcontractors to ask for interpretations, when necessary. Each major Subcontractor shall review the Project Manual and the Construction Documents and shall evaluate and satisfy themselves as to the conditions and limitations under which the Work is to be performed.

28. Add a new § 3.3.4 as follows:

§ 3.3.4 The Contractor shall properly and efficiently coordinate the timing, scheduling and routing of all Work performed by all trades and Subcontractors. The Contractor shall develop and maintain a schedule of critical path construction activities for the Work. This critical path schedule shall be updated at least bi-monthly and presented to the Architect upon request.

29. Add a new § 3.3.5 as follows:

§ 3.3.5 The Contractor shall review Subcontractor safety programs, procedures, and precautions in connection with performance of the Work. However, the Contractor's duties shall not relieve any Subcontractor(s) or any other person or entity, including any person or entity with whom the Contractor does not have a contractual relationship, of their responsibility or liability relative to compliance with all applicable federal, state, and local laws, rules, regulations, and ordinances and manufacturers' instructions which shall include the obligation to provide for the safety of their employees, other persons, and property and the requirements to maintain a work environment free of recognized hazards.

30. Add a new § 3.3.6 as follows:

§ 3.3.6 It is understood and agreed that the relationship of the Contractor to the Owner shall be that of an independent Contractor. Nothing contained in this Agreement or inferable from this Agreement shall be deemed or construed to: 1) make the Contractor the agent, servant or employee of the Owner; or 2) create any partnership, joint venture, or other association between the Owner and the Contractor. Any direction or instruction by the Owner or any of its authorized representatives in respect of the Work shall relate to the results the Owner desires to obtain from the Work, and shall in no way affect the Contractor's independent Contractor status.

31. **§ 3.4.1** is amended by adding "qualified, careful, and efficient workers and" in the first sentence before "labor", and after "labor" add "eligible to work in accordance with state and federal law".

At the end of the original paragraph of § 3.4.1 add the following:

Before ordering any material or doing any Work, the Contractor shall verify that all dimensions specified in the Drawings, Specifications and other Construction Documents are consistent with all actual dimensions in the field. Any inconsistency shall be brought to the attention of the Architect. In the event that discrepancies exist and the Architect was not notified beforehand, then costs to correct and/or replace ordered materials shall be borne by the Contractor. This subsection does not relieve the Architect of any contractual duties owed to the Owner.

32. § **3.4.2** is amended by adding "prior written" before "consent of the Owner".

33. A new § 3.4.4 is added as follows:

§ 3.4.4 Including, but not limited to, the specific requirements of § 3.3.5 and Article 10, the Contractor, its Subcontractors and vendors shall bear responsibility for compliance with all

federal, state and local laws, regulations, guidelines, and ordinances pertaining to safety of persons and property applicable to the Work. The Contractor further recognizes that the Owner and the Architect do not owe the Contractor any duty to supervise or direct its work so as to protect the Contractor from the consequences of its own conduct.

34. § 3.5 is amended as follows:

§ 3.5 shall be amended by changing the section title "WARRANTY" to "WARRANTIES AND GUARANTEES".

35. § 3.5.1 is amended by adding the following language after the original second sentence in subsection 3.5.1:

The Contractor further warrants and guarantees that Contractor shall perform the Work in a good and workmanlike manner, continuously and diligently in accordance with generally accepted standards of construction practice for construction projects similar to the Project, except to the extent the Contract Documents expressly specify a higher standard, in which case the standard shall be the higher standard. All material shall be installed in a true and straight alignment, level and plumb, patterns shall be uniform, and joining of materials shall be flush and level, unless otherwise directed in writing by the Architect.

Delete the words "or equipment" and replace with "systems, machinery, equipment or components" in the original third sentence of § 3.5.1.

Change the word "may" to "will" in the original third sentence of § 3.5.1.

36. § 3.5.2 is amended as follows:

Delete the words "in accordance with § 9.8.4" and substitute the words "on the date of Final Completion as provided in § 9.10, except where specifically modified by Architect and approved by the Owner pursuant to the Contract Documents".

Add the following paragraph following the first sentence of the section:

Except where specifically modified by Architect and approved by the Owner pursuant to the Contract Documents, all specified express warranties required by the Contract Documents on workmanship, equipment, machinery, materials, systems, or components shall be submitted in writing to the Architect for delivery to the Owner no later than the date of Final Completion. Unless specified otherwise pursuant to the Contract Documents, all warranties shall run from the date of Final Completion for a period of three (3) years. Warranties under Section 3.5.1 are not exclusive of any other warranties or guarantees set out in other places in the Contract Documents or expressed or implied under applicable law.

37. Add a new § 3.5.3 as follows:

§ 3.5.3 Upon written notice from the Owner or the Architect, the Contractor shall promptly remedy defects in the Work as covered by applicable warranties. If the Contractor does not respond to the written notice within ten (10) days of Contractor's receipt of a written notice, either by beginning corrective work or notifying the Owner in writing regarding when corrective work will begin, the Owner may take measures to correct the Work and the Contractor will be obligated to reimburse the Owner's costs including reasonable consultant, engineering and legal fees. The provisions of this subparagraph shall be in addition to, and not in lieu of, any other rights and remedies available to the Owner.

38. Add a new § 3.5.4 as follows:

§ 3.5.4 The Contractor agrees to perform the Work in such manner so as to preserve any and all manufacturers, suppliers, installers', material, and performance warranties.

39. Add a new § 3.5.5 as follows:

§ 3.5.5 The warranties of the Contractor provided in Section 3.5 shall in no way limit or abridge the warranties of the manufacturers, suppliers, and installers of materials, machinery, equipment, systems or components, performance warranties, and process warranties which are to comprise a portion of the Work and all such warranties shall be in form and substance as required by Contract Documents. The Contractor shall take no action or fail to act in any way which results in the denial, termination, or expiration of such third-party warranties or which otherwise results in prejudice to the rights of the Owner under such warranties. The Contractor agrees to provide all notices required for the effectiveness of such warranties and shall include provisions in the contracts with the suppliers, manufacturers, and installers of such materials, machinery, systems, and equipment whereby the Owner shall have a direct right, but not a duty, of enforcement of such warranty obligations.

40. Add a new § 3.5.6 s as follows:

§ 3.5.6 Prior to Final Completion of the Work, and as a requirement for achieving Final Completion the Contractor shall:

.1 Obtain duplicate originals of all warranties, executed by the Contractor and all Subcontractors, manufacturers, suppliers, and installers, making the dates of beginning of the warranties the Date of Final Completion unless otherwise required by the Contract Documents;

.2 Verify that the documents are in proper form, contain full information, and have been signed by the proper parties with full authority to sign the same;

.3 Co-sign or sign warranties when required;

.4 Bind all warranties in an 8-1/2 x 11 inch three-ring binder, with hardback, cleanable, plastic covers;

.5 Label the cover of each binder with a typed or printed label entitled "WARRANTIES", along with the title of the Project, name, address and telephone number of the Contractor, and name of its responsible principal;

.6 Include a Table of Contents, with each item identified, and with the name, address, and telephone numbers of each party executing the warranty;

.7 Separate each warranty with index tab sheets keyed to the Table of Contents listing;

.8 Deliver warranties in the form described above, to the Architect who will review same prior to submission to the Owner and who will then submit the same to the Owner.

41. § 3.11 is amended by adding "field test records, inspection certificates or records, manufacturers' certificates," after "Shop Drawings," in the first sentence and by adding "at all times" in the second sentence after "Architect and Owner".

42. § 3.12.2 is deleted and replaced with the following:

§ 3.12.2 Product Data consists of written, printed, drawn, sound recording, video recording, computer generated, electronic or any other form of communication created by manufacturers, suppliers, testing organizations, standards organizations, manufacturer and supplier associations and trade groups, and similar creators of such communications, regarding materials, equipment, machinery, systems, processes and the components thereof, and regarding the installation, use, testing, operation, service, and maintenance thereof. By way of illustration, but not excluding other forms of such communication, Product Data is found in:

Manufacturer's Recommendations	Installer Experience Requirements
Manufacturer's Instructions	Test Data
Installation Manuals	Performance Data
Construction Manuals	Product Diagrams
Product Manuals	Product Drawings
Operation Manuals	Performance Charts
Product Specifications	Instructions
Product Descriptions	Brochures
Manufacturer's Requirements	Illustrations
Production Information	Assembly Instructions
Installer Licensing Requirements	Charts
Installer Training Requirements	

43. § 3.12.4 is amended by deleting the last sentence of the paragraph and substituting the following: "Informational submittals upon which the Architect is not expected to take responsive action shall be retained by the Architect and preserved for a period of ten (10) years following Final Completion."

44. § 3.12.5 is amended by deleting the word "approved" in the two places it appears in the third line of the paragraph and substituting the word "required" in each place.

45. § 3.12.8 is amended by adding the words "and in accordance with the informational submittals upon which the Architect is not expected to take responsive action" following the words "approved submittals" in the first sentence.

46. § 3.12.10 is amended by deleting the last sentence of the paragraph.

47. § 3.15.1 is amended by adding ", on a daily basis," after "Contractor" in the first line of the first sentence.

Add the following after the first sentence of the section:

The Contractor shall provide on-site containers for the collection of waste materials, debris, of all such materials at legal disposal areas away from the Project site. All cleaning operations shall be scheduled so as to ensure that contaminants resulting from the cleaning process will not fall on newly-coated or newly-painted surfaces.

Add the following at the end of the existing paragraph of the section:

Immediately after unpacking materials, equipment and machinery, all packing case lumber or other packing materials, wrapping or other like flammable waste shall be collected and removed from the building. Care shall be taken not to mark, soil, or otherwise deface any finish. In the event that any finish becomes defaced in any way the Contractor or any of its Subcontractors shall clean and restore such surfaces to their original condition.

48. Add a new § 3.15.3 as follows:

§ 3.15.3 The Contractor shall be responsible for the protection of the Work. Prior to the Architect's inspection for Substantial Completion, the Contractor shall clean the exterior and interior surfaces exposed to view, remove temporary labels, stains, putty, soil, paint and foreign substances from all surfaces, including glass and painted surfaces, polish transparent and glossy surfaces, clean equipment and fixtures to a sanitary condition, replace air filters in mechanical equipment, clean roofs, gutters, and downspouts, remove obstructions and flush debris from drainage systems, clean site, sweep paved areas and rake clean other surfaces, remove trash and surplus materials from the site, clean and polish all floors, clean and polish all hardware, and repair all Work damaged during cleaning.

49. Add a new § 3.15.4 as follows:

§ 3.15.4 To the extent Contractor does not perform in accordance with 3.15.3, and/or Contractor performs additional work after Substantial Completion, the Contractor at the time of final completion shall; (1) employ skilled workers for final cleaning, (2) remove grease, mastic adhesive, dust, dirt, stains, fingerprints, labels and other foreign materials from all sight-exposed interior and exterior surfaces, (3) wash and shine glazing and mirrors, (4) polish glossy surfaces to a clear shine, (5) vacuum clean carpeted and similar soft surfaces, (6) clean (damp mop with clean mop and water) resilient and hard surface floors repeating as necessary until no visible

residue remains on floors, (7) clean plumbing fixtures to a sanitary condition, (8) clean surfaces of all equipment and remove excess lubrication, (9) clean permanent filters and replace disposable filters in ventilating systems if units were operated during construction and clean ducts, blowers, and coils, (10) clean light fixtures, (11) remove waste, foreign matter and debris from roofs, gutters, downspouts, yard drains, and drainage ways, (12) remove waste, debris and surplus materials from the site, (13) remove the stains, spills and foreign substances from paved areas, and (14) broom clean exterior concrete and paved surfaces and rake clean the grounds.

50. § 4.2.1 is amended by deleting the words "date the Architect issues the final Certificate for Payment" and substituting the words "end of the one-year period for correction pursuant to Section 12.2.2".

51. § 4.2.6 is amended by replacing "has authority to" with "shall" in the first sentence.

At the end of the existing paragraph add the following:

The Architect and the Contractor shall promptly notify, orally and in writing, the other party and the Owner of any fault or defect in the Work or nonconformance of the Work with the Contract Documents they may respectively discover and each, upon discovery of the defect or nonconformance, shall be responsible for notifying the other party and the Owner of those corrective actions they respectively take; provided, however, the Contractor shall have no duty to notify the Owner of discoveries made or actions taken by the Architect.

52. § 4.2.9 is amended as follows:

Capitalize the letters "f" and "c" in the words "final completion" in the first phrase.
Add the words "and Final Completion" before the word "pursuant" in the second phrase.
Add the words "and Section 9.10" after the words "Section 9.8" in the second phase.

53. § 4.2.11 is amended in the first line by deleting "decide matters" and replacing it with "make recommendations".

54. § 4.2.12 is amended in the first line by deleting "and decision" and replacing it with "or recommendations" and placing a period after "Contractor" in the second sentence and deleting all of the remaining language to the end of the paragraph.

55. § 5.1.2 is amended by deleting the first sentence and replacing it with the following: "A Sub-Subcontractor is a person or entity of a lower tier than a Subcontractor who has a direct or indirect contract with a Subcontractor or with another Sub-Subcontractor."

56. § 5.3 is amended by adding "**§ 5.3.1**" at the beginning of the original paragraph. The following new sentence is added after the first sentence of § 5.3.1: "The terms and conditions of the Contract Documents shall be incorporated by reference into each subcontract agreement, except as provided below."

57. Add a new § 5.3.2 as follows:

§ 5.3.2 All agreements between the Contractor and Subcontractors shall state that the Owner "is an intended third-party beneficiary of this Contract." Consistent with third-party beneficiary status, neither the Owner nor the Architect shall be obligated to pay or to insure the payment of any monies to Subcontractors and Sub-Subcontractors.

58. Add a new § 5.3.3 as follows:

§ 5.3.3 The Contractor shall require any potential Subcontractor to disclose to the Contractor any ownership interest or familial relationship between or among the Contractor, the Architect, the Owner and the potential Subcontractor prior to entering into a subcontract. The Contractor shall report to the Owner all such disclosures and the Owner shall have the right, in its sole discretion, to reject any such affiliated Subcontractor.

59. § 6.1.1 is amended by placing a period after the word "forces" in the second sentence and deleting the remainder of the second sentence after the period.

60. § 6.1.2 is deleted in its entirety.

61. § 6.1.4 is deleted in its entirety.

62. Add a new § 7.1.4 as follows:

§ 7.1.4 Allowance balances may be used to fund changes in the Work.

63. Add a new § 7.2.2 as follows:

§ 7.2.2 The Contractor expressly agrees that the acceptance of a Change Order by the Contractor constitutes full accord and satisfaction and release of any and all Claims, whether direct or indirect, arising from the subject matter of the Change Order.

64. Add a new § 7.3.11 as follows:

§ 7.3.11 The Owner and the Contractor mutually agree that the fixed or percentage fee calculations shall not exceed the following:

.1 for any Work performed by the Contractor's own forces, 15% of the costs of the change in the Work exclusive of overhead and profit;

.2 for any Work performed by a Subcontractor or Sub-subcontractor, an amount not to exceed 22.5% of the costs of the change exclusive of overhead and profit, with 15% of that amount assigned to the Contractor and 7.5% assigned to the Subcontractor or Sub-subcontractor.

65. Add a new § 7.5 as follows:

§ 7.5 Items Excluded from Adjustments in the Contract Sum

§ 7.5.1 Costs for all changes in the Work shall not include the Contractor's capital expenses, including interest on the Contractor's capital employed for the Work.

§ 7.5.2 Costs due to the fault or negligence of the Contractor, Subcontractors, and Sub-subcontractors, anyone directly or indirectly employed by any of them, or for whose acts and omissions any of them may be liable, including but not limited to costs for the correction of damaged, defective, or nonconforming Work, disposal and replacement of materials and equipment incorrectly ordered or supplied, and making good any damage to property which is not part of the Work or the Project shall not be included in any increase in the Contract Sum

66. Add a new § 7.6 as follows:

§ 7.6 Records and Accounts of Changes
The Contractor shall check all materials, equipment, and labor entering into the Work as a result of changes in the Work and shall keep full and detailed accounts and records of quantities, prices, and costs thereof satisfactory to the Architect and the Owner. The Architect and the Owner shall have full access to all of the Contractor's accounts and records relating to changes in the Work, including but not limited to receipts, vouchers, cancelled checks, requests for quotations, quotations, requests for information, information, invoices, correspondence, memoranda, drawings, purchase orders, reports, inspections, instructions, change orders with Subcontractors and Sub-subcontractors and similar data.

67. § 8.1.2 is amended by deleting "established in the Agreement" and replacing it with the following language:

established in the written Notice to Proceed issued by the Architect. The Notice to Proceed shall not be issued by the Architect until the Agreement has been signed by the Contractor, representative, and the Owner and the Architect have received, and approved as to form, all required payment and performance bonds and insurance, in compliance with Article 11. Issuance of the Notice to Proceed shall not relieve the Contractor of its responsibility to comply with Article 11.

68. § 8.1.3 is amended by adding the following new sentence after the first sentence:

The date of Final Completion is the date certified by the Architect in accordance with Paragraph 9.10. Unless otherwise agreed in writing by the Owner, the Contractor agrees that Final Completion shall occur not more than thirty (30) days after the date of Substantial Completion.

69. § 8.2.3 is amended by adding the words "and Final Completion" after the words "Substantial Completion".

70. Add a new § 8.2.4 as follows:

§ 8.2.4 The Contractor is subject to damages, as specified in Article 4 of AIA Document A101-2017 Standard Form of Agreement Between Owner and Architect if the Work is not completed by the dates of Substantial Completion and Final Completion.

71. § 8.3.1 is deleted and replaced with the following

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the work; (3) by governmental actions, fire, adverse weather conditions documented in accordance with Section 15.1.6.2; (4) by delay authorized in writing by the Owner; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time may be extended for such reasonable time as the Architect and the Owner may determine.

72. § 8.3.3 is deleted and replaced with the following:

§ 8.3.3 This Agreement does not permit the recovery by the Contractor of monetary damages, including, without limitation, extended home office overhead expenses, general conditions, consequential damages, or other compensable damages for delay or disruption or for extensions of time due to bad weather or acts of God, unless caused solely by the Owner or its Agent. In the event that a delay, disruption or extension of time beyond the contract dates for Substantial Completion or Final Completion is caused solely by the Owner or its Agent, then the Contractor may claim actual direct expenses that have only been incurred as a direct result thereof.

73. § 9.3.1 is amended by deleting the words ", if required," in both the first and second sentences.

74. § 9.3.2 is deleted and replaced with the following:

§ 9.3.2 Payments will be made on the basis of invoices for specific materials or equipment incorporated in the Work and specified materials or equipment (1) suitably stored at the site or (2) suitably stored at some off-site location, provided the following conditions are met for off-site storage:

.1 The location must be agreed to, in writing, by the Owner and Surety.

.2 The location must be a bonded warehouse.

.3 The Contractor's Surety must agree, in writing, to the amounts included in each Application for Payment.

.4 The Contractor must bear the cost of the Owner's and the Architect's expenses related to visiting the off-site storage area and reviewing the stored contents. The Contractor acknowledges that the Architect's time is an additional service and shall compensate the Architect directly for same.

.5 Payment shall not include any charges for overhead or profit on stored materials.

.6 Payments for materials or equipment stored on or off the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the

Owner to establish the Owner's title to such materials or equipment or otherwise protect the Owner's interest, including applicable insurance (naming the Owner as insured and naming the specific materials or equipment stored and their location) and provision for transportation to the site for those materials and equipment are delivered to the Owner's site. Failure to follow these procedures shall result in nonpayment for storage of or insurance on stored materials and equipment. Failure to follow these procedures shall also result in nonpayment of materials and equipment until said materials and equipment are incorporated into the Work.

75. § 9.3.3 is amended by adding the following at the end of the existing paragraph:

CONTRACTOR SHALL INDEMNIFY AND HOLD OWNER HARMLESS FROM ANY LIENS, CLAIMS, CLAIMS OF TITLE, SECURITY INTERESTS, OR ENCUMBRANCES OF THE CONTRACTOR, SUBCONTRACTORS, SUB-SUBCONTRACTORS, MATERIAL SUPPLIERS, MANUFACTURERS, INSTALLERS, CREDITORS, OR ANYONE CLAIMING BY, THROUGH OR UNDER THEM FOR ITEMS COVERED BY PAYMENTS MADE BY THE OWNER TO CONTRACTOR.

76. § 9.4.2 is amended by adding the word "and" before "(2)" and placing a period after the word "procedures" in phrase (2) and deleting the remainder of the paragraph.

77. § 9.5.1.7 is amended by replacing the period with a semi-colon and adding "or" after it.

78. Add a new § 9.5.1.8 as follows:

.8 failure to submit a written plan indicating action by the Contractor to restore, keep or maintain the Work on schedule for completion of Work within the Contract time.

79. Add a new § 9.5.5 as follows:

§ 9.5.5 Notwithstanding any provision contained within this Article, if the Work has not attained Substantial Completion or Final Completion by the required dates, subject to extensions of time allowed under these Conditions, then the Architect may withhold any further Certificate for Payment to the Contractor to the extent necessary to preserve sufficient funds to complete construction of the Project and to cover any damages as set forth in the Agreement. The Owner shall not be deemed in default by reason of withholding payment as provided for in § 9.3.2, § 9.5.1, or this § 9.5.5.

80. § 9.6.1 is amended by adding "for undisputed amounts" after "shall make payment" in the first sentence and adding the following at the end of the sentence:

The Owner shall notify the Contractor within twenty-one (21) days if the Owner disputes the Architect's Certificate for Payment or the Contractor's Payment Application, listing the specific reasons for nonpayment. Payments to the Contractor shall not be construed as releasing the Contractor or the Surety from any obligations under the Contract Documents or the Performance and Payment Bonds.

81. § 9.7 is amended by adding the words "the undisputed amount" after the word "Contractor" in the second line of the first sentence, by adding the word "undisputed" before the word "amount' in the third line of the first sentence, and by deleting the words "or awarded by binding dispute resolution" in the first sentence.

82. § 9.8.1 is amended by deleting the words "or designated portion thereof".

83. § 9.8.2 is amended by adding "in writing" after the word "Owner".

84. § 9.8.3 is amended by deleting the words "so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use" from the second sentence and replacing that phrase with "to meet Substantial Completion,".

85. § 9.8.4 is amended by deleting the words "or designated portion thereof" from the first sentence, placing a period after the second usage of the words "Substantial Completion", and deleting the remainder of the paragraph.

86. § 9.8.5 is deleted and replaced with the following:

§ 9.8.5 The Contractor shall achieve Final Completion of the Work within thirty (30) days after the date the Contractor achieves actual Substantial Completion as determined by the Architect.

87. § 9.9.1 is amended by deleting the remainder of the section after the first sentence.

88. § 9.10.2 is deleted and replaced with the following:

§ 9.10.2 Neither final payment nor any remaining retainage percentage shall become due until the Contractor submits to the Architect and the Architect delivers to the Owner:

(1) using AIA Document G706-1994, 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) evidence satisfactory to the Owner that insurance required by the Contract Documents 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) using AIA Documents G707-1994, consent of sureties to final payment;
(5) AIA Document G706A-1994 Contractor's Affidavit of Release of Liens liens;
(6) receipts, releases, waivers and cancellation of liens, claims, security interests, claims of title, or encumbrances arising out of the Contractor's performance of the Work;
(7) unconditional certificate of occupancy from governmental entities having jurisdiction over the Project and the Work; and
(8) certifications and inspection reports for installations and systems such as elevators and boilers.

In addition, the following items must be completed by the Contractor and received by the Owner before Final Payment will be due:

(9) written certifications required by Section 10.5, 10.6, and 10.7;

(10) final list of Subcontractors (AIA Document G705-2001);

(11) warranties, organized as required elsewhere in the Contract Documents;

(12) maintenance, operation, use, repair and instruction manuals;

(13) the Owner's Final Certificate and Release form; and

(14) record drawings and "as built" drawings. At the completion of the Project, the Contractor shall submit one complete set of "as built" drawings, with all changes made during construction, including concealed mechanical, electrical and plumbing items. The Contractor shall submit these as electronic, sepia, or other acceptable medium, in the discretion of the Owner.

Documents identified as affidavits must be notarized. All manuals will contain an index listing the information submitted. The index section will be divided and identified by tabbing each section as listed in the index. Upon request, the Architect will furnish the Contractor with blank copies of the forms listed above. Final payment shall be paid by the Owner to the Contractor within thirty (30) days after the Owner's Board has voted to approve Final Payment.

89. § 9.10.4 is amended by deleting the entire section and adding a new § 9.10.4 as follows:

§ 9.10.4 Acceptance of the Work and the making of final payment does not constitute a waiver of any claims by the Owner.

90. Add a new § 10.1.1 as follows:

§ 10.1.1 The Contractor's employees, agents, Subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, shall not perform any service for the Owner while under the influence of any amount of alcohol or any controlled substance, or use, possess, distribute, or sell alcoholic beverages or any controlled substance while on the Owner's premises. No person shall use, possess, distribute or sell illicit or unperceived controlled drugs or drug paraphernalia; misuse legitimate prescription drugs; or act in contravention of warnings on medications while performing the Work or on the Owner's premises.

91. Add a new § 10.1.2 as follows:

§ 10.1.2 The Contractor has adopted or will adopt its own policy to assure a drug-free and alcohol-free workplace while on the Owner's premises or performing the Work. The Contractor

will remove any of its employees, agents, Subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, from performing the Work any time there is suspicion of alcohol and/or drug use, possession, or impairment involving such person, and at any time an incident occurs where drug or alcohol use could have been a contributing factor. The Owner has the right to require the Contractor to remove any person from performing the Work any time cause exists to suspect alcohol or drug use. In such cases, the person so removed may only be considered for return to work after the Contractor certifies as a result of a for-cause-test, conducted immediately following removal that said person was in compliance with this Contract. The Contractor will not use any person to perform the Work who fails or refuses to take, or tests positive on, any for-cause alcohol or drug test.

92. Add a new § 10.1.3 as follows:

§ 10.1.3 The Contractor will comply with all applicable federal, state and local drug and alcohol-related laws and regulations (e.g. Department of Transportation regulations, Drug-Free Workplace Act). The Owner has also banned the presence of all weapons on the Project site, whether or not the Owner thereof has a permit for a concealed weapon, and the Contractor agrees that the Contractor's representatives, employees, agents, Subcontractors and Sub-Subcontractors will abide by same.

93. § 10.2.1.1 is amended by adding, after "Work", the following ", school personnel, students, parents and other persons on the Owner's premises", and after "thereby", adding ", including the installation of fencing between the Work site and the occupied portion of a connecting or adjacent educational facility".

94. § 10.2.1.3 is amended by adding "other buildings, and their contents, fencing" after "such as"; and adding "athletic fields, facilities and tracks" after "walks".

95. § 10.2.4 shall be amended by deleting "explosives or other", and adding the following before the final period:

, and shall only conduct such activities after giving reasonable advance written notice of the presence or use of such materials, equipment or methods to the Owner and the Architect. The storage of explosives other than small explosive charges for nail or rivet guns on the Owner's property is prohibited. The use of explosive materials on the Owner's property other than small explosive charges for nail or rivet guns is prohibited unless expressly approved in advance in writing by the Owner and the Architect.

96. § 10.2.5 is amended by deleting the words "(other than damage or loss insured under property insurance required by the Contract Documents)".

97. Add a new § 10.2.9 as follows:

§ 10.2.9 The Contractor shall do all things reasonably necessary to protect the Owner's premises and all persons from damage and injury, when all or a portion of the Work is suspended for any reason.

98. Add a new § 10.2.10 as follows:

§ 10.2.10 The Contractor shall promptly report in writing to the Owner and the Architect all accidents arising out of or in connection with the Work which cause death, bodily injury or property damage, giving full details and statements of any witnesses. In addition, if death, serious bodily injuries, or serious property damages are caused, the accident shall be reported immediately by telephone or messenger to the Owner and the Architect.

99. § 10.3.3 is deleted in its entirety.

100. § 10.3.4 is amended by placing a period after the word "site" in the first sentence and by deleting the remainder of the paragraph.

101. § 10.3.6 is deleted in its entirety.

102. § 10.4 is amended by adding the words "or the environment" following the word "property" and by deleting the words ", at the Contractor's discretion," in the first sentence.

103. Add a new § 10.5 as follows:

§ 10.5 Asbestos or Asbestos-Containing Materials
Prior to payment of retainage and final payment, the Contractor shall submit to the Architect a written certification addressed to the Owner that, to the best of the Contractor's knowledge, all materials used in the construction of this Work contain less than 0.10% by weight of asbestos and for which it can be demonstrated that, under reasonably foreseeable job site conditions, will not release asbestos fibers in excess of 0.1 fibers per cubic centimeter. The written certification shall further state that, should asbestos fibers be found at this Work in concentrations greater than 0.1 fibers per cubic centimeter, then the Contractor shall be responsible for determining which materials contain asbestos fibers and shall take all necessary corrective action to remove those materials from the Work, at no additional cost to the Owner. The written certification shall be dated, shall reference this specific Work and shall be signed by an officer of the Contractor.

104. Add a new § 10.6, § 10.6.1, and § 10.6.2 as follows:

§ 10.6 Lead-Free Material in Potable Water System
§ 10.6.1 Prior to payment of retainage and final payment, the Contractor and each Subcontractor involved with the potable water system shall furnish a written certification that any potable water system installed as a part of the Work is "lead-free".

§ 10.6.2 The written certification shall further state that should lead be found in the potable water system built under this Work, then the Contractor shall be responsible for determining which materials contain lead and shall take all necessary corrective action to remove lead from the Work, at no additional cost to the Owner. The written certification shall be dated, shall reference this specific Work and shall be signed by an officer of the Contractor.

105. Add a new § 10.7 as follows:

§ 10.7 Hazardous Materials Certification

The Contractor shall provide written certification that no materials used in the Work contain lead, asbestos, volatile organic compounds, formaldehyde, or other hazardous materials in them in excess of amounts allowed by federal, state or local standards, laws, codes, rules and regulations; the Federal Environmental Protection Agency (EPA) standards; and/or the Federal Occupational Safety and Health Administration (OSHA) standards, whichever is most restrictive. The Contractor shall provide this written certification as part of submittals under the Section in the Project Manual related to Contract Closeout.

106. § 11.1.1 is amended by deleting everything after the word "Agreement" in the first sentence.

107. § 11.1.4 is deleted in its entirety.

108. § 12.1.1 is amended by adding "or the Owner's" after the first and second use of the word "Architect's", and by adding "or the Owner" after "by the Architect".

109. § 12.1.2 is amended by adding "or the Owner" after "covered, the Architect" in the second line of the first sentence.

110. § 12.2.1 is amended by deleting the word **"Substantial"** in the title to the section and substituting the word **"Final"** in its place, by adding the word "Work" after the words "Architect or" in the first line of the first sentence of the section, and by deleting the words "Substantial Completion" and substituting the words "Final Completion" in their place in the second line of the first sentence of the section.

111. § 12.2.2 is amended by deleting the word **"Substantial"** in the title to the section and substituting the word **"Final"** in its place.

112. § 12.2.2.1 is deleted and replaced with the following:

§ 12.2.2.1 In addition to the Contractor's obligation to perform the Work in accordance with the Contract and in addition to all express and implied warranties, <u>including without limitation the Contractor's obligations under § 3.5</u>, if, within one year after Final Completion of the Work, 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. The cost of correcting the Work, including additional testing and inspections shall be at the Contractor's expense. In addition, if correction of the Work requires architectural and/or engineering services by law, Contractor shall reimburse the Owner for such fees and expenses.

113. Sec. 12.2.2.2 is deleted and replaced with the following:

§ 12.2.2.2 If the Contractor fails to perform the corrective Work, then the Owner may perform corrective Work, at the Contractor's expense. If the Owner performs corrective Work, then the Owner may also remove nonconforming Work and store the salvageable materials or equipment

at the Contractor's expense. If the Contractor does not pay all costs incurred by the Owner within ten (10) days after written notice, then the Owner may, upon ten (10) additional days' written notice, sell the removed materials and equipment in accordance with the Owner's policies, and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the Architect's services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, including the costs of additional testing and inspection and compensation for the Architect's services and expenses made necessary thereby, then the Contractor shall pay the difference to the Owner within 30 days after written demand made by the Owner to the Contractor for payment of such costs.

114. § 12.2.2.3 is deleted in its entirety.

115. Sec. 12.2.5 is amended by deleting the words "as described in Section 12.2.2" in the second sentence of the section, placing a period after the words "Contractor's obligations" in the last line of the second sentence of the section, and deleting the remainder of the second sentence following the period.

116. Add a new § 12.4 as follows:

§ 12.4 Repairs by Owner

The Owner may make emergency repairs to the Work. In addition, the Owner may perform or cause to be performed corrective Work and take such other measures necessary under the circumstances if the Contractor does not promptly respond to a notice of defective or nonconforming Work. The Contractor shall pay the costs of the emergency repairs or the corrective Work, including the costs of additional testing and inspection and compensation for the Architect's services and expenses made necessary thereby within 30 days after written demand made by the Owner to the Contractor for payment of such costs.

117. § 13.1 is deleted and replaced with the following:

Sec. 13.1 The Contract is governed by the laws of the State of North Carolina and any litigation shall be conducted in the appropriate division of the General Court of Justice. Mandatory and exclusive venue for any disputes shall be in the county in which the Owner's main administrative office is located. The invalidity of any part or provision of the Contract shall not impair or affect in any manner whatsoever the validity, enforceability or effect of the remainder of the Contract.

118. § 13.2.2 is amended by placing a period after the word "Project" in the first sentence of the section and deleting the remainder of the first sentence.

119. § 13.4.4 is amended by inserting "with a copy to the Owner" before the period.

120. Add a new section 13.6 as follows:

§ 13.6 Records

§ 13.6.1 The Contractor shall at all times through the date of Final Completion, maintain Job Records, including, but not limited to, invoices, payment records, payroll records, daily reports,

diaries, logs, instructions, drawings, receipts, subcontracts, purchase orders, vouchers, memoranda, or other financial data and job meeting minutes applicable to the Project, in a manner which maintains the integrity of the documents. Job Records must be retained by the Contractor for at least seven (7) years after the date of Final Completion of the Project. Within ten (10) days of the Owner's request, the Contractor shall make such Job Records available for inspection, copying and auditing by the Owner, the Architect or their respective representatives, at the Owner's central office.

121. § 14.1.1 is amended by deleting subsection 14.1.1.4.

122. § 14.2.4 is amended by deleting the last sentence.

123. Article 15 shall be amended in the title by adding "**OF CONTRACTOR**" at the end of the existing title.

124. § 15.1.1 shall be amended by deleting "one of the parties" and replacing it with "the Contractor"; inserting "interpretation of Contract terms, extension of time," after "money,"; before the period at the end of the first sentence add ", the Project or the Work"; deleting the second sentence in its entirety; deleting at the end of the paragraph "party making the Claim" and replacing it with "Contractor"; and deleting the last sentence.

125. § 15.1.2 is deleted in its entirety.

126. § 15.1.3.1 is amended by deleting in the first sentence "either the Owner or" and replacing it with "the"; deleting "other party" and replacing it with "Owner"; deleting "Initial Decision Maker with a copy sent to the"; deleting ", if the Architect is not serving as the Initial Decision Maker.". The second sentence is amended by deleting "either party" and replacing it with "the Contractor"; inserting "calendar" after "21" in both places; replacing "claimant" with "Contractor"; inserting "knew or should have known of", in the place of the word "recognizes".

Add the following at the end of the amended § 15.1.3.1 paragraph:

Claims must be initiated by written notice titled "Notice of Claim" ("Notice") and sent to the Architect and the Owner's designated representative. The Notice shall clearly set out the specific matter of complaint, and the impact or damages which may occur or have occurred as a result thereof. To the extent that the damages cannot be assessed at the time of the Notice, the Notice shall be amended at the earliest date reasonably possible. It is imperative that the Owner receive timely specific Notice of any potential problem identified by the Contractor in order that the problem can be mitigated or resolved promptly. Any alleged damages suffered by the Contractor that have not been included in a Notice within ninety (90) days after the Contractor first knew or should have known of the damages shall be deemed waived by the Contractor.

127. § 15.1.3.2 is deleted in its entirety.

128. § 15.1.4.2 is deleted in its entirety.

129. § 15.1.5 is amended by adding "**or Increase in the Contract Sum**" at the end of the existing title.

130. § 15.1.5 is amended in the first sentence by inserting "additional cost or" after "claim for" and deleting "before proceeding to execute the Work that is the subject of the claim" and replacing those words with "to the Owner and the Architect".

Add the following to § 15.1.5 at the end of the existing paragraph:
The Architect will promptly investigate such claim and report findings and a recommended resolution in writing to the Owner and the Contractor. If the Claim is approved by the Owner's Board, or the Owner's representative, if provided for herein, then the Contractor shall proceed with the execution of the Work that is the subject matter of the Claim. If the Claim is rejected by the Owner, then the Contractor may pursue alternative dispute resolutions provided for in the Contract Documents.

131. § 15.1.6.1 is amended by deleting "of cost and"; and by adding "critical path of the" before the word "Work" in the second sentence.

132. § 15.1.6.2 is amended by deleting "had an adverse effect on the scheduled construction" and replacing those words with "prevented the execution of critical path elements of the Work on normal working days."

Add the following to § 15.1.6.2 at the end of the existing paragraph:
Adverse weather conditions means unusually severe weather which is beyond the normal weather recorded and expected for the locality and/or the season or seasons of the year.

133. Add a new § 15.1.6.3 as follows:

§ 15.1.6.3 The Contractor shall anticipate and include in a critical path construction schedule rain days due to adverse weather conditions in accordance with the rainfall table below. A rain day is defined as a day when rainfall exceeds one-half (.5) inch during a 24-hour period. The number of rain days expected for each month is as follows:

January	3 calendar days	July	3 calendar days
February	2 calendar days	August	3 calendar days
March	2.5 calendar days	September	3 calendar days
April	4 calendar days	October	2 calendar days
May	3 calendar days	November	2 calendar days
June	3 calendar days	December	2 calendar days

134. Add a new § 15.1.6.4 shall be added as follows:

§ 15.1.6.4 Time extensions may be granted for rain days in any month when the cumulative number of rain days during that month exceeds the number scheduled, provided that the rainfall prevented the execution of the critical path of the Work on normal working days as shown on the Contractor's schedule. No day will be counted as a rain day when substantial forces are able to

perform Work on the Project for more than fifty percent (50%) of the usual workday or when the critical path of the Work on the Project is not adversely impacted. The number of rain days shown in the above schedule for the first and last months of Contract will be prorated in determining the total number of rain days expected during the period of the Contract.

135. Add a new § 15.1.6.5 as follows:

§ 15.1.6.5 No extension of time shall be made to the Contractor because of hindrances or delays from any cause which is the fault of the Contractor or the Contractor's Subcontractors or Sub-Subcontractors or under the Contractor's control. Claims for extension of time may only be considered because of adverse weather conditions, rain delays, or hindrances or delays which are the fault of the Owner and/or under the Owner's control, but only to the extent that the critical path of the Work is delayed. Other claims for extension of time shall be considered because of hindrances or delays not the fault of either the Contractor or the Owner, but only to the extent that the critical path of the Work is delayed. Board approval shall be required for any extension of time. The Contractor shall only be entitled to time extensions per the terms of the Contract Documents.

136. Add a new § 15.1.6.6 shall be as follows:

§ 15.1.6.6 Requests for time extension shall be submitted on a monthly basis and shall specify the time delay, the cause of the delay, and the responsible party for the delay, whether the Contractor, the Owner, adverse weather, rain day, or other. No claims for damages for delay shall be made by the Contractor. Any claim not submitted under the terms of this Section shall be waived.

137. § 15.2 is amended by replacing the title with **"Resolution of Claims and Disputes"**.

138. § 15.2.1 is deleted and replaced with the following:

§ 15.2.1 Claims by the Contractor against the Owner, including those alleging an error or omission by the Architect shall be referred initially to the Architect for written recommendation. An initial recommendation by the Architect shall be required as a condition precedent to litigation of all Claims by the Contractor arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Architect with no recommendation having been rendered by the Architect.

139. § 15.2.2 is deleted and replaced with the following:

§ 15.2.2 The Architect will review Claims and within ten (10) days of the receipt of the Claim take one of the following actions: (1) request additional supporting data from the Contractor, or (2) make a written recommendation to the Owner, with a copy to the Contractor.

140. § 15.2.3 is deleted and replaced with the following:

§ 15.2.3 In evaluating Claims, the Architect may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Architect in making a written recommendation.

141. § 15.2.4 is deleted and replaced with the following:

§ 15.2.4 If the Architect requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten (10) days after receipt of such a request, and shall provide a response on the requested supporting data, advise the Architect when the response or supporting data will be furnished or advise the Architect that no supporting data will be furnished.

142. § 15.2.5 is deleted and replaced with the following:

§ 15.2.5 As required by North Carolina General Statutes § 143-128(f1) the Owner, the Contractor, the Architect and all first tier and lower-tier Subcontractors and Sub-Subcontractors are required to participate in mediation as a precondition to initiating litigation. The dispute resolution process adopted by the State Building Commission pursuant to North Carolina General Statutes § 143-135.26(11) is hereby adopted and incorporated by reference for use in conducting the mediation. Statutory, contract, bond, insurance, warranty and all other time periods (including but not limited to applicable statutes of limitation and statutes of repose) shall be tolled (suspended from running) during the mediation process. The costs of the mediation shall be paid pro rata by the Owner and the other party or parties to the mediation.

143. § 15.2.6 is deleted and replaced with the following:

§ 15.2.6 Upon receipt of a Claim against the Contractor or at any time thereafter, the Architect or the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Architect or the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

144. § 15.2.6.1 is deleted in its entirety.

145. § 15.2.7 is deleted in its entirety.

146. § 15.2.8 is deleted in its entirety.

147. §§ 15.3, 15.3.1, 15.3.2, 15.3.3. and 15..3.4 are deleted in their entirety.

148. § § 15.4, 15.4.1, 15.4.1.1, 15.4.2, 15.4.3, 15.4.4, 15.4.4.1, 15.4.4.2, and 15.4.4.3 are deleted in their entirety.

149. Add a new **§ 15.3** and **§ 15.3.1** as follows:

§ 15.3 LITIGATION

§ 15.3.1 Any Claim arising out of or related to the Contract, except Claims waived under the terms of the Contract Documents, shall, subject to the provisions of § 15.2.5, be subject to resolution by litigation.

150. Add a new **ARTICLE 16** as follows:

ARTICLE 16 GENERAL

§ 16.1 THE CONTRACTOR AND THE CONTRACTOR'S SUBCONTRACTORS ARE REQUIRED TO COMPLY WITH THE E-VERIFY REQUIREMENTS OF ARTICLE 2 OF CHAPTER 64 OF THE GENERAL STATUTES OF NORTH CAROLINA REGARDING EMPLOYEES AS A TERM OF THIS CONTRACT MADE ESSENTIAL TO THIS CONTRACT BY THE PROVISIONS OF § 143-133.3 OF THE GENERAL STATUTES OF NORTH CAROLINA. THE CONTRACTOR AND ITS SUBCONTRACTORS REPRESENT TO AND COVENANT WITH THE OWNER THAT THEY WILL FULLY COMPLY WITH THOSE STATUTORY E-VERIFY REQUIREMENTS.

§ 16.2 RETAINAGE Retainage on periodic applications for payment or final payment made by the Owner to the Contractor and by the Contractor to Subcontractors shall be retained, released, maintained at a minimum level, and reinstated in accordance with the provisions of North Carolina General Statutes § 143-134.1; however, nothing in that statute or the Contract Documents prevents the Owner and the Contractor from withholding payment for unsatisfactory job progress, defective construction not remedied, disputed work, and third-party claims or reasonable evidence that a third-party claim will be filed.

§ 16.3 Relation to AIA Documents These Supplementary General Conditions and the General Requirements, the Supplementary Instructions to Bidders, the forms of various required documents, and any Special Conditions, all of which are bound in and incorporated in the Project Manual, modify and amend AIA Document A201-2017 General Conditions of the Contract for Construction, AIA Document A101-2017 Standard Form of Agreement Between Owner and Contractor, AIA Document A701-1997, Instructions to Bidders, and any other AIA documents published, copyrighted, or trademarked by the American Institute of Architects to which reference is or may be made in the Project Manual.

Exhibit A (Single Prime Contract Edition)

Insurance and Bond Requirements

Revised 8/19

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A. General Provisions

1. The Owner is not required to maintain any insurance pursuant to this agreement outside the usual property and risk policies and coverages it elects to obtain and maintain, in its sole discretion. To the extent Owner has any such insurance policies and/or agreements regarding coverage for liability and/or loss, such agreements shall be deemed excess and non-contributory to all insurance policies required from the Single Prime Contractor ("SPC") herein.

2. The insurance policies and coverages required herein are for the protection of the Owner and the SPC. The parties expressly agree that nothing herein releases, waives, or discharges the SPC, partially or in whole, from any other risks or contractual obligations to the Owner, including but not limited to performance of the work. The SPC is strictly responsible for all deductibles, self-insured retention, co-pays, and any losses, claims, and costs of any kind which exceed the SPC's limits of liability, or which may be outside the coverage scope of the policies.

3. All insurance policies, and any self-insurance maintained by SPC where applicable, required herein for any claims related to this Project shall satisfy the following:

a) obtained from carriers with a minimum rating of A- and Class VII as evaluated by the most current A.M. Best Rating Guide and utilizing agents and brokers holding valid licenses from the State of North Carolina;

b) written as to be primary and noncontributory with respect to any policy maintained by the Owner;

c) maintained in full force and effect through the contractual period for correction of the work set forth in the Agreement between the SPC and Owner;

d) not be cancelled, terminated or altered without a minimum of 30 days' advance written notice by certified mail to the Owner by SPC and by the carrier; and

e) include a provision waiving subrogation against the Owner for all claims, including any claims wherein the Owner is an additional insured.

4. Within no less than five (5) business days prior to beginning work, SPC shall hand-deliver to the Owner appropriate Certificates of Insurance evidencing coverage as required in Section I(B) below. Said Certificates of Insurance must indicate that the Owner is an additional insured when required by the Owner. In addition, since a Certificate of Insurance does not legally bind the carrier, SPC must provide copies of the actual policy endorsements demonstrating that the Owner is an additional insured on each policy when required along with the Certificates of Insurance. Upon request by the Owner, SPC must produce full copies of all policies. The Owner's failure to note that SPC has not fully complied with this paragraph and allowed SPC to begin work shall not release or diminish the liability and obligations of SPC to the Owner nor constitute a waiver of the insurance requirements herein. CM shall provide evidence of new coverages with pay applications when any current coverage expires, lapses or is otherwise altered.

5. The policy limits set forth below are a contractual minimum and SPC must provide higher coverage amounts if required by applicable law at any time during the period that insurance is required herein. Any failure to comply with these insurance requirements shall be a material breach of the SPC's Agreement with the Owner. The Owner's written waiver of any insurance requirement herein shall not be construed as a waiver of any other insurance requirement.

6. The Owner, at SPC's expense, may obtain and/or maintain any coverage which SPC fails to obtain or maintain, at Owner's sole discretion. Such action shall be for Owner's sole protection and shall not release, waive, or discharge the SPC, partially or in whole, from any other risks or contractual obligations to the Owner, including but not limited to performance of the work.

7. The SPC's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

8. The claim provisions in the SPC's insurance policies must specifically state the insurance company has both the right and duty to adjust a claim and provide defense.

9. The policies shall not contain any provision or definition which would serve to exclude or eliminate from coverage third party claims, including exclusions of claims for bodily or other injury to shareholders, partners, officers, directors, or employees of the SPC or the Owner.

10. If the policies contain any condition stating that coverage is null and void (or words to that effect) if the SPC does not comply with the most stringent regulations governing the Work, it shall be modified so that coverage shall be afforded in all cases except for the SPC's willful or intentional noncompliance with applicable government regulations.

11. Any failure by any person to comply with reporting or other provisions of any insurance policy, including breach of warranties, shall not affect the coverage obligations that the SPC owes to the Owner and its representatives, officials, and employees herein. The insolvency or bankruptcy of the insured shall not relieve the insurance companies of their obligations under these policies. Any clauses to the contrary are unacceptable and must be stricken.

12. If SPC is engaged in a joint venture, each legal entity must obtain the required insurance policies herein unless the joint venture incorporates and is legally able to obtain such insurances in the name of the joint venture. For SPC provided insurance, evidence of a blanket joint venture endorsement substantially similar to the following must be obtained from the general liability and pollution liability carriers of each joint venture partner and maintained for a period of six (6) years after completion of the Project: *"With respect to "your work", and the "products-completed operations hazard", you are an*

insured for your liability arising out of the conduct of any partnership or joint venture of which you were a partner or member, even though this partnership or joint venture is not shown as a Named Insured in the Declarations. This coverage is excess over any available liability purchased specifically to insure the partnership or joint venture. This coverage will not inure to the benefit of any other party except you."

B. SPC's Insurance Coverage Limits

1. Workers' Compensation shall be maintained with at least the minimum statutory limits, including Employer's Liability with limits of at least $1,000,000.00.

2. Employer's Liability shall be maintained with at least limits of $100,000 each accident; $100,000 disease, each employee; and $1,000,000 disease, policy limit.

3. Commercial General Liability shall be maintained with at least the following minimum limits with the policy and the Certificate of Insurance indicating that the coverage is written on a "project" basis:

a)	$1,000,000	Bodily Injury and Property Damage for each occurrence
b)	$100,000	Fire Damage
c)	$10,000	Medical Expenses any one person
d)	$1,000,000	Personal and Advertising Injury
e)	$1,000,000	Products/Completed Operations Aggregate
f)	$2,000,000	General Aggregate

List the Owner (including its officers, agents and employees) as an additional insured on the policy as evidenced by a policy endorsement. Coverage shall include, but not be limited to, the following supplementary coverages: Contractual Liability to cover liability assumed under this Agreement, Product and Completed Operations Liability insurance, Broad Form Property Damage Liability insurance, and Independent Contractors.

Such policy shall include all of the coverages, which may be included in coverages A, B, and C contained in the Commercial General Liability Policy, without deletion. Such policy must be issued on an "occurrence" basis, as distinguished from a "claims made" basis.

Completed Operations shall extend six (6) years after final payment

If the SPC has design responsibility, endorsement CG22 80 and DIC for contractors' professional liability is required unless waived by the Owner.

3. Automobile Liability – Including Hired-Auto and Non-Owned Auto shall be maintained with at least a Minimum Combined Single Limit of $1,000,000 per occurrence.

4. For Contractors with remediation or abatement responsibilities, Contractors shall carry Contractor's Pollution Liability Coverage. Coverage must be sudden and non-sudden, and include: Bodily injury, sickness, disease, mental anguish, or shock sustained by any person, including death; Property damage, including physical injury to or destruction of tangible property including the resulting loss of use thereof, cleanup costs, and the loss of use of tangible property that has not been physically injured or destroyed; and Defense, including costs, charges, and expenses incurred in the investigation, adjustment, or defense of claims for such compensatory damages. List the Owner (including its officers, agents and employees) as an additional insured on the policy as evidenced by a policy endorsement.

The Owner must be named as Additional Insured, and a Non-Owned Disposal Site Endorsement must be provided, scheduling the appropriate landfill. Minimum CPL limits of coverage shall be:

a) $1,000,000 Per Loss
b) $2,000,000 All Losses

5. Umbrella Liability shall be maintained with the following minimum limits:
   a) $5,000,000 Per Occurrence
   b) $5,000,000 Aggregate

6. Builder's Risk Insurance: If requested by the Owner, the SPC shall be responsible for purchasing and maintaining insurance satisfactory to the Owner to protect the Project from perils of physical loss. The Owner shall receive copies of the builder's risk insurance policies that satisfy this Article. The SPC shall be responsible for any deductibles associated with this coverage.

The builder's risk insurance shall provide for the cost of replacement of the Work at the time of any loss. The insurance shall include as additional insureds the Owner, the SPC, the Contractors and their subcontractors and shall insure against the loss from the perils of fire and all risk coverage for physical loss or damage due to theft, vandalism, collapse, malicious mischief, terrorism, transit, flood, mold, earthquake, testing, or damages resulting from defective design, negligent workmanship or defective material. The SPC shall obtain approval from the Owner before increasing any coverage due to increases in construction costs. See the Supplementary General Conditions § 9.3.2 regarding SPC's responsibilities for materials stored off-site.

Section II. Performance and Payment Bonds

A. Prior to beginning the Work, the Contractor shall furnish separate surety bonds to the Owner each in the amount of one hundred percent (100%) of the Contract Sum to secure the faithful performance of the terms of the Contract and the payment of all sums due for labor and materials and obligations thereunder unless otherwise specifically stated in the Bidding Documents.

B. The performance bond and the payment bond shall be executed by the Contractor and a Surety company legally authorized to do business in the State of North Carolina and shall have the corporate seals of the Contractor and the Surety affixed, it being a requirement that the bonds shall be sealed instruments.

C. A North Carolina licensed registered agent of the Surety shall either sign the bonds under a valid power of attorney executed by the Surety or countersign the bonds if the Surety itself signs the bonds. Any power of attorney executed by the Surety shall be attached to the bonds and certified by the Surety to be in effect as of the date of execution of the bonds.

D. The costs of the performance bond and the payment bond shall be included in the Contract Sum.

E. The performance bond and the payment bond shall be in the forms included with the Contract Documents and as specified in North Carolina General Statute § 44A-33. **{Note: AIA DOCUMENT A-312 OR ANY SUCCESSOR AIA FORM IS NOT ACCEPTABLE NOR IS ANY OTHER FORM OF BOND}.**

F. The requirements and obligations of North Carolina General Statutes § 143-129 and Article 3 of Chapter 44A of the North Carolina General Statutes are hereby expressly incorporated with regards to the performance bond and the payment bond.

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

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

SECTION A: INTENT

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

SECTION B: DEFINITIONS

1. Minority - a person who is a citizen or lawful permanent resident of the United States and who is:
   a. Black, that is, a person having origins in any of the black racial groups in Africa;
   b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
   c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
   d. American Indian, that is, a person having origins in any of the original peoples of North America; or
   e. Female

2. Minority Business - means a business:
   a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
   b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.

3. Socially and economically disadvantaged individual - means the same as defined in 15 U.S.C. 637. "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities". "Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged".

4. Public Entity - means State and all public subdivisions and local governmental units.

5. Owner - The State of North Carolina, through the Agency/Institution named in the contract.

6. Designer – Any person, firm, partnership, or corporation, which has contracted with the State of North Carolina to perform architectural or engineering, work.

7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.

8. Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.

9. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the State of North Carolina to perform construction work or repair.

10. Subcontractor - A firm under contract with the prime contractor or construction manager at risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in his subcontract.

SECTION C: RESPONSIBILITIES

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

   The HUB Office has established a program, which allows interested persons or businesses qualifying as a minority business under G.S. 143-128.2, to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:
   a. Identify those areas of work for which there are minority businesses, as requested.
   b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
   c. Assist in the determination of technical assistance needed by minority business contractors.

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

2. State Construction Office
   The State Construction Office will be responsible for the following:

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

   b. Attending scheduled prebid conference, if necessary, to clarify requirements of the general statutes regarding minority-business participation, including the bidders' responsibilities.

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

3. Owner
Before awarding a contract, owner shall do the following:

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

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

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

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

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

5. Prime Contractor(s), CM at Risk, and Its First-Tier Subcontractors
Under the single-prime bidding, the separate-prime biding, construction manager at risk and alternative contracting methods, contractor(s) will:

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

   If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.
d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
e. Identify on the bid**,** the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).
f. Make documentation showing evidence of implementation of PM, CM-at-Risk and First-Tier Subcontractor responsibilities available for review by State Construction Office and HUB Office, upon request.
g. Upon being named the apparent low bidder, the Bidder shall provide one of the following: (1) an affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.
h. The contractor(s) shall identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values. The schedule of values shall be provided as required in Article 31 of the General Conditions of the Contract to facilitate payments to the subcontractors.
i. The contractor(s) shall submit with each monthly pay request(s) and final payment(s), "MBE Documentation for Contract Payment" – (Appendix E), for designer's review.
j. During the construction of a project, at any time**,** if it becomes necessary to replace a minority business subcontractor, immediately advise the owner, State Construction Office, and the Director of the HUB Office in writing**,** of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.

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

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

SECTION 4: DISPUTE PROCEDURES
It is the policy of this state that disputes that involves a person's rights, duties or privileges, should be settled through informal procedures. To that end, minority business disputes arising under these guidelines should be resolved as governed under G.S. 143-128(g).

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

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

MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

APPLICATION:

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

MINORITY BUSINESS SUBCONTRACT GOALS:

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

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

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

OR

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

OR

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

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

MINIMUM COMPLIANCE REQUIREMENTS:

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

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

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

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

(3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.

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

(5) Attending any prebid meetings scheduled by the public owner.

(6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.

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

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

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

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

APPENDIX E

MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor/Architect: _____

Address & Phone: _____

Project Name: _____

Pay Application #: _____ Period: _____

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

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

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

Date: _____ Approved/Certified By: _____
Name

_____
Title

_____
Signature

SUBMIT WITH EACH PAY REQUEST & FINAL PAYMENT

(Revised on 3/14/2003)

SECTION 01 1000

SUMMARY

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Project information.

B. Work covered by Contract Documents.

C. Work restrictions.

1.2 PROJECT INFORMATION

A. Project Identification: Asheville High School - Media Center Renovations
   1. Project Location: 419 McDowell St, Asheville NC 28803

B. Owner: Asheville City Schools
   1. Owner's Representative: Tim Holcombe
   2. Phone: 828.450.4869
   3. Email: tim.holcombe@acsgmail.net

C. Architect: Native Forms Architecture, PLLC
   1. 141 Arthur Road, Asheville, NC 28806
   2. PO Box 8211, Asheville, NC 28814
   3. Phone: 828.777.8984
   4. Chip Howell
   5. nativeformsarch@gmail.com

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:
   1. Renovation of approximately 1167 square feet of the existing media center. Minimal demolition of existing finishes, Owner will remove existing temporary construction prior to commencement of Work. New construction includes rated and non-rated gypsum board and metal stud partitions, new finishes, including paint, flooring and ceilings.

B. Type of Contract:
   1. Project will be constructed under a single prime contract.

1.4 CONTRACTOR'S USE OF SITE AND PREMISES

A. Limits on Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
   1. Develop a central entry and exit location for construction vehicles and workers that limits disruptions. Coordinate entry/exit locations with Owner

1.5 COORDINATION WITH OCCUPANTS

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

1.6 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.
   1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Coordinate with Owner and School administration the schedule for work while school is in session. Coordinate with school calendar and do not schedule work during testing periods, and temporarily stop construction activity during student drop-off and pick-up hours.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
   1. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, Dust, and Odors: Coordinate operations that may result in high levels of noise and vibration, dust, odors, or other disruption to Owner occupancy with Owner.
   1. Obtain Owner's written permission before proceeding with disruptive operations

E. Restricted Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

F. Employee Screening: Comply with Owner's requirements for background screening of Contractor personnel working on Project site.
   1. Coordinate screening with Asheville City Schools background screening requirements
   2. Background screening is required for employees working onsite daily. Screening to be completed prior to commencement of onsite work.
   3. Construction employees to wear visible identification of company name.
   4. Maintain list of approved screened personnel with Owner's representative.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 2100

ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

B. Types of allowances include the following:
   1. Lump-sum allowance.

1.2 SELECTION AND PURCHASE

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

1.3 ACTION SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.

1.4 INFORMATIONAL SUBMITTALS

A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 LUMP-SUM ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include freight and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

1.6 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
   1. Include installation costs in purchase amount only where indicated as part of the allowance.

2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other markups.
3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.
1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of Work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

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

3.3 SCHEDULE OF ALLOWANCES

A. As part of the Base Bid include the following allowances.
1. Allowance No. 1 - Renovation of Subfloor at existing elevated slab: Include subfloor renovation of 600 square feet including demolition of existing subfloor insulation and coverboard and replacement with new subfloor and coverboard.

END OF SECTION

SECTION 01 2200

UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 DEFINITIONS

A. Unit price is an amount incorporated into the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.3 PROCEDURES

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

B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

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. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Provide Unit Prices for the following
   1. Unit Price 1: Renovation of subfloor at existing elevated slab
      a. Unit of Measure: Square foot
      b. Relates to Allowance No. 1
      c. Scope: Unit Price to include removal and replacement of subfloor assembly.

END OF SECTION

SECTION 01 2500

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for substitutions.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
   1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
   2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.3 ACTION SUBMITTALS

A. Substitution Requests: Submit an electronic PDF copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
      a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
      b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
      c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
      d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
      e. Samples, where applicable or requested.
      f. Certificates and qualification data, where applicable or requested.
      g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
      h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
      i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
      j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
      k. Cost information, including a proposal of change, if any, in the Contract Sum.

l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
   a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
   b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.5 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.6 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
   1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
      a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
      b. Substitution request is fully documented and properly submitted.
      c. Requested substitution will not adversely affect Contractor's construction schedule.
      d. Requested substitution has received necessary approvals of authorities having jurisdiction.
      e. Requested substitution is compatible with other portions of the Work.
      f. Requested substitution has been coordinated with other portions of the Work.
      g. Requested substitution provides specified warranty.
      h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
   1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
      a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.

b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 2600

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, in a format deemed appropriate by the Architect.

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
   1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
   2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
      a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
      b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
      c. Include costs of labor and supervision directly attributable to the change.
      d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
   1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
   2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
   3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
   4. Include costs of labor and supervision directly attributable to the change.
   5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
   6. Comply with requirements in Section 01 2500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.4 CHANGE ORDER PROCEDURES

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

1.5 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
   1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
   1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 2900

PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

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

1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the schedule of values to Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

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

1. Arrange schedule of values consistent with format of AIA Document G703.
2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
3. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
   a. Differentiate between items stored on-site and items stored off-site.
4. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
5. Overhead Costs: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
6. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
7. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.3 APPLICATIONS FOR PAYMENT

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

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

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

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

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

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

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

F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Products list (preliminary if not final).
5. Schedule of unit prices.
6. Submittal schedule (preliminary if not final).
7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Copies of building permits.
10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
11. Initial progress report.
12. Report of preconstruction conference.
13. Certificates of insurance and insurance policies.
14. Performance and payment bonds.
15. Data needed to acquire Owner's insurance.

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

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

2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. Evidence that claims have been settled.
5. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
6. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 3100

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. General coordination procedures.
   2. Coordination drawings.
   3. RFIs.
   4. Project meetings.

1.2 DEFINITIONS

A. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.3 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
   1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
   2. Number and title of related Specification Section(s) covered by subcontract.
   3. Drawing number and detail references, as appropriate, covered by subcontract.

1.4 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
   1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
   2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.

B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and scheduled activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Preparation of Contractor's construction schedule.
   2. Preparation of the schedule of values.
   3. Installation and removal of temporary facilities and controls.
   4. Delivery and processing of submittals.
   5. Owner, Architect, Contractor (OAC) meetings
   6. Progress meetings.
   7. Preinstallation conferences.
   8. Project closeout activities.
   9. Startup and adjustment of systems.

1.5 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
   1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
   2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
   1. Project name.
   2. Project number.
   3. Date.
   4. Name of Contractor.
   5. Name of Architect.
   6. RFI number, numbered sequentially.
   7. RFI subject.
   8. Specification Section number and title and related paragraphs, as appropriate.
   9. Drawing number and detail references, as appropriate.
   10. Field dimensions and conditions, as appropriate.
   11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
   12. Contractor's signature.
   13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
   1. The following Contractor-generated RFIs will be returned without action:
      a. Requests for approval of submittals.
      b. Requests for approval of substitutions.
      c. Requests for approval of Contractor's means and methods.
      d. Requests for coordination information already indicated in the Contract Documents.
      e. Requests for adjustments in the Contract Time or the Contract Sum.
      f. Requests for interpretation of Architect's actions on submittals.
      g. Incomplete RFIs or inaccurately prepared RFIs.
   2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.
   3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01 2600 "Contract Modification Procedures."
      a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Software log with not less than the following:
   1. Project name.
   2. Name and address of Contractor.
   3. Name and address of Architect.

4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1.6 DIGITAL PROJECT MANAGEMENT PROCEDURES

A. Web-Based Project Software: Provide, administer, and use web-based Project software site for purposes of hosting and managing Project communication and documentation until Final Completion.
1. Web-based Project software site includes, at a minimum, the following features:
a. Compilation of Project data, including Contractor, subcontractors, Architect, architect's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.
b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
c. Document workflow planning, allowing customization of workflow between project entities.
d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
e. Track status of each Project communication in real time, and log time and date when responses are provided.
f. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
g. Processing and tracking of payment applications.
h. Processing and tracking of contract modifications.
i. Creating and distributing meeting minutes.
j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
k. Management of construction progress photographs.
2. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Architect. Provide data in locked format to prevent further changes.

B. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.7 PROJECT MEETINGS

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

B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned

parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Discuss items of significance that could affect progress, including the following:
   a. Responsibilities and personnel assignments.
   b. Tentative construction schedule.
   c. Critical work sequencing and long lead items.
   d. Designation of key personnel and their duties.
   e. Lines of communications.
   f. Use of web-based Project software.
   g. Procedures for processing field decisions and Change Orders.
   h. Procedures for RFIs.
   i. Procedures for testing and inspecting.
   j. Procedures for processing Applications for Payment.
   k. Distribution of the Contract Documents.
   l. Submittal procedures.
   m. Preparation of Record Documents.
   n. Use of the premises.
   o. Work restrictions.
   p. Working hours.
   q. Responsibility for temporary facilities and controls.
   r. Procedures for moisture and mold control.
   s. Procedures for disruptions and shutdowns.
   t. Construction waste management and recycling.
   u. Parking availability.
   v. Office, work, and storage areas.
   w. Equipment deliveries and priorities.
   x. First aid.
   y. Security.
   z. Progress cleaning.
3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.
   1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
   2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
      a. Contract Documents.
      b. Options.
      c. Related RFIs.
      d. Related Change Orders.
      e. Purchases.
      f. Deliveries.
      g. Submittals.
      h. Review of mockups.
      i. Possible conflicts.
      j. Compatibility requirements.
      k. Time schedules.
      l. Weather limitations.
      m. Manufacturer's written instructions.
      n. Warranty requirements.
      o. Compatibility of materials.
      p. Acceptability of substrates.
      q. Temporary facilities and controls.
      r. Space and access limitations.

s. Regulations of authorities having jurisdiction.
t. Testing and inspecting requirements.
u. Installation procedures.
v. Coordination with other work.
w. Required performance results.
x. Protection of adjacent work.
y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at regular intervals.
1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
1) Review schedule for next period.
b. Review present and future needs of each entity present, including the following:
1) Interface requirements.
2) Sequence of operations.
3) Status of submittals.
4) Deliveries.
5) Off-site fabrication.
6) Access.
7) Site use.
8) Temporary facilities and controls.
9) Progress cleaning.
10) Quality and work standards.
11) Status of correction of deficient items.
12) Field observations.
13) Status of RFIs.
14) Status of Proposal Requests.
15) Pending changes.
16) Status of Change Orders.
17) Pending claims and disputes.
18) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 3200

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
   1. Contractor's Construction Schedule.
   2. Construction schedule updating reports.
   3. Site condition reports.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
   1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
   2. Predecessor Activity: An activity that precedes another activity in the network.
   3. Successor Activity: An activity that follows another activity in the network.

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

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

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

E. Float: The measure of leeway in starting and completing an activity.
   1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
   2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
   3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

1.3 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:
   1. Working electronic copy of schedule file.
   2. PDF file.

B. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
   1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.

D. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, original duration,

remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.
3. Total Float Report: List of activities sorted in ascending order of total float.

E. Construction Schedule Updating Reports: Submit with Applications for Payment.

F. Site Condition Reports: Submit at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate Contractor's Construction Schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

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

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

1. Use Primavera, or other approved electronic CPM software.

B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.

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

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

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Section 01 3300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
6. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

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

1. Owner-Furnished Products: Include a separate activity for each product. Delivery dates indicated stipulate the earliest possible delivery date.
2. Work Restrictions: Show the effect of the following items on the schedule:
    a. Coordination with existing construction.
    b. Limitations of continued occupancies.
    c. Uninterruptible services.

d. Seasonal variations.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and the Contract Time.

G. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

H. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.

I. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.6 CPM SCHEDULE REQUIREMENTS

A. Startup Network Diagram: Submit diagram within 10 days of date of the Agreement. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

B. CPM Schedule: Prepare Contractor's Construction Schedule using a time-scaled CPM network analysis diagram for the Work.
1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 60 days after date of the Agreement.
a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates.
2. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule to coordinate with the Contract Time.

C. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.
1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
a. Preparation and processing of submittals.
b. Mobilization and demobilization.

c. Purchase of materials.
d. Delivery.
e. Fabrication.
f. Installation.
g. Work by Owner that may affect or be affected by Contractor's activities.
h. Testing and inspection.
i. Punch list and final completion.
j. Activities occurring following final completion.

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall Project schedule.

1.7 REPORTS

A. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 3300

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Submittal schedule requirements.

B. Administrative and procedural requirements for submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.3 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:
   1. Project name.
   2. Date.
   3. Name of Architect.
   4. Name of Contractor.
   5. Name of firm or entity that prepared submittal.
   6. Names of subcontractor, manufacturer, and supplier.
   7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
   8. Category and type of submittal.
   9. Submittal purpose and description.
   10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
   11. Drawing number and detail references, as appropriate.
   12. Location(s) where product is to be installed, as appropriate.
   13. Remarks.
   14. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. PDF Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

1.5 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
   1. Email: Prepare submittals as PDF package, and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.
   2. Web-Based Project Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
   3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
   1. Initial Review: Allow 15 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
   2. Resubmittal Review: Allow 15 calendar days for review of each resubmittal.

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

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

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.6 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
   3. Include the following information, as applicable:
      a. Manufacturer's catalog cuts.
      b. Manufacturer's product specifications.
      c. Standard color charts.
      d. Statement of compliance with specified referenced standards.
      e. Testing by recognized testing agency.
      f. Application of testing agency labels and seals.
      g. Notation of coordination requirements.
      h. Availability and delivery time information.
   4. For equipment, include the following in addition to the above, as applicable:
      a. Wiring diagrams that show factory-installed wiring.

b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
a. Project name and submittal number.
b. Generic description of Sample.
c. Product name and name of manufacturer.
d. Sample source.
e. Number and title of applicable Specification Section.
f. Specification paragraph number and generic name of each item.
3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.
4. Paper Transmittal: Include paper transmittal together with physical samples and including complete submittal information indicated.
5. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
6. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
7. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.

1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

D. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

E. Certificates:
1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

F. Test and Research Reports:
1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
a. Name of evaluation organization.
b. Date of evaluation.
c. Time period when report is in effect.
d. Product and manufacturers' names.
e. Description of product.

f. Test procedures and results.
g. Limitations of use.

1.7 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
2. Where require, provide copy of delegated design calculations with submittal.

1.8 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.9 ARCHITECT'S REVIEW

A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required, and return it.
1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action.

B. Informational Submittals: Architect will review each submittal and will not return it or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

D. Architect will return without review submittals received from sources other than Contractor.

E. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 4000

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
   1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
   2. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
   1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

D. Mockups: Full-size physical assemblies that are constructed on-site either as freestanding temporary built elements or as part of permanent construction. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
   1. Integrated Exterior Mockups: Mockups of the exterior envelope constructed on-site as freestanding temporary built elements, consisting of multiple products, assemblies, and subassemblies.

E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.

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

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

J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.3 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 SUBMITTALS

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

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

1.5 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
   1. Date of issue.
   2. Project title and number.
   3. Name, address, telephone number, and email address of testing agency.
   4. Dates and locations of samples and tests or inspections.
   5. Names of individuals making tests and inspections.
   6. Description of the Work and test and inspection method.
   7. Identification of product and Specification Section.
   8. Complete test or inspection data.
   9. Test and inspection results and an interpretation of test results.
   10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
   11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
   12. Name and signature of laboratory inspector.

13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
   1. Statement on condition of substrates and their acceptability for installation of product.
   2. Statement that products at Project site comply with requirements.
   3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
   4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
   5. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
   1. Statement that equipment complies with requirements.
   2. Results of operational and other tests and a statement of whether observed performance complies with requirements.
   3. Other required items indicated in individual Specification Sections.

1.6 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

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

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

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

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
   1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation

of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

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

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
   1. Contractor responsibilities include the following:
      a. Provide test specimens representative of proposed products and construction.
      b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
      c. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
      d. When testing is complete, remove test specimens and test assemblies, and mockups; do not reuse products on Project.
   2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
   1. Build mockups of size indicated.
   2. Build mockups in location indicated or, if not indicated, as directed by Architect.
   3. Notify Architect seven days in advance of dates and times when mockups will be constructed.
   4. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed to perform same tasks during the construction at Project.
   5. Demonstrate the proposed range of aesthetic effects and workmanship.
   6. Obtain Architect's approval of mockups before starting corresponding work, fabrication, or construction.
      a. Allow seven days for initial review and each re-review of each mockup.
   7. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
   8. Demolish and remove mockups when directed unless otherwise indicated.

1.7 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
   1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
   2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
   1. Engage a qualified testing agency to perform quality-control services.
      a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

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

D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 3300 "Submittal Procedures."

F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

G. Associated Contractor Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
6. Security and protection for samples and for testing and inspection equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
   1. Date test or inspection was conducted.
   2. Description of the Work tested or inspected.
   3. Date test or inspection results were transmitted to Architect.
   4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.
   1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
   1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 7300 "Execution."

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

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

END OF SECTION

SECTION 01 4200

REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
   1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's

"Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

1.4 GOVERNING REGULATIONS/AUTHORITIES

A. The Architect has contacted Authorities having Jurisdiction where necessary to obtain information necessary for preparation of Contract Documents, recognizing that such information may or may not be of significance in relation to Contractor's responsibilities for performing the Work. Contact Authorities having Jurisdiction directly for information and decisions having a bearing on the Work.

1.5 SUBMITTALS

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 5000

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Requirements for temporary utilities, support facilities, and security and protection facilities.

1.2 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.

1.3 INFORMATIONAL SUBMITTALS

A. Temporary Construction Sign: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

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

C. Accessible Temporary Egress: Comply with applicable provisions in the United States Access Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.5 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:

2.2 EQUIPMENT

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

B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system in writing, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
   1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
   2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
   3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
   1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work.

3.2 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service.
   1. Arrange with utility company to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

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

E. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
   1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.

F. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

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

H. Telephone Service: Provide temporary telephone service for use by all construction personnel. Post a list of important telephone numbers at each temporary telephone

3.4 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:
1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.
1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.

C. Traffic Controls: Comply with requirements of authorities having jurisdiction.
1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

D. Parking: Provide temporary parking areas for construction personnel.

E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

F. Construction Sign: Provide Project signs as indicated. Unauthorized signs are not permitted.
1. Refer to Drawings for Construction Sign.

G. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

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

B. Temporary Erosion and Sedimentation Control: Comply with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

C. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

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

E. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.

F. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
   1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
   2. Maintain security by limiting number of keys and restricting distribution to authorized personnel.

G. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

H. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

I. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
   1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

J. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
   1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
   2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
   3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
   4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.
   1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
   2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
   3. Indicate methods to be used to avoid trapping water in finished work.

B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
   1. Protect porous materials from water damage.
   2. Protect stored and installed material from flowing or standing water.
   3. Keep porous and organic materials from coming into prolonged contact with concrete.
   4. Remove standing water from decks.
   5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
   1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
   2. Keep interior spaces reasonably clean and protected from water damage.
   3. Periodically collect and remove waste containing cellulose or other organic matter.
   4. Discard or replace water-damaged material.
   5. Do not install material that is wet.
   6. Discard and replace stored or installed material that begins to grow mold.
   7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.

D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
   1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
   2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
   3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

3.7 OPERATION, TERMINATION, AND REMOVAL

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

B. Maintenance: Maintain facilities in good operating condition until removal.
   1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
   1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
   2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 7700 "Closeout Procedures."

END OF SECTION

SECTION 01 6000

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
   1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
   2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
   3. Comparable Product: Product that is demonstrated and approved by Architect through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.3 ACTION SUBMITTALS

A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
   2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
      a. Form of Architect's Approval of Submittal: As specified in Section 01 3300 "Submittal Procedures."
      b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 3300 "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

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

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

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

B. Delivery and Handling:
   1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
   2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
   3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
   4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:
   1. Store products to allow for inspection and measurement of quantity or counting of units.
   2. Store materials in a manner that will not endanger Project structure.
   3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
   4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
   5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
   6. Protect stored products from damage and liquids from freezing.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
   1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
   2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
   1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
   2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
   3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
   1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
   2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
   3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
   4. Where products are accompanied by the term "as selected," Architect will make selection.
   5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Product Selection Procedures:
   1. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements.
      a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: …"
   2. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
      a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: …"
   3. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named.

C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
   1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
   2. Evidence that proposed product provides specified warranty.

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

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 7300

EXECUTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. General administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
   1. Construction layout.
   2. Installation of the Work.
   3. Cutting and patching.
   4. Progress cleaning.
   5. Starting and adjusting.
   6. Protection of installed construction.

1.2 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
   1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
   2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
   3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
   4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.
   1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
   2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
   3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

B. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

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

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

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 01 3100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

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

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

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

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

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

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

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

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
   1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
   2. Allow for building movement, including thermal expansion and contraction.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

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

J. Remove and replace damaged, defective, or non-conforming Work.

3.5 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
   1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Temporary Support: Provide temporary support of work to be cut.

C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

D. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 1000 "Summary."

E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
   3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
   4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
   5. Proceed with patching after construction operations requiring cutting are complete.

G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
   1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
   2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
   3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
   1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
   2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
      a. Use containers intended for holding waste materials of type to be stored.
   4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

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

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

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

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

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

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 7419 "Construction Waste Management and Disposal."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

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

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

3.7 STARTING AND ADJUSTING

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

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

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

3.8 PROTECTION OF INSTALLED CONSTRUCTION

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

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

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

END OF SECTION

SECTION 01 7700

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for contract closeout, including, but not limited to, the following:
   1. Substantial Completion procedures.
   2. Final completion procedures.
   3. Warranties.
   4. Final cleaning.
   5. Repair of the Work.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of cleaning agent.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at final completion.

1.3 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest control inspection.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
   1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
   3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
   4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Owner. Label with manufacturer's name and model number.
   5. Submit testing, adjusting, and balancing records.
   6. Submit sustainable design submittals not previously submitted.
   7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
   1. Advise Owner of pending insurance changeover requirements.
   2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
   3. Complete startup and testing of systems and equipment.
   4. Perform preventive maintenance on equipment used prior to Substantial Completion.
   5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
   6. Advise Owner of changeover in utility services.
   7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
   8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
   9. Complete final cleaning requirements.
   10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1.5 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
   1. Submit a final Application for Payment according to Section 01 2900 "Payment Procedures."
   2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
   3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
   4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
   1. 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.
   3. Submit list of incomplete items in the following format:
      a. PDF electronic file. Architect will return annotated file.

1.7 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

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

C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
   1. Submit on digital media acceptable to Architect.

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

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
   1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated 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. 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.
      c. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
      d. Sweep concrete floors broom clean in unoccupied spaces.
      e. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
      f. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
      g. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
      h. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
      i. Leave Project clean and ready for occupancy.

C. Pest Control: Comply with pest control requirements in Section 01 5000 "Temporary Facilities and Controls." Prepare written report.

D. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 7419 "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations, before requesting inspection for determination of Substantial Completion.

B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION

SECTION 01 7839

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for project record documents, including the following:
   1. Record Drawings.
   2. Record Specifications.

1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:
   1. Submit two paper-copies and one PDF set of marked-up record prints.

B. Record Specifications:
   1. Submit one paper copy and one PDF of Project's Specifications, including addenda and contract modifications.

1.3 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
   1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
      a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
      b. Accurately record information in an acceptable drawing technique.
      c. Record data as soon as possible after obtaining it.
      d. Record and check the markup before enclosing concealed installations.
      e. Cross-reference record prints to corresponding photographic documentation.
   2. Content: Types of items requiring marking include, but are not limited to, the following:
      a. Dimensional changes to Drawings.
      b. Revisions to details shown on Drawings.
      c. Depths of foundations.
      d. Locations and depths of underground utilities.
      e. Revisions to routing of piping and conduits.
      f. Revisions to electrical circuitry.
      g. Actual equipment locations.
      h. Duct size and routing.
      i. Locations of concealed internal utilities.
      j. Changes made by Change Order or Construction Change Directive.
      k. Changes made following Architect's written orders.
      l. Details not on the original Contract Drawings.
      m. Field records for variable and concealed conditions.
      n. Record information on the Work that is shown only schematically.
   3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
   4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
   5. Mark important additional information that was either shown schematically or omitted from original Drawings.

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

B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
   1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
   2. Identification: As follows:
      a. Project name.
      b. Date.
      c. Designation "PROJECT RECORD DRAWINGS."
      d. Name of Architect
      e. Name of Contractor.

1.4 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
   1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
   2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
   3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
   4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
   5. Note related Change Orders and record Drawings where applicable.

1.5 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store record documents in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 02 4119

SELECTIVE DEMOLITION

1.1 SUMMARY

A. Section Includes:
   1. Demolition and removal of selected portions of building.

B. Owner to remove existing temporary construction prior to starting Work.

C. Observe Work Areas as indicated in the Drawings and as required for compliance with the North Carolina Existing Building Code and as indicated in the Contract Documents.

1.2 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.3 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Engineering Survey: Submit engineering survey of condition of building.

B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for dust control. Indicate proposed locations and construction of barriers.

C. Schedule of selective demolition activities with starting and ending dates for each activity.

D. Predemolition photographs or video.

E. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician.

1.5 CLOSEOUT SUBMITTALS

A. Inventory of items that have been removed and salvaged.

1.6 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.7 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted. Maintain temporary barriers and egress pathways throughout the duration of the project.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: Hazardous Materials are present on campus but are not expected to be encountered as part of the Work.
   1. Owner has additional information regarding hazardous materials on campus, and a copy may be obtained from the Owner.
   2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
   1. Maintain fire-protection facilities in service during selective demolition operations.

G. Arrange selective demolition schedule so as not to interfere with Owner's operations.

1.8 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

C. Comply with Standards of the Inspection Jurisdiction.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

C. Inventory and record the condition of items to be removed and salvaged. Identify and inventory items to be removed by the Owner Prior to Construction.

3.2 PREPARATION

A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
   1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
   2. Arrange to shut off utilities with utility companies.
   3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
   4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed. Additional utilities and obstructions, not identified on the Contract Documents may be encountered and require removal as part of the demolition process. When encountered, contact Architect and Owner to confirm appropriate direction.
      a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
      b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
      c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
      d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
      e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
      f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
      g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.4 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

C. Remove temporary barricades and protections where hazards no longer exist.

3.5 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
   1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
   2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Maintain fire watch during and for at least 4 hours after flame-cutting operations.
5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
6. Dispose of demolished items and materials promptly.
7. Existing finish Items damaged during demolition and construction shall be replaced by the Contractor at no additional expense to the Owner.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.6 CLEANING

A. Remove demolition waste materials from Project site and recycle or dispose of them
1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Section 01 7419 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 06 1000

ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Wood blocking and nailers.
   2. Floor Infill assembly
      a. Fire retardant treated sleepers
      b. Fire retardant treated subflooring
      c. Thermal Insulation

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1.3 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:
   1. Preservative-treated wood.
   2. Fire-retardant-treated wood.
   3. Power-driven fasteners.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
   1. Factory mark each piece of lumber with grade stamp of grading agency.

B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Application: Treat items indicated on Drawings, and the following:
   1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
   2. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with masonry or concrete.
   3. All wood blocking at exterior walls

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant

progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
2. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D 5664, and design value adjustment factors shall be calculated according to ASTM D 6841.

B. Application: Treat plywood backing panels; flooring sleepers; wood subflooring.

2.4 WOOD SUBFLOORING

A. Fire Treated Plywood Subflooring: **Either DOC PS 1 or DOC PS 2**, **Exposure 1, Structural I** single-floor panels or sheathing.

1. Span Rating: As required for conditions.
2. Nominal Thickness: Not less than 23/32 inch.

2.5 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Furring.
4. Grounds.
5. Sleepers

B. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.

C. Dimension Lumber Items: Construction or No. 2 grade lumber of any species.

2.6 FASTENERS

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

1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Adhesives: Polymer-based adhesive for use in floor infill assembly.

C. Screws for Fastening to Wood Framing: ASTM C 1002, length as recommended by screw manufacturer for material being fastened.

D. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

2.7 ACCESSORIES

A. Mineral-wool board insulation for use at floor infill assembly.

1. Manufacturers: Products by one of the
    a. Rockwool
    b. Johns Manville
    c. Knauf Insulation

2. Mineral-Wool Board Insulation, Type II, Faced: ASTM C612, Type II; faced on one side with foil-scrim or foil-scrim-polyethylene vapor retarder.
    a. Minimum Density: 6lb/cu. ft..
    b. Flame-Spread Index: Not more than 15 when tested in accordance with ASTM E84.
    c. Smoke-Developed Index: Not more than zero when tested in accordance with ASTM E84.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.

C. Install plywood backing panels by fastening to structural substrate; coordinate locations with utilities requiring backing panels. Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.

D. Do not splice structural members between supports unless otherwise indicated.

E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
    1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).

3.2 FLOORING INFILL ASSEMBLY

A. After required demolition, evaluate conditions, and assess appropriate design assembly for infill of flooring area.

B. Adhere or mechanically attach FRT wood sleepers to concrete. Coordinate with resilient flooring manufacturer to achieve uniform flooring conditions. Install fire resistive mineral board insulation, and cover with subflooring. Adhere or mechanically attach subflooring to sleeps, in accordance with resilient flooring manufacturer; AHJ, and design team.

3.3 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.

C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

E. Provide non-structural framing and blocking for the following:
    1. Wall brackets.
    2. Wall-mounted door stops.

END OF SECTION

SECTION 07 8413

PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Penetrations in fire-resistance-rated walls.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Product Schedule: For each penetration firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing and inspecting agency.
   1. Engineering Judgments: Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping system, submit illustration, with modifications marked, approved by penetration firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly. Obtain approval of authorities having jurisdiction prior to submittal.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

1.5 CLOSEOUT SUBMITTALS

A. Installer Certificates: From Installer indicating that penetration firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A firm that has been approved by FM Global according to FM Global 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with its "Qualified Firestop Contractor Program Requirements."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics:
   1. Perform penetration firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
   2. Test per testing standards referenced in "Penetration Firestopping Systems" Article. Provide rated systems complying with the following requirements:
      a. Penetration firestopping systems shall bear classification marking of a qualified testing agency.
         1) UL in its "Fire Resistance Directory."
         2) Intertek Group in its "Directory of Listed Building Products."
         3) FM Global in its "Building Materials Approval Guide."

2.2 PENETRATION FIRESTOPPING SYSTEMS

A. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
   1. 3M Fire Protection Products
   2. Hilti, Inc
   3. RectorSeal
   4. Specified Technologies, Inc
   5. Tremco, Inc.

B. Penetrations in Fire-Resistance-Rated Walls: Penetration firestopping systems with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
   1. F-Rating: Not less than the fire-resistance rating of constructions penetrated.

C. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping system manufacturer and approved by qualified testing and inspecting agency for conditions indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.

B. General: Install penetration firestopping systems to comply with manufacturer's written installation instructions and published drawings for products and applications.

C. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings.
   1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not forming permanent components of firestopping.

D. Install fill materials by proven techniques to produce the following results:
   1. Fill voids and cavities formed by openings, forming materials, accessories and penetrating items to achieve required fire-resistance ratings.
   2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
   3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.2 IDENTIFICATION

A. Wall Identification: Permanently label walls containing penetration firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches high and with minimum 0.375-inch strokes.
   1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 feet from end of wall and at intervals not exceeding 30 feet.

B. Penetration Identification: Identify each penetration firestopping system with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of

penetration firestopping system edge so labels are visible to anyone seeking to remove penetrating items or firestopping systems. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:

1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor's name, address, and phone number.
3. Designation of applicable testing and inspecting agency.
4. Date of installation.
5. Manufacturer's name.
6. Installer's name.

3.3 FIELD QUALITY CONTROL

A. Where deficiencies are found or penetration firestopping system is damaged or removed because of testing, repair or replace penetration firestopping system to comply with requirements.

B. Proceed with enclosing penetration firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

END OF SECTION

SECTION 07 8443

JOINT FIRESTOPPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Joints in or between fire-resistance-rated constructions.

B. Product Data: For each type of product.

C. Product Schedule: For each joint firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing agency.
   1. Engineering Judgments: Where Project conditions require modification to a qualified testing agency's illustration for a particular joint firestopping system condition, submit illustration, with modifications marked, approved by joint firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

1.2 INFORMATIONAL SUBMITTALS

A. Product test reports.

1.3 CLOSEOUT SUBMITTALS

A. Installer Certificates: From Installer indicating that joint firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A firm that has been approved by FM Approvals according to FM Approvals 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with UL's "Qualified Firestop Contractor Program Requirements."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics:
   1. Perform joint firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
   2. Test per testing standards referenced in "Joint Firestopping Systems" Article. Provide rated systems complying with the following requirements:
      a. Joint firestopping systems shall bear classification marking of a qualified testing agency.
         1) UL in its "Fire Resistance Directory."
         2) Intertek Group in its "Directory of Listed Building Products."

2.2 JOINT FIRESTOPPING SYSTEMS

A. Joint Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of assemblies in or between which joint firestopping systems are installed. Joint firestopping systems shall accommodate building movements without impairing their ability to resist the passage of fire and hot gases.

B. Joints in or between Fire-Resistance-Rated Construction: Provide joint firestopping systems with ratings determined per ASTM E1966 or UL 2079.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. 3M Fire Protection Products.
      b. Hilti, Inc.
      c. Nelson; Emerson Electric Co., Automation Solutions.
      d. NUCO Inc.
      e. RectorSeal Firestop; a CSW Industrials Company.
      f. Specified Technologies, Inc.
      g. Tremco, Inc.
   2. Fire-Resistance Rating: Equal to or exceeding the fire-resistance rating of the wall, floor, or roof in or between which it is installed.

C. Exposed Joint Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E84.

2.3 PREFORMED RATED JOINT ASSEMBLY

A. Basis of Design: Emshield WFR by Emseal or comparable product to conform to the rated assembly requirements and the existing conditions.

B. Joint Cover: Anodized Aluminum, no less than 0.040 inch thick.

C. Refer to Drawings for details.

2.4 ACCESSORY PRODUCTS

A. Insulation for Miscellaneous Voids:
   1. Mineral-Wool Blanket Insulation, Unfaced: ASTM C665, Type I (blankets without membrane facing); consisting of fibers; passing ASTM E136 for combustion characteristics.
      a. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
      b. Smoke-Developed Index: Not more than 50 when tested in accordance with ASTM E84.

B. Accessories: Provide components of joint firestopping systems, including primers and forming materials, that are needed to install elastomeric fill materials and to maintain ratings required. Use only components specified by joint firestopping system manufacturer and approved by the qualified testing agency for conditions indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of the Work.

B. General: Install joint firestopping systems to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.

C. Install forming materials and other accessories of types required to support elastomeric fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
   1. After installing elastomeric fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of fire-resistive joint system.

D. Install elastomeric fill materials for joint firestopping systems by proven techniques to produce the following results:
   1. Elastomeric fill voids and cavities formed by joints and forming materials as required to achieve fire-resistance ratings indicated.
   2. Apply elastomeric fill materials so they contact and adhere to substrates formed by joints.
   3. For elastomeric fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

E. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using mineral wool blanket insulation.

3.2 IDENTIFICATION

A. Joint Identification: Identify joint firestopping systems with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of joint edge so labels are visible to anyone seeking to remove or joint firestopping system. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
   1. The words "Warning - Joint Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
   2. Contractor's name, address, and phone number.
   3. Designation of applicable testing agency.
   4. Date of installation.
   5. Manufacturer's name.
   6. Installer's name.

3.3 FIELD QUALITY CONTROL

A. Inspecting Agency: Owner will engage a qualified testing agency to perform tests and inspections according to ASTM E2393.

B. Where deficiencies are found or joint firestopping systems are damaged or removed due to testing, repair or replace joint firestopping systems so they comply with requirements.

C. Proceed with enclosing joint firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

END OF SECTION

SECTION 07 9200

JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Silicone joint sealants.

B. Urethane joint sealants.

C. Mildew-resistant joint sealants.

D. Latex joint sealants.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples: For each kind and color of joint sealant required.

C. Joint-Sealant Schedule: Include the following information:
   1. Joint-sealant application, joint location, and designation.
   2. Joint-sealant manufacturer and product name.
   3. Joint-sealant formulation.
   4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Preconstruction field-adhesion-test reports.

C. Field-adhesion-test reports.

D. Sample warranties.

1.5 PRECONSTRUCTION TESTING

A. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.6 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 URETHANE JOINT SEALANTS

A. Urethane, M, NS, 25, NT: Multicomponent, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, urethane joint sealant; ASTM C 920, Type M, Grade NS, Class 25, Use NT.
   1. Subject to compliance with requirements provide products by one of the following
      a. BASF Corporation
      b. Sherwin-Williams Company

2.3 MILDEW-RESISTANT JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
   1. Subject to compliance with requirements provide products by one of the following
      a. May National Associates, a Sika Corporation
      b. Pecora Corporation
      c. Tremco Incorporated

2.4 JOINT-SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.5 MISCELLANEOUS MATERIALS

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

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

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

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
   1. Remove laitance and form-release agents from concrete.

2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces.

3.2 INSTALLATION OF JOINT SEALANTS

A. General: Comply with ASTM C 1193 and joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

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

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
1. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.3 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
1. Extent of Testing: Test completed and cured sealant joints as follows:
   a. Perform 10 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
   b. Perform one test for each 1000 feet of joint length thereafter
2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

B. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.4 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Locations:
   a. Control and expansion joints on exposed interior surfaces of exterior walls.
   b. Vertical joints on exposed surfaces of unit masonry walls.
2. Joint Sealant: Urethane, S, NS, 25, NT.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement.
   1. Joint Locations:
      a. Control joints on exposed interior surfaces of exterior walls.
      b. Perimeter joints between interior wall surfaces and frames of interior doors and windows
   2. Joint Sealant: Acrylic latex.
   3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION

SECTION 08 1113

HOLLOW METAL FRAMES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Interior hollow-metal frames.

1.2 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.

C. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements, products by the listed manufacturers may be incorporated into the Work
   1. Curries; an ASSA ABLOY Company
   2. Republic Doors and Frames
   3. Steelcraft; an Allegion Brand
   4. Ceco; an ASSA ABLOY Company

2.2 REGULATORY REQUIREMENTS

A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

2.3 INTERIOR FRAMES

A. Heavy-Duty Frames: SDI A250.8, Level 2.
   1. Physical Performance: Level B according to SDI A250.4.
   2. Frames:
      a. Materials: Uncoated, steel sheet, minimum thickness of 0.053 inch.
      b. Frames: Fabricated from same thickness material as adjacent door frame.
      c. Construction: Full profile welded.
   3. Exposed Finish: Shop or factory prime for field finishing.

2.4 FRAME ANCHORS

A. Jamb Anchors:
   1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
   2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.

B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:
   1. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.5 MATERIALS

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

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

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.

D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
   1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

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

F. Power-Actuated Fasteners in Concrete: From corrosion-resistant materials.

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

H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing).

I. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat.

2.6 FABRICATION

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

B. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
   1. Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
   2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
   3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.

4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
5. Jamb Anchors: Provide number and spacing of anchors as follows:
    a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:
        1) Two anchors per jamb up to 60 inches high.
        2) Three anchors per jamb from 60 to 90 inches high.
        3) Four anchors per jamb from 90 to 120 inches high.
    b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
        1) Three anchors per jamb up to 60 inches high.
        2) Four anchors per jamb from 60 to 90 inches high.
        3) Five anchors per jamb from 90 to 96 inches high.
        4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.
    a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

C. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
1. Reinforce frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

2.7 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
1. Shop Primer: SDI A250.10.

B. Field Finish in accordance with Section 09 9100 - Painting

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hollow-Metal Frames: Install hollow-metal frames for doors, transoms, and other openings, of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    a. At fire-rated openings, install frames according to NFPA 80.
    b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    c. Install frames with removable stops located on secure side of opening.
    d. Install door silencers in frames before grouting.
    e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    g. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
    a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
    b. Coordinate floor anchors with flooring assembly types for conformance with performance requirements stated herein.
3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.

3.2 ADJUSTING AND CLEANING

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

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

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

END OF SECTION

SECTION 08 1416

FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Solid-core fire rated doors with wood-veneer for transparent finish
   2. Factory finishing flush wood doors.
   3. Factory fitting flush wood doors to frames and factory machining for hardware.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of door. Include factory-finishing specifications.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
   1. Dimensions and locations of blocking.
   2. Dimensions and locations of mortises and holes for hardware.
   3. Dimensions and locations of cutouts.
   4. Undercuts.
   5. Requirements for veneer matching.
   6. Doors to be factory finished and finish requirements.
   7. Fire-protection ratings for fire-rated doors.

C. Samples: For factory-finished doors.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements provide doors by one of the following:
   1. Algoma Hardwoods Inc.
   2. Eggers Industries
   3. Graham Wood Doors
   4. Marshfield Door Systems, Inc.
   5. Mohawk Flush Doors.

2.2 FLUSH WOOD DOORS, GENERAL

A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."

B. WDMA I.S.1-A Performance Grade: Extra Heavy Duty

C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
   1. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
   2. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
   3. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.

D. Particleboard-Core Doors:
   1. Particleboard: ANSI A208.1, Grade LD-1, made with binder containing no urea-formaldehyde.
   2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.

E. Mineral-Core Doors:
   1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
   2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting hardware.
   3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.

2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Solid-Core Doors:
   1. Grade: Premium, with Grade A faces.
   2. Species: White Oak
   3. Cut: Plain Sliced
   4. Match between Veneer Leaves: Pleasing match.
   5. Assembly of Veneer Leaves on Door Faces: Center-balance match.
   6. Core: Either glued wood stave or structural composite lumber.
   7. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering.

2.4 FABRICATION

A. Factory machine doors for hardware that is not surface applied.

2.5 FACTORY FINISHING

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

B. Factory finish doors that are indicated to receive transparent finish.

C. Transparent Finish:
   1. Grade: Premium.
   2. Finish: AWI's, "Architectural Woodwork Standards" System 11, catalyzed polyurethane.
   3. Staining: As selected by Architect from Manufacturer’s full range.
   4. Effect: Semi-filled finish, produced by applying an additional finish coat to partially fill the wood pores.
   5. Sheen: Satin.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hardware: For installation, see Section 08 7100 "Door Hardware."

B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
   1. Install fire-rated doors according to NFPA 80.

C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
   1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
      a. Comply with NFPA 80 for fire-rated doors.

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

END OF SECTION

SECTION 08 7100

DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Mechanical door hardware for swinging doors

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

B. Keying Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For electrified door hardware.
   1. Include diagrams for power, signal, and control wiring.
   2. Include details of interface of electrified door hardware and building safety and security systems.

C. Samples: For each exposed product in each finish specified.

D. Door hardware schedule.

E. Keying schedule.

F. Sample warranty.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and of an Architectural Hardware Consultant who is available during the course of the Work to consult Contractor, Architect, and Owner about door hardware and keying.
   1. Scheduling Responsibility: Preparation of door hardware and keying schedule.
   2. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

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

1.5 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
   1. Warranty Period: Three years from date of Substantial Completion unless otherwise indicated below:
      a. Manual Closers: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

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

B. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.

C. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the ICC A117.1

2.2 SCHEDULED DOOR HARDWARE

A. Provide products for each door that comply with requirements indicated in Part 2 and door hardware schedule.
   1. Door hardware is scheduled in Part 3.

2.3 HINGES

A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
B. Anti-friction butt hinges shall be used on any door with a closer or overhead stop. Heavy weight hinges shall be used in accordance with manufacture's recommendations for door weight.
C. Shall be full mortised unless indicated in hardware sets.
D. Number of Hinges: Two hinges for every door up to 60". One additional hinge for each additional 30" of door height.
E. Butt Hinge Sizing: Shall meet manufactures requirements for size based on door weight and width. Doors 37" and greater in width are to receive 5" tall hinges.

2.1 MECHANICAL LOCKS AND LATCHES

A. Lock Functions: As indicated in door hardware schedule.

B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
   1. Mortise Locks: Minimum 3/4-inch latchbolt throw.

C. Lock Backset: 2-3/4 inches unless otherwise indicated.

D. Lock Trim:
   1. Description: As indicated on Hardware Schedule

E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.

F. Manufacturers:
   1. Corbin Russwin; an Allegion Company (CR)
   2. Best Lock Corporation (BLC).
   3. Yale Commercial, an ASSA ABLOY Company (YA).

2.2 AUXILIARY LOCKS

A. Bored Auxiliary Locks: BHMA A156.36: Grade 1; with strike that suits frame.

B. Mortise Auxiliary Locks: BHMA A156.36; Grade 1; with strike that suits frame.

2.3 LOCK CYLINDERS

A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver. Provide cylinder from same manufacturer of locking devices.

B. Construction Master Keys: Provide cylinders with feature that permits voiding of construction keys without cylinder removal. Provide 10 construction master keys.

2.4 KEYING

A. Keying System: Match and extend owner's existing Yale key system, complying with guidelines in BHMA A156.28, appendix. Provide one extra key blank for each lock. Incorporate decisions made in keying conference.

B. Keys: Nickel silver.
   1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
      a. Notation: "DO NOT DUPLICATE."

2.5 OPERATING TRIM

A. Operating Trim: BHMA A156.6; aluminum unless otherwise indicated.

2.6 SURFACE CLOSERS

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

B. Stop arms:
   1. Where specified provide Closer Plus Spring Arm (CPS). In lieu of Closer Plus Spring Arm provide Cush-N-Stop type arm.
   2. Provide soffit plate for parallel arm applications using aluminum frames with blade stops or snap on stops.
   3. Manufacturers:
      a. LCN Closers; an Allegion Company (LCN) 4040 Series.
      b. Norton Door Controls, an ASSA ABLOY Company (NO) 7500 Series.
      c. Yale Commercial; an ASSA ABLOY Company (YA) 4400 Series.

2.7 MECHANICAL STOPS AND HOLDERS

A. Wall- and Floor-Mounted Stops: BHMA A156.16.

2.8 DOOR GASKETING

A. Door Gasketing: BHMA A156.22; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

B. Maximum Air Leakage: When tested according to ASTM E 283 with tested pressure differential of 0.3-inch wg, as follows:
   1. Smoke-Rated Gasketing: 0.3 cfm/sq. ft. of door opening.

2.9 METAL PROTECTIVE TRIM UNITS

A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch-thick aluminum; with manufacturer's standard machine or self-tapping screw fasteners.

2.10 FINISHES

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

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
   1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
   2. Custom Steel Doors and Frames: HMMA 831.
   3. Wood Doors: DHI's "Recommended Locations for Architectural Hardware for Wood Flush Doors."

B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work. Do not install surface- mounted items until finishes have been completed on substrates involved.

C. Hinges: Install types and in quantities indicated in door hardware schedule, but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

D. Lock Cylinders: Install construction cores to secure building and areas during construction period.
   1. Furnish permanent cores to Owner for installation.

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

F. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
   1. Do not notch perimeter gasketing to install other surface-applied hardware.

3.2 ADJUSTING

A. Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

DOOR HARDWARE SCHEDULE

A. ABBREVIATION

1. MK - McKinney
2. RO - Rockwood
3. YA - Yale
5. NO - Norton
6. PE - Pemko

HARDWARE SET:

3	Hinge – Ball Bearing	TA2714 4.5 by 4.5	US26D	MK
1	Mortise Lock - Entry	AUR 8807FL	626	YA
1	Surface Closer	7500	689	NO
1	Kick Plate	K1050 8" HIGH CSK	US32D	RO
1	Door Stop	406/441CU	US26D	RO
1	Set Door Seals	S88D		PE

END OF SECTION

SECTION 08 8000

GLAZING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Replacement Glass for Existing Storefront Framing

B. Glazing Types:
   1. Monolithic Glazing

C. Glazing sealants and accessories.

1.2 COORDINATION

A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.

2.2 GLASS PRODUCTS, GENERAL

A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
   1. GANA Publications: "Laminated Glazing Reference Manual" and "Glazing Manual."
   2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR A7, "Sloped Glazing Guidelines."
   3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Guidelines for Sloped Glazing."
   4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction or manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

C. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.

2.3 GLASS PRODUCTS

A. Fully Tempered Float Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.

2.4 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
   1. AAMA 804.3 tape, where indicated.
   2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
   3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
   1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
   2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.5 MISCELLANEOUS GLAZING MATERIALS

A. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

B. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

C. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

D. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

PART 3 - EXECUTION

3.1 GLAZING, GENERAL

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

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

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

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

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

F. Provide spacers for glass lites where length plus width is larger than 50 inches.

G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

3.2 TAPE GLAZING

A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.

C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Apply heel bead of elastomeric sealant.

F. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

G. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.3 CLEANING AND PROTECTION

A. Immediately after installation remove nonpermanent labels and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.
   1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.

C. Remove and replace glass that is damaged during construction period.

3.4 GLAZING SCHEDULE:

A. Glass Type: ¼ inch Clear Vision Safety Glazing
   1. Fully tempered

END OF SECTION

SECTION 09 2216

NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Non-load-bearing steel framing systems.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 QUALITY ASSURANCE

A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association; the Steel Framing Industry Association; or the Steel Stud Manufacturers Association.

B. Engage a qualified professional engineer to design non-structural metal framing. Documents to be signed and sealed by engineer licensed in the jurisdiction of the project.

PART 2 - PRODUCTS

2.1 FRAMING SYSTEMS

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
   1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
   2. Protective Coating: ASTM A 653/A 653M, G60, hot-dip galvanized unless otherwise indicated.

B. Studs and Tracks: ASTM C 645.
   1. Steel Studs and Tracks:
      a. Minimum Base-Metal Thickness: As required by performance requirements for horizontal deflection.
      b. Depth: As indicated on Drawings.

C. Slip-Type Head Joints:
   1. Single Long-Leg Track System: ASTM C 645 top track with 2-inch-deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top track and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.

D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
   1. Minimum Base-Metal Thickness: 0.0269 inch.

2.2 AUXILIARY MATERIALS

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

B. Isolation Strip at Exterior Walls: Provide one of the following:
   1. Asphalt-Saturated Organic Felt: ASTM D 226/D 226M, Type I (No. 15 asphalt felt), nonperforated.

2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.
   1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.

C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

D. Install bracing at terminations in assemblies.

E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.2 INSTALLING FRAMED ASSEMBLIES

A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

C. Install studs so flanges within framing system point in same direction.

D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
   1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
   2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.
      a. Install two studs at each jamb unless otherwise indicated.
      b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
      c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
   3. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
      a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION

SECTION 09 2900

GYPSUM BOARD

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Interior gypsum board.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 MANUFACTURER

A. Manufacturers with products that may be incorporated into the work include:
   1. CertainTeed Corporation.
   2. Georgia-Pacific Gypsum LLC.
   3. National Gypsum Company.
   4. USG Corporation.

2.4 INTERIOR GYPSUM BOARD

A. Gypsum Board, Type X: ASTM C 1396/C 1396M.
   1. Thickness: 5/8 inch.
   2. Long Edges: Tapered.

B. Impact-Resistant Gypsum Board: ASTM C1396/C1396M gypsum board, tested according to ASTM C1629/C1629M.
   1. Core: 5/8 inch, Type X.
   2. Surface Abrasion: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
   3. Indentation: ASTM C1629/C1629M, meets or exceeds Level 1 requirements.
   4. Soft-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
   5. Hard-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements according to test in Annex A1.
   6. Long Edges: Tapered.
   7. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.5 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.
   1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet.
   2. Shapes:

a. Cornerbead.
b. U-Bead: J-shaped; exposed short flange does not receive joint compound.
c. Expansion (control) joint.
d. Other shapes as indicated on Drawings.

2.6 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:
1. Interior Gypsum Board: Paper.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
a. Use setting-type compound for installing paper-faced metal trim accessories.
3. Fill Coat: For second coat, use setting-type, sandable topping compound.
4. Finish Coat: For third coat, use setting-type, sandable topping compound.

2.7 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.
1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

C. Acoustic Batts: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from mineral wool.
1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
2. Density: 4.0 pcf
3. Basis of Design: Thermafiber SAFB

D. Acoustical Sealant: Manufacturer's standard non-sag, paintable, non-staining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

PART 3 - EXECUTION

3.1 APPLYING AND FINISHING PANELS

A. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

B. Comply with ASTM C 840.

C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

D. Apply Impact Resistant Gypsum Board at interior walls within minimum 72 inches of a walking surface.

E. For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

F. Prefill open joints and damaged surface areas.

G. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

H. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
   1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
   2. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated

3.2 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

END OF SECTION

SECTION 09 5113

ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes acoustical panels and exposed suspension systems for interior ceilings.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified.

C. Delegated-Design Submittal: For seismic restraints for ceiling systems.
   1. Include design calculations for seismic restraints including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans, drawn to scale, and coordinated with each other, using input from installers of the items involved.

B. Product test reports.

C. Research reports.

D. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design seismic restraints for ceiling systems.

B. Seismic Performance: Suspended ceilings shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

2.2 ACOUSTICAL PANELS (ACT)

A. Basis of Design: Armstrong Ceiling & Wall Solutions or comparable product by one of the following
   1. CertainTeed Corporation; Saint-Gobain North America.
   2. Rockfon (Rockwool International).
   3. USG Corporation.

B. Acoustical Ceiling Tile (ACT):
   1. Basis of Design: Armstrong Ultima Lay-In Item #1910
   2. Acoustical Panel Standard: ASTM E1264
   3. Classification: Type: IV, Form: 2, Pattern E
   4. Color: White
   5. Light Reflectance (LR): .88
   6. Ceiling Attenuation Class (CAC): 35
   7. Noise Reduction Coefficient (NRC): 0.75
   8. Edge/Joint Detail: Square
   9. Thickness: ¾ inch
   10. Modular Size: 24 by 24 inches
   11. Grid: 15/16 Exposed T Suspension System

2.3 METAL SUSPENSION SYSTEM

A. Basis of Design: Prelude XL HRC Armstrong Ceiling & Wall Solutions or comparable product by one of the following
   1. CertainTeed Corporation; Saint-Gobain North America.
   2. Rockfon (Rockwool International).
   3. USG Corporation.

B. Metal Suspension-System Standard: Manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C635/C635M.

C. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; with prefinished 15/16-inch- wide metal caps on flanges.
   1. Structural Classification: Heavy-duty system.
   2. End Condition of Cross Runners: Override (stepped) or butt-edge type.
   3. Face Design: Flat, flush.
   4. Cap Material: Cold-rolled steel.
   5. Cap Finish: Painted white

2.4 ACCESSORIES

A. Attachment Devices: Size for five times the design load indicated in ASTM C635/C635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

2.5 METAL EDGE MOLDINGS AND TRIM

A. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.

PART 3 - EXECUTION

3.1 PREPARATION

A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated.

B. Layout openings for penetrations centered on the penetrating items.

3.2 INSTALLATION

A. Install acoustical panel ceilings according to ASTM C636/C636M, seismic design requirements, and manufacturer's written instructions.

B. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
   1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
   2. Do not use exposed fasteners, including pop rivets, on moldings and trim.
   3. Arrange directionally patterned acoustical panels as follows:
      a. As indicated on reflected ceiling plans.

   4. Install seismic clips in areas indicated; space according to panel manufacturer's written instructions unless otherwise indicated.

END OF SECTION

SECTION 09 6500

RESILIENT FLOORING AND ACCESSORIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Resilient Floor Tile

B. Rubber Base

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.

1.3 WARRANTY

A. Material Warranty: Manufacturer standard warranty that flooring materials will not fail for under indicated conditions.

B. Installation Warranty: Contractor warrants installation of resilient materials for each of the indicated conditions for a period of not less than 5 years.

PART 2 - PRODUCTS

2.1 RESILIENT FLOOR TILE

A. Basis of Design: Upofloor Quartz Flooring by Upofloor Americas Inc. or comparable product by one of the following:
   1. Procedo Flooring
   2. Knight Quartz Flooring

B. Characteristics:
   1. Tile Size: 12 by 12
   2. Thickness: 0.08 inch
   3. Colors:
      a. RF-1 – Field Color selected by Architect from manufacturer’s full range.
      b. RF-2 – Accent Color selected by Architect from manufacturer's full range
   4. Static Load Limit in accordance with ASTM 970: Pass
   5. Critical Radiant Flux in accordance with ASTM E648: Pass
   6. Smoke Generation in accordance with ASTM E662: Pass
   7. Taber Abrasion in accordance with ASTM C501: Pass

2.2 RUBBER BASE

A. Manufacturers: Subject to compliance with requirements, manufacturers with acceptable products include:
   1. Roppe Corporation
   2. Tarkett
   3. Mannington

B. Characteristics
   1. Product Standard: ASTM F 1861, Type TP (rubber, thermoplastic).
      a. Group: I (solid, homogeneous).

b. Style B, Cove
2. Thickness: 0.125 inch
3. Height: 4 inches
4. Lengths: Coils in manufacturer's standard length.
5. Outside and Inside Corners: Pre-formed.
6. Colors: As selected by Architect from full range of industry colors.

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

C. Slip-Sheet/Vapor retarder: Manufacturer recommended slip sheet/vapor retarder for each type of application, minimum 6 mil:
1. Slab on Grade
2. Elevated Concrete Slab
3. Elevated Waffle slab with insulation infill

D. Anti-Fracture/Decoupling Membrane: Recommended by resilient flooring manufacturer for applications that span different substrate materials.

PART 3 - EXECUTION

3.1 INSPECTION

A. Prior to commencement of flooring work, representative of the resilient flooring manufacturer shall inspect existing conditions and proposed substrates for acceptance of application and materials.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Coverboard/Subflooring Substrate for Resilient Flooring
1. Seal joints between different substrates
2. Utilize flooring manufacturer recommendations for installation over changes in substrate.
3. Identify and coordinate extents with existing conditions following selective demolition

C. Concrete Substrates for Resilient Flooring:
1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
4. Moisture Testing: Proceed with installation only after substrates pass testing according to manufacturer's written recommendations, but not less stringent than the following:
   a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
   b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level.

D. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

E. Do not install resilient products until they are the same temperature as the space where they are to be installed.

F. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 FLOOR TILE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Lay out flooring in pattern directed by Architect

C. Match floor tiles for color and pattern by selecting tiles from cartons in same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed pieces.

3.4 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

3.5 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

END OF SECTION

SECTION 09 91 00

PAINTING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Surface preparation and the application of paint, stains and coating on interior and exterior substrates including:
   1. Steel.
   2. Gypsum board.

1.2 DEFINITIONS

A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D523.

B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.

C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.

D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D523.

E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D523.

F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D523.

G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint and finish system and in each color and gloss required.

1.4 CLOSEOUT SUBMITTALS

A. Coating Maintenance Manual: Provide coating maintenance manual including area summary with finish schedule, area detail designating location where each product/color/finish was used, product data pages, material safety data sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 QUALITY ASSURANCE

A. Mockups: Apply mockups of each finish system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each finish system.
    a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
    b. Other Items: Architect will designate items or areas required.
2. Final approval of finish selections will be based on mockups.
    a. If preliminary color and stain selections are not approved, apply additional mockups of additional colors and stains selected by Architect at no added cost to Owner.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacture's label with the following information:

1. Product name and type (description).
2. Batch date.
3. Color number.
4. Environmental handling requirements.
5. Surface preparation requirements.
6. Application instructions.

B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F

1.8 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide products by Sherwin-Williams Company (The); or comparable product by one of the following:
1. Benjamin Moore & Co.
2. PPG Paints.

2.2 PAINT, GENERAL

A. Material Compatibility:
1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

B. Colors: As selected by Owner and Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
   1. Gypsum Board: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.
   1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

   1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.
   1. SSPC-SP 2, "Hand Tool Cleaning."
   2. SSPC-SP 3, "Power Tool Cleaning."
   3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
   4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."

E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
   1. Use applicators and techniques suited for paint and substrate indicated.
   2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
   3. Paint both sides and edges of doors and entire exposed surface of door frames.
   4. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
   5. Paint entire exposed surface of window frames and sashes.
   6. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
   7. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINT FINISH SCHEDULE

A. Steel Substrates:
   1. Latex System
      a. Prime Coat: Primer, rust inhibitive, water based
         1) Basis of Design: Sherwin-Williams Pro-Industrial Pro-Cryl Universal Primer
      b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
      c. Topcoat: Latex, interior, institutional low odor/VOC
         1) Basis of Design: Sherwin-Williams ProMar 200 Zero VOC Latex
            a) Sheen: Semi-Gloss

B. Gypsum Board Substrates:
   1. Latex System
      a. Prime Coat: Primer sealer, interior, institutional low odor/VOC
         1) Basis of Design: Sherwin-Williams ProMar 200 Zero VOC Latex Primer
      b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
      c. Topcoat: Latex, interior, institutional low odor/VOC
         1) Basis of Design: Sherwin-Williams ProMar 200 Zero VOC Latex
            a) Sheen – Walls: Eggshell
            b) Sheen - Ceiling: Flat

   2. Polyurethane – Fortified Coating
      a. SRP– Two component polyurethane-fortified coating and cross linker – eggshell:
         1) Basis of Design: Wolf Gordon Master Coating Technologies Scuffmaster ScrubTough
            a) Sheen: Eggshell with same source primer

END OF SECTION

SECTION 10 1400
SIGNAGE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Room and door signs.

B. Emergency evacuation maps.

1.2 REFERENCE STANDARDS

A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.

B. ICC A117.1 - Accessible and Usable Buildings and Facilities; International Code Council; 2009 (ANSI).

1.3 SUBMITTALS

A. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.

B. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
   1. When room numbers to appear on signs differ from those on the drawings, include the drawing room number on schedule.
   2. When content of signs is indicated to be determined later, request such information from Owner through Architect at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
   3. Submit for approval by Owner through Architect prior to fabrication.

1.4 FIELD CONDITIONS

A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.

B. Maintain this minimum temperature during and after installation of signs.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Flat Signs:
   1. Basis of Design: Series 200A – Sand Blasted by Mohawk Sign Systems
   2. Subject to compliance with requirements other manufacturers with comparable products include:
      a) APCO Signs, Inc.
      b) TakeForm Architectural Graphics

2.2 SIGNAGE APPLICATIONS

A. Accessibility Compliance: Signs are required to comply with ADA Standards and ICC A117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.

B. Room and Door Signs: As scheduled on drawings.
   1. Sign Type: Flat signs with engraved panel media as specified.
   2. Provide "tactile" signage, with letters raised minimum 1/32 inch (0.8 mm) and Grade II braille.
   3. Character Height: varies, see drawings.
   4. Sign Height: varies, see drawings.

C. Emergency Evacuation Maps:
   1. Map provided as integral part of the sign.
   2. Map content to be provided by Owner.

2.3 SIGN TYPES

A. Flat Signs: Signage media without frame.
   1. Edges: Square.
   2. Corners: Square.
   3. Clear Cover: For customer produced sign media, provide clear cover of polycarbonate plastic, glossy on back, non-glare on front.
   4. Wall Mounting of One-Sided Signs: Tape adhesive.
   5. Backs for signs on glass walls are required. Provide where sign is shown on glass.
   6. Construction: Sandblasted with integral text and braille

B. Evacuation Maps.
   1. Border to match other signs on project.
   2. Map content provided by Owner.
   3. Graphic design for maps by sign company.
   4. Refer to Drawings for locations

C. Color and Font: Unless otherwise indicated:
   1. Character Font: Arial, or other sans serif font.
   2. Character Case: Upper case only.
   3. Background Color: To be Selected by Architect from Manufacturer Standard Colors.
   4. Character Color: Contrasting color.

2.4 TACTILE SIGNAGE MEDIA

A. Engraved Panels: Laminated colored plastic; engraved through face to expose core as background color:
   1. Total Thickness: 1/8 inch thick

2.5 ACCESSORIES

A. Tape Adhesive: Double sided tape, permanent adhesive.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install neatly, with horizontal edges level.

C. Locate signs where indicated:
   1. Room and Door Signs: Locate on wall at latch side of door with centerline of sign at 60 inches (1525 mm) above finished floor. Verify location and height with drawings.
   2. If no location is indicated obtain Owner's instructions.

D. Protect from damage until Substantial Completion; repair or replace damage items.

3.1 SIGNAGE SCHEDULE

A. Signage Locations:
   1. Room name and number; one sign adjacent to entrance door at each interior space
   2. Other locations as indicated in the drawings

END OF SECTION

SECTION 23 0510

BASIC MECHANICAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. All work of this Division shall comply with the requirements of the Drawings, Standard General Conditions of the Construction Contract, including Supplementary General Conditions and Division 1 Specification Sections.

B. Division 26 - Electrical

1.2 REFERENCES & INTENT

A. All work of this Division shall comply with the requirements of the Drawings, General Conditions, Supplementary General Conditions and Division 01 Specifications section.

B. Study all drawings and specifications before submitting bids.

C. Work under this Division includes all essential labor, materials, tools, equipment, transportation, insurance, temporary protection, supervision and incidental items for proper installation and operation of all systems even though not specifically mentioned or indicated.

D. Drawings are diagrammatic. Drawings are not intended to be absolutely precise and do not specify or show every offset, fitting, and component. The purpose of the drawings is to indicate a system concept, the main components of the systems, and the approximate geometrical relationships. Based on the systems concept, the main components, and the approximate geometrical relationships, the contractor shall provide all other components and materials necessary to make the systems fully complete and operational. Contractor shall route piping or provide offsets to avoid interference with structural elements, equipment, electrical panels and junction boxes, etc. Verify locations, dimensions, flow directions, etc. before construction.

E. It is the intent of these specifications and drawings to provide for finished systems of the quality specified, properly tested, balanced and ready for operation. This includes all devices and accessories required to make the work complete even though such items may not be expressly shown or specified. Drawings and specifications are complementary and must be so construed to determine the full scope of work.

F. Jobsite Conditions: The Contractor shall visit the site and familiarize himself with the existing conditions before submitting his bid. Failure to do so does not relieve the Contractor from completing the work as specified herein and after. Requests for additional payments due to the Contractor's failure to allow for work conditions will be rejected.

1.3 WORK INCLUDED

A. The following work is specifically included without limiting the generality implied by these specifications and drawings.
   1. All mechanical scope of work specified herein and as shown on the plans. Contractor should review all drawings and include all items that are a part of his scope.
   2. All associated wiring, cutting and patching.

B. Bidders shall examine equipment plans and specifications and include in their bids all labor and material required for complete installation and connection of equipment which is properly a part of their trade even if it is not provided in the equipment specifications.

1.4 STANDARDS AND CODES

A. All equipment with electrical components shall bear the UL label.

B. The following minimum standards apply wherever applicable:
   1. ANSI American National Standards
   2. ASTM American Society for Testing Materials
   3. NBFU National Board of Fire Underwriters
   4. NEC National Electric Code
   5. NEMA National Electrical Manufacturers Association
   6. NFPA National Fire Protection Association
   7. OSHA Occupational Safety and Health Act
   8. SMACNA Sheet Metal & Air Conditioning Contractors National Association, Incorporated
   9. North Carolina Building Code
   10. Any Other Applicable local and State Codes

C. In the event there are conflicts between specifications and standards or codes, standards or codes shall govern unless specifications are in excess of standards.

1.5 PERMITS AND FEE

A. Make application for all necessary permits and pay applicable fees.

1.6 STRUCTURAL STEEL AND CONCRETE

A. Structural members may not be pierced without prior written approval of the Engineer.

1.7 WATERPROOFING

A. Waterproofed floors and walls may not be cut.

1.8 WORK SCHEDULE

A. Work schedule shall be in accordance with Division 01.

B. Any demolition or installation work producing excessive dust or noise deemed to be disruptive or possibly unsafe to building operations must be, at the Owner's discretion, performed after normal working hours.

1.9 PROTECTION OF EQUIPMENT

A. Provide all necessary protection and be fully responsible for material and equipment stored or installed on the site. Material or equipment stolen or damaged shall be replaced at no additional cost to the Owner.

B. Provide protection against theft, physical damage and the entry of dirt, water or corrosive fumes into the material and equipment. Maintain protective covers for the duration of construction. Store equipment, such as controls, subject to damage by moisture and temperature extremes in a dry, heated space.

1.10 FIRE SAFETY

A. Fire Watch: Provide a fire watch wherever welding, brazing, cutting or other processes involving an open flame or potential for generating sparks is used. Fire watch shall consist of a person with a 10-pound carbon dioxide fire extinguisher. While on fire watch, the person so assigned shall have no other duties or assignments.

B. Fire Blanket: In addition to providing a fire watch, use an approved fire blanket to cover any combustible materials in the immediate area.

1.11 GUARANTEES

A. Furnish written guarantee in accordance with requirements of General Conditions. Partial approval of a portion of work does not affect the validity of guarantee.

1.12 SHOP DRAWINGS

A. It shall be noted that shop drawing submittals processed by the Engineer are not change orders; that the purpose of shop drawing submittals is to demonstrate to the Engineer that the Contractor understands the design concept, that he demonstrates his understanding by indicating which equipment and material he intends to furnish and install, and by detailing the fabrication and installation methods he intends to use. If deviations, discrepancies or conflicts between shop drawing submittals and the contract documents in the form of design drawing and specifications are discovered either prior to or after shop drawing submittals are processed by the Engineer, the design drawings and specifications shall control and shall be followed. The Engineer may also require the contractor to submit samples of proposed or specified equipment for approval with the samples to be returned to the contractor upon request.

B. Prior to procurement or manufacturing, submit for approval appropriate shop drawings and/or descriptive literature giving performance data, physical size, wiring diagrams, configuration, capacity, material, etc., for all items under this Division including the following:
   1. Mechanical Painting & ID
   2. HVAC Insulation
   3. Ductwork and Dampers
   4. Air Distribution
   5. DDC Controls

C. The contractor shall visit the site and familiarize himself with the project requirements and the field conditions before preparing shop drawings and ordering equipment. Field verify the characteristics of all specified or existing equipment before preparing shop drawings. This shall include available space, available voltages, suitability of substrate for receiving the specified equipment, etc. Where existing equipment is re-used, he shall verify dimensions, capacities, horsepower, etc. and bring any discrepancies to the attention of the Engineer.

D. Where different products have to work together, it is the Contractor's responsibility to select manufacturers whose products are visually and/or technically compatible.

E. Prepare listing of all equipment and materials for the project. A sample schedule is included at the end of this section to complete this requirement. Provide all information represented.

1.13 RECORD DRAWINGS

A. During construction, keep an accurate record of all changes and deviations from contract documents. Upon completion of this installation, the contractor shall submit to the Engineer marked up prints indicating any installed work that is different from what is shown on the drawings. Complete and accurate drawings shall be submitted to the Owner at the conclusion of this project. All changes will be reflected in CAD format. Marked-up as-built drawings will not be permitted.

PART 2 - PRODUCTS

2.1 QUALITY OF MATERIAL

A. Equipment of the same general type shall be of the same make. Reference is made to relays, motors, valves, motor starters, contactors, etc.

B. Brand names and catalog numbers included with equipment or material specifications are used to indicate quality, rating or operating characteristics of the equipment or material.

C. All materials provided shall be new and shall be approved and labeled by the Underwriter's Laboratories, Inc., or other accredited third party agency, wherever such agency has applicable standards. All work shall be accomplished in a neat, workmanlike manner by experienced journeymen. All work shall be performed at such times as are required by the progress of the job.

D. All components, equipment and systems shall comply with ASHRAE 90.1 and any other applicable ASHRAE standard.

PART 3 - EXECUTION

3.1 CLEARANCE AND RESTORATION OF SITE

A. It may be required to temporarily remove existing ceiling tiles, piping, duct, conduits, etc. to introduce new work as specified in this Division. Contractor, after installation of new work, shall reinstall, reconnect removed items to match the existing. Installation of any new equipment shall not compromise existing fire ratings of rated assemblies. All penetrations shall be sealed to existing conditions per UL guidelines for penetration protections. Provide offsets if required in existing piping, ducts etc. to introduce new work.

3.2 COORDINATION

A. Install all work to permit removal of equipment without damage to the equipment or the building. Verify equipment space requirements, condition of substrate, voltages, etc. at the time of shop drawing submission and advise the Engineer of any conflict.

B. Coordinate equipment locations as well as piping and conduit routing with Owner's representative to optimize all present and foreseen future space usage and clearance requirements.

C. Do not rough prior to receipt of approved shop drawings.

3.3 EQUIPMENT INSTALLATION AND SUPPORT

A. Install all equipment where indicated, in accordance with manufacturer’s published installation instructions, and with recognized industry practices to ensure that equipment complies with requirements and serves intended purposes. Consult with Engineer if said instructions or practices conflict with the drawings/specifications.

B. Support plumb, rigid and true to line all work and equipment furnished under this Division. Study thoroughly architectural, mechanical drawings and all related drawings to determine how equipment, piping, ductwork, etc., are to be supported, mounted or suspended. Provide extra steel bolts, inserts, pipe stands, brackets and accessories for proper support as required whether or not shown on drawings. When directed, furnish for approval a drawing showing supports.

C. Any system component which may require maintenance, such as control valves, manual valves, strainers, etc. shall not be installed over electrical equipment, machinery, control panels or floor openings.

3.4 FINAL ADJUSTMENT AND TESTING

A. General: Provide all testing, preliminary and final adjustment of instrumentation for this purpose. Conduct all tests in full compliance with applicable codes prior to covering or concealing work by insulation, enclosures, etc. Material found to be defective shall not be repaired. It shall be replaced with new material which tests satisfactorily. Defective workmanship shall be corrected.

B. Working Tests: Subject all equipment and controls to simultaneous and continuous working tests for a period of one day prior to final inspection. Make adjustments, repairs and equipment replacements as required.

3.5 LABELS, IDENTIFICATION AND TAGS

A. All components or equipment shall be identified using 3/4-inch-high permanent engraved bakelite nameplates or 3/4 inch high anodized aluminum nameplates, white letter, black background, with minimum 1/4 inch high letters. Nameplates shall be permanently attached with pin-head screws to device or to wall or mounting panel above device. Stick-on type labels will not be acceptable.

3.6 OWNER'S RIGHT TO TEST SYSTEMS

A. Should, in the opinion of the Engineer, and during the guarantee period, reasonable doubt exist as to the proper functioning of any equipment installed under this Contract, the right is reserved for the Owner and Engineer to perform any test deemed practical to determine whether such equipment is functioning properly and performing at required capacity. If such tests show proper functioning, the cost of the test will be paid by the Owner. If the tests indicate a deficiency in equipment capacity or performance, the Contractor shall pay the cost of the test and also make good any deficiencies shown by the test to the full satisfaction of the Owner and the Engineer.

3.7 CLEANING UP

A. The contractors performing work under this section shall at all times keep the premises and the building in a neat and orderly condition and any instructions of the Engineer in regard to the storing of material, protective measures, cleaning up of debris, etc. shall be explicitly followed. At the completion of the job, all equipment shall be cleaned to the satisfaction of the Owner.

B. The building will be occupied during installation of the new addition and/or alterations as described hereinafter. Thus, special care shall be taken during installation to protect equipment and other furniture in the buildings from dust and debris generated during installation of work specified in this Division.

3.8 INSPECTION CERTIFICATES

A. Obtain all inspections required by law, ordinances, rules, and regulations of the Authorities having jurisdiction and obtain and furnish to the Engineer certificates of such inspections, pay all fees, charges, and other expenses in connection therewith.

3.9 FINAL REVIEW

A. Final review and tests of the completed construction shall be performed in the presence of the Engineer or his representative and shall be at such times as are convenient to the Engineer. Final tests shall show conclusively that all equipment performs its intended and specified function and that all work complies with the provisions of these specifications. All material, equipment, and instruments required for the tests shall be furnished by the Contractor at his own expense.

3.10 EQUIPMENT DELIVERY AND PROTECTION

A. All material shall be delivered and unloaded by the Contractor within the project site as directed by the Owner. The Contractor shall protect all material and equipment from breakage, theft or weather damage.

3.11 OPERATING INSTRUCTIONS

A. The Contractor shall provide a minimum of six (6) hours of personal instruction to Owner's personnel in the proper operation of all equipment specified and provided. The instruction shall be provided by factory trained and certified competent personnel.

B. Maintenance Manuals shall be submitted as electronic versions and hard copies in three (3) copies in vinyl 3-ring binders. Each binder shall have the following:
   1. Service telephone number of the installing company, including an emergency number.

2. Contact person, phone number, and address of manufacturer or distributor where equipment was purchased.
3. The manufacturing company's operating and maintenance manuals for each piece of equipment.
4. Copies of all approved shop drawings.

C. Furnish for each building permanent type charts, framed under glass, mounted where directed as follows:
1. Service organizations with day and night telephone numbers.

PRODUCTS LISTING FORM

INSTRUCTIONS

Do not use the terminology "as specified", rather indicate specifically the product proposed.

Prepared by: _____

_____

Date: _____ Project:

SPEC. SECTION	ITEM	MANUFACTURER

END OF SECTION

SECTION 23 0593

TESTING AND BALANCING OF HVAC SYSTEMS

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. All work of this Division shall comply with the requirements of the Drawings, Standard General Conditions of the Construction Contract, including Supplementary General Conditions and Division 1 Specification Sections.

B. Section 23 0510 - General Provisions.

C. Division 26 - Electrical

1.2 DESCRIPTION OF WORK

A. The Testing and Balancing (TAB) work shall be by an agency certified by the Associated Air Balance Council (AABC) or National Environmental Balancing Bureau (NEBB). The Agency shall show proof of having successfully completed at least five projects of equal size and scope within the previous three years. If the contractor is not so qualified, he shall subcontract the work to a qualified subcontractor.

B. Immediately after the award of a contract, the contractor shall perform a Design Review of the mechanical plans and specifications. He shall identify any omissions or discrepancies that will preclude the proper balancing of the systems and report same to the Owner in a formal report.

C. Test and balance HVAC air systems as shown and specified on the schedules and Contract Documents and make submittals as described in this Section. Test and balance will be conducted by a TAB agency contracted by the Owner outside of the General Contract.

D. General systems to be balanced: Three new water source heat pumps serving this area. Return supply, and exhaust grills. Dedicated outdoor air system. See drawings for other information.

1.3 SUBMITTALS

A. Submit the following to the Owner's Representative for approval:
1. Inspection reports (prior to and during testing and balancing)
2. Other tests, records, certifications and reports as specified in this Section
3. Associated Air Balance Council (AABC) Certification
4. List of instruments actually used for each test. Include instrument calibration dates
5. TAB report including preliminary and final balance data sheets) (see Paragraph 3.05); Also submit to Engineer for record

1.4 REFERENCE STANDARDS

A. Unless shown or specified otherwise, the TAB work shall comply with the following:
1. AABC National Standards for Field measurements and Instrumentation.
2. ASHRAE 110-1985: Method of Testing Performance of Laboratory Fume Hoods.
3. HVAC Systems Testing, Adjusting, and Balancing, Sheet Metal & Air Conditioning Contractor's National Association, Inc. (SMACNA), 1993.

1.5 QUALITY ASSURANCE

A. The organization performing the TAB work shall be certified by the Associated Air Balance Council (AABC).

B. The work shall be performed by regular employees specifically trained in the total balancing of air systems. The work shall be continuously conducted under the direct supervision of a Professional Engineer registered in the State of North Carolina who is a certified Test and Balance Engineer by AABC and is experienced in testing and balancing of HVAC systems.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.1 GENERAL

A. Adjust, test and confirm air flow rates, pressure drops, pressures, temperature and heat transfer performance of HVAC system, including integrated economizers, supply, return, and outdoor air. Adjust exhaust air flow rates and confirm water flow rates.

B. Provide preliminary and final (2 phases) testing and balancing. Initiate preliminary testing and balancing immediately after certification of fan (before controls, ceilings, walls, etc. are completed). Confirm macro level performance of devices. The preliminary phase shall be followed by a submitted written report of system shortcomings which prohibit final balancing. Following preliminary testing and balancing, if balancing or control devices are not operating correctly, report these conditions to the Owner's Representative, who shall coordinate required corrections so that balancing can continue.

C. Perform the work using methods and test forms published by AABC National Standards for Field Measurements and Instrumentation (No. 71679, 2nd edition or any later edition).

D. Do not start final testing and balancing until each system has been certified to be complete and the engineer has been notified.

E. Using controls and devices installed, test and balance air conditioning systems with maximum attainable internal load (lights and equipment), or simulated maximum load using automatic temperature controls, whichever is closest to design operating conditions.

F. Do the final testing and balancing of air handling systems with finished ceilings and partitions in place and doors closed.

G. Use volume control devices to regulate air quantities only to the extent that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation. Minimize use of balancing devices to "throttle" flow. When balanced, all volume control devices in the path to the terminal with the highest pressure drop shall be fully open.

H. Adjust OA intake on RTU's according to drawings, schedules, and specifications. Adjust ERVs OA and exhaust to schedules.

I. Have on the job site the AABC standards referred to herein and make them available to the Mechanical Contractor and the Owner's Representative.

J. The Owner's Representative shall witness final testing and balancing of all system. The Testing and Balancing Contractor shall notify the Owner's Representative ten (10) working days prior to each system being tested and/or balanced.

K. Repair or replacement of finished products damaged as a result of testing, balancing and inspection work shall be the responsibility of the Contractor.

3.2 INSTRUMENT CALIBRATION

A. Provide written certification of the accuracy of all instruments furnished or used for Testing and Balancing. Show date and method of calibration. All instruments shall have been calibrated within six (6) months prior to the estimated completion date of balancing work.

B. Verify the accuracy of permanently installed flow-measuring primary elements and their read-out instruments, thermometers, sensors and pressure gauges furnished under this contract. Verification may be by calculation and calibration of the primary element and read-out instrument, or by an independent measurement of the flow, temperature or pressure of the flow, of the same flowing medium using calibrated instruments. Submit a report of certification, verification, or inaccuracy of all calibrations.

3.3 BALANCING PROCEDURES AND RELATED WORK

A. Balancing shall achieve design air, within a tolerance of -5% to +10% on major equipment (AHU's, Fans) and +/- 10% at terminal points (air outlets, inlets, transfer air quantities, coil water flow rates, etc.).

B. Verify that all thermostats and other controls and the devices they control (such as dampers, constant volume, variable volume terminal box) operate as they are intended and in the sequence specified. Report device failures in bi-weekly reports.

C. Permanently installed flow-measuring elements may be used to accomplish balancing after accuracy has been verified with certified calibrated instruments. Records and report read-outs of these instruments for all flows even if not required for testing and balancing results.

D. Where solid-state variable speed controls have been provided, adjust and mark controls for proper setting to produce the design flow.

E. Protect read-out instruments from damage and return them in good working order to the Mechanical Contractor.

F. Only direct-flow measurement may be used. Do not use indirect calculations, such as a heat balance or pressure drop in a heat exchanger.

G. Balance air system minimum and maximum damper positions for correct operation at both maximum design outside air, and minimum outside air, maximum and minimum return air, etc.

H. Balance air systems in all modes of operation, including unoccupied, occupied, warm-up, cool-down, Halon evacuation, and smoke control modes. Report on a room-by-room basis on the total flow of each room. Confirm flow at occupied and unoccupied modes.

I. Provide required openings for duct traverses. Seal test holes in ducts with snap-in plugs. In addition, plugs shall be airtight type and/or sealed air tight in 1% and dust collection leak class systems. Tape is not permitted. Repair insulation where damaged. Mark insulation where readings were taken.

J. Record the test data for each motor, supply fan, power exhaust fan, air system, condenser, fan and heat pump. Apply temperature, barometric and other correction factors for non-standard conditions and record in report.

K. Record the clean filter pressure drop across all air filters where magnahelic gauges have been provided at design operating cfm after final balancing.

3.4 TEST AND RECORDS

A. Submit a separate test report for each air system outlining actual temperatures, pressure drops and flow rates at all terminal devices (e.g., terminal boxes, air terminals, hoods, coils, etc.) and compare totals to the flow measurements taken at the source (e.g., fans and pumps) and to the design parameters.

B. In addition, record test data where applicable on the following test forms defined in Chapter 26 of the AABC National Standards.
   1. Air Moving Equipment Test Sheet - Form No. 82030
   2. Fan and Motor Pulley - Form No. 82034
   3. Duct Traverse Readings - Form No. 82035
   4. Duct Traverse Readings - Form No. 82036
   5. Air Distribution Test Sheet – Form No. 82040
   6. Terminal Units - Form No. 82041
   7. Air Cooled Condenser - Form No. 82081
   8. Cooling Coil Data - Form No. 82100

C. In addition to tests and records for the foregoing equipment, tests and records are required for the following:
   1. Heat Transfer Coils; including nameplate data and, for both design and actual conditions, the following:
      a. Inlet and outlet air temperature and, for cooling, both wet and dry bulb temperatures and 2-foot vertical and horizontal centers at air handlers.
      b. Air pressure drop.
      c. Air face velocity on 2-foot vertical and horizontal centers at air handlers.
      d. Outside air temperature.

D. In addition to data required on AABC forms, the following additional information is required for all scheduled equipment:
   1. Motors: Type, frame, number, serial number, and calculated brake horsepower and efficiency at final condition.
   2. Fan Systems: For systems controlled by static pressure, assure by test and recording that devices, including high limit controls are calibrated to perform in accordance with Contract Documents, and provide design static pressure at the most demanding location. Furnish and coordinate static pressure setpoint of controls, as applicable, with Controls Contractor.

3.5 TESTING AND BALANCING REPORTS

A. Submit preliminary and final testing and balancing reports for approval.

B. Arrange recorded data by system, using the appropriate designations as established in the Contract Documents. Submit six signed, bound and indexed copies of both preliminary and final reports per building to the Owner’s Representative.

C. Where actual measurements recorded for the final balance show deviation of more than the specified tolerance from the design, and the deviation cannot be corrected by balancing with the installed layout and elements, note this deviation in the final report with recommendations for corrective action.

D. In those cases where recorded data can be reasonably interpreted to be inaccurate, inconsistent or erroneous, the Owner’s Representative may request additional testing and balancing. The Testing and Balancing Contractor shall, at no additional cost to the Owner, perform such re-testing and re-balancing as directed by and in the presence of the Owner’s Representative.

E. Where, in the opinion of the Testing and Balancing Contractor, there is excessive vibration, movement or noise from any piece of equipment, ductwork, or piping, these conditions should be noted in the final report with recommendations for corrective action.

END OF SECTION

SECTION 23 0700

MECHANICAL INSULATION

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. All work of this Division shall comply with the requirements of the Drawings, Standard General Conditions of the Construction Contract, including Supplementary General Conditions and Division 1 Specification Sections.

B. Section 23 0510 - General Provisions.

C. Division 26 - Electrical

1.2 RATING

A. All insulation systems, including jackets and adhesives shall be U.L. rated and FM approved. All insulation for indoor use shall have a maximum permanent flame spread rating of 25 or less and a smoke developed rating of 50 or less, as tested by ASTM E 84 (NFPA 255) method. Outdoor mechanical insulation may have flame spread index of 75 and smoke developed index of 150. Submit smoke and flame ratings for every material proposed for use.

B. Make: Certain Teed, Owens Corning, Johns Manville, Knauf and PPG.

1.3 SCOPE

A. Furnish and install insulation for the following: Note scope varies depending on alternates selected.
   1. All supply air ductwork.
   2. Return air ducts above ceilings.

1.4 QUALITY ASSURANCE

A. Insulation contractor shall be member of either the National Insulation Association (NIA) or the Southeastern Insulation Contractors Association (SEICA).

1.5 SUBMITTALS

A. Submit evidence of membership in NIA or SEICA.

B. Submit manufacturer's technical product data and installation instructions for each type of mechanical insulation. Submit schedule showing manufacturer's product number, k-value, thickness, and furnished accessories for each mechanical system requiring insulation.

C. Submit, if requested by Designer, manufacturer's sample of each piping insulation type required, and of each duct and equipment insulation type required. Affix label to sample completely describing product.

PART 2 - PRODUCTS

2.1 DUCT INSULATION

A. Type A - Vapor Seal Duct Insulation
   1. Material: Fiberglass duct wrap 1 lb. density with FSK facing complying with ASTM C1290. Maximum K-factor of .31 at 75ºF. Jacket shall be FSK aluminum foil reinforced with fiber glass yarn and laminated to fire resistant kraft paper, secured with UL listed pressure

sensitive tape and outward clinch expanding staples and vapor barrier mastic. Johns Manville Microlite or equal by Owens Corning or Knauf.
2. Thickness shall be 2 inches.

B. Type B - Vapor Seal Duct Insulation - Rigid
1. Fiberglass ductboard complying with ASTM C612, Type I. 3 lb. density with maximum K-factor of 0.23 at 75ºF mean temperature. Jacket shall be FSK aluminum foil reinforced with fiber glass yarn and laminated to fire resistant kraft paper, secured with UL listed pressure sensitive tape and outward clinch expanding staples and vapor barrier mastic. Johns Manville 800 or equal by Owens Corning or Knauf.

C. Type E - Acoustic Insulation
1. Ductliner complying with ASTM C1071. Made from inorganic glass fiber, min. NRC 0.85, 1-inch thick, minimum R-value of 4.0. Johns Manville Permacote Linacoustic or equal by Owens Corning or Knauf.
2. The air stream surface shall have a 100% coverage coating of acrylic polymer formulated with an immobilized EPA registered anti-microbial agent proven resistant to microbial growth as determined by ASTM G21 and G22.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. All insulation shall be applied by experienced duct coverers and journeymen in accordance with best trade practice. Work shall be as recommended by manufacturer's latest printed installation directions. Test, inspect, and clean all surfaces to be insulated before applying insulation. Take all possible precautions to protect work of other trades. Provide protective covering as required to accomplish this and be responsible for returning all equipment and material to its original new condition and appearance where damage occurs due to neglect.

B. Do not cover nameplates on equipment.

C. Do not insulate vibration eliminators.

3.2 DUCT INSULATION SHALL BE APPLIED AS FOLLOWS

A. Type A - Vaporseal Duct Insulation.
1. All concealed supply air ducts inside the building, except in mechanical rooms.
2. All concealed return air ducting in unconditioned spaces.

B. Type B - Vapor Seal Duct Insulation - Rigid.
1. Not Used.

3.3 SPECIFIC REQUIREMENTS

A. Type A Insulation: Fiberglass duct wrap insulation shall be applied over clean, dry sheet metal duct. Before applying the insulation all joints and seams shall be sealed air tight. Duct wrap shall be installed to allow maximum fullness at corners. Minimum thickness at corners is one inch.

B. Insulation shall be butted tightly at joints and vapor barrier facing shall be overlapped at minimum of 2 inches. Insulation should be removed from lap prior to stapling.

C. All seams shall be stapled approximately 6 inches on center with outward clinching staples then sealed with a foil vapor barrier tape, or vapor barrier mastic.

D. Where ducts are over 24 inches in width, the duct wrap shall be additionally secured to the bottom of rectangular ducts with mechanical fasteners spaced on 18 inch centers (maximum), to prevent sagging of insulation. Seal penetrations so as to provide a vapor-tight system.

E. Insulation shall be installed according to manufacturer recommendations.

F. Insulation over the expansion joint and the flexible section shall be loose and of adequate length to permit the movement of pipe.

G. Provide insulation shield equivalent to Fee and Mason Fig. 81 at each support.

3.5 DO NOT INSULATE

A. Vibration eliminators.

B. Exhaust duct.

END OF SECTION

SECTION 23 3100

DUCTWORK AND DAMPERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings, Standard General Conditions of the Construction Contract, including Supplementary General Conditions, Division-1 Specification sections and other Division 23 specification sections, apply to work of this section.

1.2 QUALITY ASSURANCE

A. Codes and Standards:
   1. NFPA Compliance: Comply with NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems" and NFPA 90B “Standard for the Installation of Warm Air Heating and Air Conditioning Systems”.

PART 2 - PRODUCTS

2.1 DUCTWORK MATERIALS

A. Sheet Metal: Except as otherwise indicated, fabricate ductwork from galvanized sheet steel complying with ASTM A 527, lock forming quality; with G 90 zinc coating in accordance with ASTM A 525. Exposed sheet metal ductwork is to have a mill phosphated paint grip finish.

B. Stainless Steel Sheet: Where indicated, provide stainless steel complying with ASTM A 167; Type 302, 304, or 316; with No. 4 finish where exposed to view in occupied spaces, No. 1 finish elsewhere. Protect finished surfaces with mill-applied adhesive protective paper, maintained through fabrication and installation.

C. Aluminum Sheet: Where indicated, provide aluminum sheet complying with ASTM B 209, Alloy 3003, Temper H14.

2.2 FABRICATION

A. General: All low velocity sheetmetal ductwork shall be constructed in accordance with recommendations of Low Pressure Duct Construction Standard, of Sheet Metal and Air Conditioning Contractors National Association, Inc., Fifth Edition, 1976, AIA File No. 30-D-4, hereafter abbreviated SMACNA-I and latest recommendations of the ASHRAE Handbook “HVAC Systems and Equipment.” Duct systems shall be complete including all duct fittings, turning vanes, hangers, and supports shown on drawings and in SMACNA-I. Reference to plate numbers and figure numbers apply to this Duct Manual.

B. Shop fabricated ductwork in maximum 8-ft lengths, unless otherwise indicated. Preassemble work in shop to greatest extent possible, so as to minimize field assembly of systems. Disassemble systems only to extent necessary for shipping and handling. Match-mark sections for reassembly and coordinated installation. Shop fabricate ductwork of gages and reinforcement complying with SMACNA "HVAC Duct Construction Standards" (First Edition, 1985) in accordance with the following:

Application	Construction Pressure STD
Return Ductwork	-1" W.G.
Supply Ductwork with Fan Static Pressure Less Than 2.5" W.G.	+1" W.G.
Supply Ductwork Downstream of Air Terminals	+1" W.G.
Supply Ductwork with Fan Static Pressure Greater Than 2.5" W.G.	+2" W.G.
Supply Ductwork with Fan Static Pressure Greater than 5.0"W.G.	+3" W.G.

General Exhaust Ductwork	-1" W.G.
Special Exhaust Ductwork	As indicated on drawings

C. Cross-break all flat panels between bracing except where rigid insulation is applied.

D. Elbows shall be standard radius or square with air foil double vanes, round duct elbows shall be of five-piece construction.

E. Transitions shall be made with maximum angle of 15 degrees with straight duct for diverging flow, 20 degrees for converging flow.

F. Fabricate Ductwork with duct liner in each section of duct where indicated. Laminate liner to internal surfaces of duct in accordance with instructions by manufacturers of lining adhesive, and fasten with mechanical fasteners. Note that duct sizes on the drawing are "net" and must be increased to allow for duct liner unless ductwrap type insulation is allowed in accordance with Section 230700.

G. Stainless ducting to be tight welded maintaining the stainless properties of the metal. Provide test sample of welding for review before fabrication.

PART 3 - EXECUTION

3.1 INSTALLATION OF METAL DUCTWORK

A. General: Assemble and install ductwork to achieve airtight (5% leakage for systems rated 3" and under; 1% for systems rated over 3") and noiseless (no objectionable noise) systems, capable of performing each indicated service. Install each run with minimum number of joints. Align ductwork accurately at connections, within 1/8" misalignment tolerance and with internal surfaces smooth. Rigid round, rectangular and flat oval metal ducts shall be installed with support systems in accordance with SMACNA HVAC duct construction standards. Horizontal ducts shall have a support within two feet of each elbow and within four feet of each branch intersection. Support ducts rigidly with suitable ties, braces, hangers and anchors of type which will hold ducts true-to-shape and to prevent buckling.

B. Seal all exhaust, return and supply duct joints with mastic. Do not insulate until engineer has reviewed installation.

C. Flexible Duct:
1. Type B, Round, Low Pressure Factory insulated with vapor barrier and factory attached clamps. Do not exceed 5-foot length. Not to exceed manufacturer recommendations for minimum bend ratio.
2. Flexible duct good for 1-1/2-inch W.G. internal S.P. and shall meet the Class 1 requirements of NFPA 90A-Underwriters.
3. Flame spread rating of 25 and smoke developed rating of 50 or under.
4. Each end shall be banded (draw type) for connection to duct fitting and diffuser boot.
5. Install flexible ducts in accordance with Section III of SMACNA’s HVAC Duct Construction Standards.”
6. Make: Genflex SLF-25, Owens-Corning, Jenflex, Wiremold, or approved equal.

D. Volume Control Dampers: Provide where specified above, where indicated on drawing and in all branches or at all supply, return air, exhaust or transfer openings required to balance system whether or not specifically shown on drawings Dampers shall be locking quadrant type, manual balancing clamps.
1. Blades: 22-gauge minimum galvanized sheet steel for rectangular 20 gauge for round.
2. Frames: 22-gauge minimum galvanized sheet steel for rectangular, 20 gauge for round
3. Bearings: Synthetic.
4. Control shaft/hand quadrant: 3/8” square axle shaft, extending beyond frame with factory supplied locking hand quadrant for field mounting. Provide 2” hand quadrant standoff bracket

for dampers installed on duct wrapped with external insulation.

5. Accessibility: All dampers shall be adjustable after building is completed. Where dampers are hidden behind furred spaces, damper rods shall be adjustable from flush mounted boxes similar to the Young concealed damper regulator.
6. Make: Ruskin MD25 for rectangular and MDRS25 for round, or equivalent by Arrow United Industries, NCA or Vent Products Co., Inc.

E. Access Doors: Required as shown on plans and to provide access for all fire dampers, coils, damper motors, dampers, bearings, etc. Sizes shall be approximately 18 inches square wherever possible except in apparatus casing. Construction shall be panel type, insulated where adjoining duct or casing is insulated, in accordance with SMACNA-I construction details. Alternately, use Ventlok stamped insulated access doors, door gasket, insulated with 2-inch fiberglass, loose pin hinges, as manufactured by Ventfabrics Ventlok or approved equal. 16 x 24 inch where possible, or largest possible size where 16 x 24 inch will not fit.

F. Flexible Duct Connections: Install at all duct connections to roof top units and ducts crossing building expansion joints and where condensation may occur. Use double fabric of approved flame-proof material similar to Ventfab. However, asbestos containing materials shall not be used. Material used shall be applicable for intended use. Assemble to duct and blower with washer strip of 1-inch x 1/8 galvanized steel, bolted in o.c.leaving 2-inch slack at joints.

G. Rain Hoods: Provide galvanized sheet metal rain hood over damper motors installed outside the building (exposed to weather).

H. Fire Dampers:

1. The fire dampers shall be fabricated of galvanized steel meeting ASTM-A-525-65. The damper frame shall be of such design and length as to function as the mounting sleeve, thus eliminating the need for a separate sleeve. The damper frame thickness sleeve shall not be less than as recommended in Schedule 1 of SMACNA Fire Damper and Heat Stop Guide, 2nd Ed., 1981.
2. Unless otherwise noted, all fire dampers shall be UL 555 dynamic rating labeled for 1-1/2 hr. and 3 hr. (refer to drawing) rating. Fire dampers are required for each fire separation whether or not specifically shown on drawings. See architectural drawings and specifications for fire barriers. Fire dampers shall have 165° F fusible link.
3. All square or rectangular fire dampers shall be similar to Phillips Fire Damper Series S2C2, Ruskin or National Controlled Air, Inc.
4. Installation of fire dampers shall comply with NFPA-90A, SMACNA-I and SMACNA Fire Damper and Heat Stop Guide for Air Handling System, 2nd Edition, 1981. Fire damper sleeve shall not be attached to wall or slab, but retained on both sides by a 16 gauge angle frame attached to sleeve by welds or #10 x 2 sheet metal screw or 1/4 x 2 bolts - not over 12 inches on center. This angle frame also closes all clearance between sleeve and wall or slab.

I. Trim Collars: Wherever duct passes exposed to view through walls, the opening shall be framed with 1-inch x 1-inch x 1/8-inch angles on both sides of partitions with corners mitered, welded and ground smooth.

J. Turning Vanes: Shall be installed in all square elbows. Vanes shall be manufactured from minimum 26-gauge electro-galvanized steel and sides shall be manufactured from minimum 24-gauge electro-galvanized steel with assembled slots located on design center of 2-1/8 inches. Turning vanes shall be high-efficiency profile type (H.E.P.) as manufactured by AER/DYNE Co., Los Altos, CA 94022, or equivalent by American Elgin or Ductmate Industries, Inc. Submit shop drawing for approval.

3.2 ADJUSTING AND CLEANING

A. Clean ductwork internally, unit by unit as it is installed, of dust and debris. Clean external surfaces of foreign substances which might cause corrosive deterioration of metal or, where ductwork is to

be painted, might interfere with painting or cause paint deterioration.

B. Temporary Closure: At ends of ducts which are not connected to equipment or air distribution devices at time of ductwork installation, provide temporary closure of polyethylene film or other covering which will prevent entrance of dust and debris until time connections are to be completed. Similarly, provide temporary closure of ends of all prefabricated ductwork in storage.

END OF SECTION

SECTION 23 3715

AIR OUTLETS AND INLETS

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. All work of this Division shall comply with the requirements of the Drawings, Standard General Conditions of the Construction Contract, including Supplementary General Conditions and Division 1 Specification Sections.

B. Section 23 0510 - General Provisions.

C. Division 26 - Electrical.

1.2 DESCRIPTION OF WORK

A. Extent of air outlets and inlets work is indicated by drawings and schedules, and by requirements of this section.

B. Types of air outlets and inlets required for project include the following:
1. Diffusers
2. Grilles
3. Registers

C. Codes and Standards:
1. ARI Compliance: Test and rate air outlets and inlets in accordance with ARI 650 "Standard for Air Outlets and Inlets".
2. ASHRAE Compliance: Test and rate air outlets and inlets in accordance with ASHRAE 70 "Method of Testing for Rating the Air Flow Performance of Outlets and Inlets".
3. The grilles shall be tested in accordance with ANSI/ASHRAE Standard 70-1991.
4. NFPA Compliance: Install air outlets and inlets in accordance with NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems".

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's technical product data for air outlets and inlets including the following:
1. Schedule of air outlets and inlets indicating drawing designation, room location, number furnished, model number, size, and accessories furnished.
2. Data sheet for each type of air outlet and inlet, and accessory furnished indicating construction, finish, and mounting details.
3. Performance data for each type of air outlet and inlet furnished, including aspiration ability, temperature and velocity traverses, throw and drop, noise criteria ratings, and minimum one-year warranty. Indicate selections on data.

B. Shop Drawings: Submit manufacturer's assembly-type shop drawing for each type of air outlet and inlet, indicating materials and methods of assembly of components.

C. Maintenance Data: Submit maintenance data, including cleaning instructions for finishes, and spare parts lists. Include this data, product data, and shop drawings in maintenance manuals.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver air outlets and inlets wrapped in factory-fabricated fiberboard type containers. Identify on

outside of container type of outlet or inlet and location to be installed. Avoid crushing or bending and prevent dirt and debris from entering and settling in devices.

PART 2 - PRODUCTS

2.1 SQUARE CEILING SUPPLY DIFFUSERS

A. Manufacturers:
   1. Price, Model AMD
   2. Nailor
   3. Titus

B. Type: Square, Fixed pattern, Four-way discharge

C. Frame: Ceiling grid mount. Reference mechanical floor plan and schedule for size of face and size of duct.

D. Fabrication: Aluminum with baked enamel white finish unless otherwise noted.

E. Damper: Provide balancing damper in duct.

F. Accessories: See schedule

2.2 SQUARE CEILING RETURN REGISTERS

A. Manufacturers:
   1. Price, Model 630
   2. Nailor
   3. Titus

B. Type: Square, Fixed pattern, 1/2"x1/2"x1/2" cube

C. Frame: Ceiling grid mount. Reference mechanical floor plan and schedule for size of face and size of duct.

D. Fabrication: Aluminum with baked enamel white finish unless otherwise noted.

E. Accessories: See schedule

2.3 RECTANGULAR SIDEWALL RETURN REGISTERS

A. Manufacturers:
   1. Price, Model 630
   2. Nailor
   3. Titus

B. Type: Rectangular, Fixed pattern, 1/2"x1/2"x1/2" cube

C. Frame: Sidewall mount. Reference mechanical floor plan and schedule for size of face and size of duct.

D. Fabrication: Aluminum with baked enamel white finish unless otherwise noted.

E. Accessories: See schedule

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install air outlets and inlets in accordance with manufacturer's written instructions and in accordance with recognized industry practices to ensure that products serve intended functions.

B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement

C. Install diffusers to ductwork with air tight connection.

D. Provide balancing dampers on duct take-off to all diffusers, and grilles and registers except wall return grills.

E. Paint ductwork visible behind air outlets and inlets matte black. Refer to Division 9.

END OF SECTION

SECTION 26 0050

ELECTRICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. All work, materials, etc., shall be furnished and installed, whether or not specifically shown on the drawings and/or called for in the specifications, which may be necessary to comply with all of the requirements, due to the exigencies of the work, to complete the work and the contract in a satisfactory and approved manner.

B. The work to be done under this contract shall consist of furnishing all equipment, labor, materials required for the items listed in the proposal, and/or as shown on the contract drawings, together with all devices, connectors, splices and appurtenances, required for a safe, clean, complete and ready for service, reliable, substantial and rugged working installation, to the satisfaction of the Engineer and to execute the intent of this contract and these specifications.

C. The Contractor shall be responsible for determining the proper connection points for all power, control, and signal wiring installed under this contract, regardless of whether the connection points are in equipment furnished under this contract, existing equipment, or equipment furnished by others. The Contractor shall include in his bid prices any field surveys, wire tracing or other work required to ascertain the proper connection points for all wiring.

D. It is the intent of these specifications that the Contractor shall furnish equipment and material which is suitable for the purpose and for installation in the location as is.

E. It is also the intent of the specification that the equipment, materials and accessories, as furnished, shall be complete in all respect and ready to operate.

F. The specifications cover the general design, construction arrangement, and certain particular features, but do not purport to cover all details entering into the design of the equipment and accessories.

G. Minor revisions in construction details will be made to accommodate equipment proposed and approved on the drawings thereof, submitted by the Contractor. Major revisions shall not be made nor shall equipment be submitted for approval which cannot be installed in structures of the approximate dimensions and character specified herein.

H. Further, it is also the intent of these specifications to provide a complete contract including items which may be omitted or not shown but which are considered normal and accepted engineering practice for this type of contract at no additional cost to the Owner.

I. All work shall be done in a thorough and workmanlike manner and shall conform to the best modern practice in the manufacture and installation of high-grade equipment and materials. Wherever possible, all parts shall be made according to standard gauge to facilitate replacement and repair.

J. All materials furnished under these items shall be the best of their respective kinds and shall be free from defects in design and workmanship.

K. All materials or equipment not meeting the specified requirements shall be rejected and shall be replaced at once by the Contractor with materials or equipment of the specified type and quality, at no cost to the Owner.

L. All materials for which no detailed specifications are given herein shall be of the quality and character best adapted and suitable for the purpose for which they are to be used and shall be subject to the approval of the Engineer.

M. Where any material or article or the maker or distributor thereof is specified by name, this is done for the purpose of more clearly describing the type or quality desired. Any material or article of equal quality, merit and performance, in the opinion of the Engineer, will be acceptable, if approval is given in writing.

N. All materials furnished and work done by the Contractor shall be subject to the inspection of the Engineer. Defective materials shall be removed from the site of the work and defective work repaired or replaced as directed. Facilities for handling and inspection of materials and equipment and for access to the work in progress shall at all times be furnished by the Contractor.

O. Where any delay is encountered in carrying out work due to unfavorable operating conditions, the Contractor shall not be entitled to additional compensation therefore, but the time allowed equivalent to the period of actual delay.

1.2 DESCRIPTION OF WORK

A. Work includes all labor and electrical labor and equipment to install the project as represented in the drawings and specifications.

B. Unless specifically dimensioned, the work shown on the drawings is diagrammatic, and is intended only to show general arrangement.

C. Include in the work, all accessories and devices necessary for the intended operation or perfection of any system, whether or not specifically shown or specified.

D. The term ″Furnish″ shall mean to obtain and supply to the job site. The term ″Install″ shall generally mean to fix in position and connect for use. Where language indicates that one party or trade is to ″install″ and another is to ″connect″, the term ″install″ shall mean only to fix in position, and ″connect″ shall mean to make electrical connections to. The term ″Provide″ shall mean to furnish and install.

E. Furnish all documentation, such as shop drawings, as-built drawings, and operation and maintenance manuals, certify and perform all required testing as herein specified.
   1. Testing & Start-Up: Assist MC in startup of all equipment. Provide As-Built Documentation, start-up and test protocol.
   2. As Built Documentation: Provide a minimum of (4) sets of Ring Binders per each system with the following minimal content:
      a. Electrical As Built Drawings
      b. Equipment Data/Specification sheets and Operating Manuals and fuse sizes by equipment.
      c. List of lighting lamps by fixture

F. Provide all items as called out in “Scope of Work” on drawings.

1.3 STANDARD OF QUALITY

A. The specifications establish the standards of quality required, either by description or by references, to brand name, name of manufacturers or manufacturer's model number. All materials shall be new unless noted otherwise.

B. Where one product only is specifically identified by name or manufacturer's model number, the

Contractor shall base his bid on the use of the named product. Where multiple names are used, the Contractor shall base his bid on the use of any of those products named.

C. The Contractor may submit, with his bid, the names of products which are proposed as substitutions for products named in the specifications. Each proposed substitution shall be accompanied by a written sum of money to be added or deducted from his bid. The Owner reserves the sole right to accept or reject said substitutions with or without cause.

D. When equipment and/or materials are proposed to be purchased from a manufacturer other than those specified, the Contractor shall provide complete data adequate for the Engineer's evaluation of the proposed substitution.

E. When the equipment other than that specified is used, the Contractor shall be responsible for any extra cost of required revisions such as structural steel, concrete, electrical, piping, etc. Such additional costs shall be identified at the time such substitutions are proposed.

1.4 SUBMITTALS

A. Engineer’s review of shop drawings is solely for the benefit of the Owner and in no way relieves the contractor from his obligations to furnish materials which satisfy the requirements of his contract and the design intent.

B. Shop drawings, product data and samples shall be submitted as required by the General Conditions or Project Requirements and as supplemented by this section.

C. When a specific specification section identifies that no submittal is required, the contractor shall provide the specified materials without submittals.

D. Provide to the Engineer, a schedule of shop drawing submissions identifying submittal target dates.

E. The Contractor shall review, approve and submit shop drawings, with promptness so as to cause no delay in his work or in that of others. No submissions will be accepted by the Engineer without the signed review and approval of the Contractor.

F. The Contractor shall check and verify pertinent field measurements, and quantities of equipment and materials required.

G. Submittals shall be identified by reference to the drawing(s), section(s) of specifications, or equipment symbols to which they relate.

H. Shop drawings, when required, shall include:
1. Verification of information given in Contract Documents such as performance, dimensions, weight, materials, construction, types, models, manufacturer, etc.
2. Equipment layouts drawn to scale as may be required.
3. Wiring diagrams and schematics for equipment.
4. Any special construction conditions.
5. Other information/data as may be requested.

I. All submittals shall identify the specific details of the product or assembly. All optional features being provided or proposed shall be so noted or the submittal will be rejected.

J. The Engineer will return submittals with one of the following notations stamped thereon;

REVIEWED, REVIEWED AS NOTED, REVISE AND RESUBMIT, REJECTED or SUBMIT SPECIFIED ITEM AND THE FOLLOWING:

1. Review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Contractor is responsible for:
   a. dimensions which shall be confirmed and correlated at the job site
   b. fabrication processes and techniques of construction
   c. coordination of his work with that of all other trades
   d. the satisfactory performance of his work.
2. The work involved may proceed when submittals are marked REVIEWED or NO EXCEPTIONS TAKEN with no further submission required.
3. The work involved may proceed when submittals are marked REVIEWED AS NOTED, providing corrections are made and submittals are resubmitted for record. Review does not authorize changes to Contract Sum unless stated in a separate letter or Change Order. In the event that any notes placed on the submittals by the Engineer are believed to result in a change in the Contract Sum, the Engineer shall be notified immediately and fabrication may not be undertaken until written authorization to proceed is issued by the Owner.
4. The work involved may not proceed when submittals are marked REVISE AND RESUBMIT. Submittals must be corrected and resubmitted for review.
5. Submittals marked REJECTED OR SUBMIT SPECIFIED ITEM are not in accordance with the Contract Documents and require a new submittal for review.
6. For items being resubmitted, clearly identify changes made from the initial submittal requested by the Engineer. The Engineer will review only those changes requested and identified by the Contractor.

1.5 PROTECTION OF WORK

A. Each Contractor is responsible for the protection of his materials, equipment, and completed work as defined in the General or Project Requirements and as supplemented herein.

B. All openings into any part of the conduit systems, all fixtures and equipment must be securely covered or otherwise protected to prevent damage due to dropped tools or materials, work by others or intrusion of grit, dirt, water, snow, ice or other foreign matter. Remove burrs, dirt, paint spots and debris. The Contractor shall be held responsible for all damage done to unprotected work or materials.

1.6 STEEL AND CONCRETE WORK FOR ELECTRICAL EQUIPMENT

A. Steel: Provide all miscellaneous steel supports and anchors required for equipment and materials installed under this Specification. Manual of Construction by American Institute of Steel Construction latest edition shall be followed in design and construction except that the second sentence of paragraph 4.2.1., Section 4 of Division 5, page 5-177 will not apply. Structural steel members shall conform to ASTM A36, and shall have a shop applied coat of rust inhibiting paint. Welding of steel shall conform to American Welding Society, Standard Code for Arc and Gas Welding in Building Construction. Bolts, nuts and washers for structural steel framing and concrete embedment shall be high tensile type minimum 3/4" diameter conforming to ASTM A325. Slotted-steel channel supports shall have flange edges turned toward web, and 9/16-inch diameter slotted holes at a maximum 2 inches o.c., in webs.

B. Channel depth: 2-1/2 inches minimum.

C. Channel thickness: Selected to suit structural loading.

D. Fittings and Accessories: Products of the same channel manufacturer.

E. Channel supports and fittings shall be hot dip galvanized steel.

F. Concrete work and anchors: Refer to for concrete work and anchors.

1.7 COUNTERFLASHING

A. Where conduits or other items pass through any roof, wall or other exterior component, provide counter flashing as required.

1.8 EQUIPMENT BY OTHERS

A. Summary of Work, together with other technical sections in the Project Manual, describe equipment that will be furnished by the Owner or from other sources.

B. The responsibility for setting, installation and protection of such equipment will be defined in other sections of the Project Manual.

C. Provide services rough-in for and make final connections to this equipment as shown and specified.

D. Provide coordination to assure clearances required for moving equipment to final location.

1.9 MOVING OF EQUIPMENT

A. Verify that electrical equipment will pass through all restricting openings, and when equipment or sections of equipment are larger than these openings, install this equipment prior to construction of enclosing walls, floors or roofs.

B. Use planking or cribbing as required to protect adjoining construction from damage.

C. Provide rigging and expert rigging personnel as required for equipment installation in difficult locations. Rigging shall include any necessary structural investigation and temporary structural support.

1.10 CUTTING AND PATCHING

A. Provide all openings through walls, floors and ceilings, etc. required for the installation of work defined on the drawings and specifications.

B. Following installation and testing, restore floors, walls and ceilings with materials equal to the original construction and finish to match existing surfaces.

C. Cutting and patching shall be performed only by tradesmen familiar with the construction involved.

1.11 IDENTIFICATION

A. Nameplates:
   1. Provide each new normal power load break switch, automatic transfer switch, starter, circuit breaker, panel, remote start-stop station, pilot light or safety switch with an engraved laminated black and white phenolic nameplate, white letters on black background.
   2. Provide Fire Alarm panels with an engraved laminated red and white phenolic nameplate, white letters on red background.
   3. Compose the legend so as to clearly indicate the function of the equipment. Letters and numbers to be at least 3/16 inch high.
   4. Locate the nameplate in a position so as to be clearly visible and secure with screws. Rivets and adhesives are not acceptable.
   5. Submit proposed nameplate legend for review.

6. Provide a nameplate on the main switchgear indicating names of the electrical contractor and the engineer and project year.

1.12 FINAL ACCEPTANCE

A. The Contractor shall perform and complete work in accordance with the Contract Documents without fault or defect of any kind. In the absence of more specific directives, the work shall:
   1. be completed in a first-class manner.
   2. be placed in a thoroughly clean and unmarred condition.
   3. be checked out in a step-by-step manner to ascertain that fastenings, controls, parts, safety devices, operating devices and other required appurtenances have been provided in accordance with the Contract Documents.
   4. be free of previously condemned or rejected parts and be properly restored to an acceptable condition.
   5. be adjusted for proper operation wherever adjustments or calibrations exist in the work.

B. All systems shall be operated to demonstrate that the requirements of the Contract have been met and that the systems have been adjusted and will operate in accordance therewith.

1.13 OPERATING AND MAINTENANCE INSTRUCTIONS

A. Furnish for review, three hard bound copies of complete written instructions for the operation, care and maintenance of each piece of equipment and/or system. Include recommended frequency of inspection, cleaning, oiling, greasing, and adjustment and other action as may be required in accordance with manufacturer's recommendations. Material shall include manufacturer's brochures, catalog cuts, parts lists, wiring diagrams, service organizations, etc.

1.14 PERMITS, FEES AND CERTIFICATES OF APPROVAL

A. Contractor shall acquire all permits and certificates. Submit a final inspection certificate from Middle-Atlantic Inspections or other NFPA affiliated agency with request for final payment.

B. Contractor shall provide all power, labor and instruments required for tests and cleaning of systems.

C. Whenever tests are required, three (3) copies of the test reports shall be submitted to the Engineer.

D. Tests may be observed by the Engineer or his representative. Notify the Engineer a minimum of three weeks in advance of test dates.

1.15 COMPLIANCE WITH CODES, STANDARDS AND REGULATIONS

A. In the absence of specific instruction in the technical specifications, equipment and installation shall conform to the following applicable codes, standards and regulations, latest editions:
   1. American Society for Testing and Materials (ASTM)
   2. American National Standard Institute (ANSI)
   3. Underwriter's Laboratories, Inc. (UL)
   4. American Welding Society Code (AWSC)
   5. NFPA 70, ″National Electrical Code″, latest edition
   6. National Electrical Manufacturer's Association (NEMA).
   7. Occupational Safety and Health Act (OSHA).
   8. National Fire Protection Association (NFPA).
   9. National Electrical Safety Code (NESC)
   10. North Carolina Building Code, latest edition
   11. Institute of Electrical and Electronics Engineers (IEEE)
   12. Illuminating Engineering Society of North American (IESNA)

13. State and Local Building, Electric, and Fire Codes and Regulations.

1.16 PAINTING

A. Cabinet trims and similar prefabricated equipment shall be factory primed and finish painted with baked enamel in color selected. This equipment shall not be painted in the field unless the factory finishes have been marred or as otherwise directed. Do not paint over UL or similar labels or mechanical/electrical nameplates.

1.17 COORDINATION OF WORK

A. Coordinate installation of conduit runs and equipment with other trades and conditions in the building and participate in all coordinated shop drawings. Variance from work shown on drawings will be subject to approval. Where interference occurs and electrical work is directed to be relocated, provide such relocation without additional cost.

B. It is the Electrical Contractor's responsibility to coordinate with the manufacturers of all new and existing pieces of equipment the different aspects of their interfaces. All additional costs for equipment manufacturer's redesign of interfaces caused by the EC's failure to properly coordinate all aspects of the interfaces shall be borne by the EC.

1.18 ACCESS PANELS

A. Furnish access panels where required, to concealed pull boxes, junction boxes, or similar equipment located above dry wall board ceiling or behind walls. Installation of access panels shall be by mechanics of the pertinent trade under General Construction.

B. Access panels shall be 18" x 18" minimum, 16 gage wall or ceiling frame and a 14 gage panel door with not less than 1/8" fire proofing secured to the inside of the door.

C. The door shall be provided with concealed hinges and cylinder lock, and prime-coated steel prepared for painting. Each door shall be capable of opening 180 degrees.

D. Doors for wall panels shall be secured with suitable clips and counter sunk tamperproof screws.

E. Access panels shall have "label" fire rating equal to the ceiling or wall surface.

1.19 WARRANTY

A. The contractor and equipment manufacturers shall jointly guarantee all wiring and equipment to be free of defects in workmanship and material for a period of one year from the date of final acceptance, unless otherwise noted.

1.20 PROJECT RECORD DOCUMENTS

A. Maintain at job site, one copy of record documents and samples as required under the General Conditions of the Contract, including Drawings, Specifications, Addenda And Bulletins, Change Orders, Shop Drawings, Product Data and Samples, Field Orders, Field Test Records and Maintenance and Operating Manuals.

B. Provide files and racks for storage of documents. Maintain documents in a clean, dry legible condition and in good order. Do not use record documents for construction purposes. Make record documents and samples available during normal working hours for inspection.

C. Recording:
   1. Label each document ″Project Record″ in neat large letters and provide final completion date.

2. Record information concurrently with construction progress.
3. Do not conceal any work until required information is recorded.

D. Record Drawings - legibly mark to record actual construction as follows:
   1. A print set (blue-line or black-line) of contract drawing or shop drawing mark-ups of actual installations which vary substantially from the work as originally shown. Mark whichever drawing is most capable of showing "field" condition fully and accurately; however, where shop drawing are used for mark-up, record a cross reference at corresponding location on working drawings. Mark with red erasable pencil and, where feasible, use other colors to distinguish between variation in separate categories or work. Mark-up new information which is recognized to be of importance to Owner, but was for some reason not shown on either contract drawings or shop drawings. Give particular attention to concealed work which would be difficult to measure and record at a later date. Note related change order numbers where applicable.
   2. Record Specifications and Addenda, Bulletins, Requests for Information (RFI's) and Construction Clarification Sketches (CSK's) - legibly mark each Section to record:
      a. Any variations in actual work in comparison with text of specifications
      b. modifications as issued. Give particular attention to substitutions, selection of options, and similar information where work is concealed or cannot otherwise be readily discerned at a later date by direct observations. Note related record drawing information and product data, where applicable.
      c. Changes made by Field Order or by Change Order.

E. Product Data: Maintain one copy of each product data submittal, and mark-up significant variation in actual work in comparison with submitted information.
   1. Include both variations in product as delivered to site, and variations from manufacturer's instruction and recommendations for installation.
   2. Give particular attention to concealed products and portions of the work which cannot otherwise be readily discerned at a later date by direct observations. Note related change orders and mark-up of record drawings and specifications.

F. Record Drawings Submittal at Project Completion: Organize record drawing sheets into manageable sets, bind with durable paper cover sheets and print suitable titles, dates and other identification on cover of each set. Transfer marking required by previous paragraphs to set of reproducible transparencies. Submit complete set of transparencies to the Design Professional and two sets of blue-line prints.

G. Product Data Submittal at Project Completion: Submit three sets of marked-up product data submittals for record purposes that include resolution of all review notes and field revisions.

H. Miscellaneous Record Submittals: Refer to other sections of these specifications for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the works. Immediately prior to date(s) of substantial completion, complete miscellaneous records and place in good order properly identified and bound or filed, ready for continued use and reference. Submit to Architect/Engineer for Owner's records.

I. Maintenance Manuals: Organize maintenance-and-operating manual information into three suitable sets of manageable size and bind into individual binders properly identified and indexed (thumb-tabbed). Include:
   1. emergency instructions
   2. spare parts listing
   3. warranties
   4. wiring diagrams
   5. recommended "turn-around" cycles
   6. inspection and cleaning procedures
   7. recommended frequency of testing, adjustment and any other maintenance requirements
   8. shop drawings
   9. product data

10. similarly applicable information.

J. Bind each manual of each set in heavy duty 2-inch, vinyl-covered ring binder, and include pocket folders for folded sheet information. Mark identification on both front and spine for each binder

END OF SECTION

SECTION 26 0075

ELECTRICAL IDENTIFICATION

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 electrical identification materials and devices required to comply with ANSI C2, NFPA 70, OSHA standards, and authorities having jurisdiction.

1.3 SUBMITTALS

A. No submittals.

1.4 QUALITY ASSURANCE

A. Comply with ANSI C2.

B. Comply with NFPA 70, 2020

C. Comply with ANSI A13.1 and NFPA 70 for color-coding.

PART 2 - PRODUCTS

2.1 RACEWAY AND CABLE LABELS

A. Color: Black letters on orange field.

B. Adhesive Labels: Preprinted, flexible, self-adhesive vinyl with legend over-laminated with a clear, weather- and chemical-resistant coating.

C. Pretensioned, Wraparound Plastic Sleeves: Flexible, preprinted, color-coded, acrylic band sized to suit the diameter of the line it identifies and arranged to stay in place by pretensioned gripping action when placed in position.

D. Colored Adhesive Tape: Self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide (0.08 mm thick by 25 to 51 mm wide).

E. Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.

F. Aluminum, Wraparound Marker Bands: Bands cut from 0.014-inch- (0.4-mm-) thick aluminum sheet, with stamped or embossed legend, and fitted with slots or ears for permanently securing around wire or cable jacket or around groups of conductors.

G. Comply with ANSI A13.1, Table 3, for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.

2.2 NAMEPLATES AND SIGNS

A. Safety Signs: Comply with 29 CFR, Chapter XVII, Part 1910.145.

B. Engraved Plastic Nameplates and Signs: Engraving stock, melamine plastic laminate, minimum 1/16 inch (1.6 mm) thick for signs up to 20 sq. in. (129 sq. cm) and 1/8 inch (3.2 mm) thick for larger sizes.
   1. Engraved legend with black letters on white face.
   2. Punched or drilled for mechanical fasteners.

C. Baked-Enamel Signs for Interior Use: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for the application. 1/4-inch (6.4-mm) grommets in corners for mounting.

D. Exterior, Metal-Backed, Butyrate Signs: Weather-resistant, non-fading, pre-printed, cellulose acetate butyrate signs with 0.0396-inch (1-mm) galvanized steel backing; and with colors, legend, and size required for the application. 1/4-inch (6.4-mm) grommets in corners for mounting.

E. Fasteners for Nameplates and Signs: Self-tapping, stainless-steel screws or No. 10/32, stainless-steel machine screws with nuts and flat and lock washers.

2.3 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Cable Ties: Fungus-inert, self-extinguishing, one-piece, self-locking, Type 6/6 nylon cable ties.
   1. Minimum Width: 3/16 inch (5 mm).
   2. Tensile Strength: 50 lb (22.3 kg) minimum.
   3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
   4. Color: According to color-coding.

B. Paint: Formulated for the type of surface and intended use.
   1. Primer for Galvanized Metal: Single-component acrylic vehicle formulated for galvanized surfaces.
   2. Primer for Concrete Masonry Units: Heavy-duty-resin block filler.
   3. Primer for Concrete: Clear, alkali-resistant, binder-type sealer.
   4. Enamel: Silicone-alkyd or alkyd urethane as recommended by primer manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Identification Materials and Devices: Install at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Lettering, Colors, and Graphics: Coordinate names, abbreviations, colors, and other designations with corresponding designations in the Contract Documents or with those required by codes and standards. Use consistent designations throughout Project.

C. Sequence of Work: If identification is applied to surfaces that require finish, install identification after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before applying.

E. Install painted identification according to manufacturer's written instructions and as follows:
   1. Clean surfaces of dust, loose material, and oily films before painting.
   2. Prime surfaces using type of primer specified for surface.
   3. Apply one intermediate and one finish coat of enamel.

F. Color Banding Raceways and Exposed Cables: Band exposed and accessible raceways of the systems listed below:

1. Bands: Pretensioned, wraparound plastic sleeves; colored adhesive tape; or a combination of both. Make each color band 2 inches (51 mm) wide, completely encircling conduit, and place adjacent bands of two-color markings in contact, side by side.
2. Band Locations: At changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
3. Apply the following colors to the systems listed below:
    a. Fire Alarm System: Red.
    b. Fire-Suppression Supervisory and Control System: Red and yellow.
    c. Combined Fire Alarm and Security System: Red and blue.
    d. Security System: Blue and yellow.
    e. Mechanical and Electrical Supervisory System: Green and blue.
    f. Telecommunication System: Green and yellow.

G. Caution Labels for Indoor Boxes and Enclosures for Power and Lighting: Install pressure-sensitive, self-adhesive labels identifying system voltage with black letters on orange background. Install on exterior of door or cover.

H. Circuit Identification Labels on Boxes: Install labels externally.

1. Exposed Boxes: Pressure-sensitive, self-adhesive plastic label on cover.
2. Concealed Boxes: Plasticized card-stock tags.
3. Labeling Legend: Permanent, waterproof listing of panel and circuit number or equivalent.

I. Color-Coding of Secondary Phase Conductors: Use the following colors for service feeder, and branch-circuit phase conductors:
1. 208/120-V Conductors:
    a. Phase A: Black.
    b. Phase B: Red.
    c. Phase C: Blue
2. Factory apply color the entire length of conductors, except the following field-applied, color-coding methods may be used instead of factory-coded wire for sizes larger than No. 10 AWG:
    a. Colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches (150 mm) from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Use 1-inch- (25-mm-) wide tape in colors specified. Adjust tape bands to avoid obscuring cable identification markings.
    b. Colored cable ties applied in groups of three ties of specified color to each wire at each terminal or splice point starting 3 inches (76 mm) from the terminal and spaced 3 inches (76 mm) apart. Apply with a special tool or pliers, tighten to a snug fit, and cut off excess length.

J. Power-Circuit Identification: Metal tags or aluminum, wraparound marker bands for cables, feeders, and power circuits in vaults, pull and junction boxes, manholes, and switchboard rooms.
1. Legend: 1/4-inch- (6.4-mm-) steel letter and number stamping or embossing with legend corresponding to the indicated circuit designations.
2. Tag Fasteners: Nylon cable ties.
3. Band Fasteners: Integral ears.

K. Apply identification to conductors as follows:
1. Conductors to Be Extended in the Future: Indicate source and circuit numbers.
2. Multiple Power or Lighting Circuits in the Same Enclosure: Identify each conductor with source, voltage, circuit number, and phase. Use color coding to identify circuits' voltage and phase.

3. Multiple Control and Communication Circuits in the Same Enclosure: Identify each conductor by its system and circuit designation. Use a consistent system of tags, color-coding, or cable marking tape.

L. Apply warning, caution, and instruction signs as follows:
1. Warnings, Cautions, and Instructions: Install to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.

M. Equipment Identification Labels: Engraved plastic laminate. Install on each unit of equipment, including central or master unit of each system. This includes power, lighting, communication, signal, and alarm systems, unless units are specified with their own self-explanatory identification. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high lettering on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high. Use white lettering on black field. Apply labels for each unit of the following categories of equipment using mechanical fasteners:
1. Panelboards, electrical cabinets, and enclosures.
2. Access doors and panels for concealed electrical items.
3. Disconnect switches.
4. Enclosed circuit breakers.
5. Motor starters.
6. Remote-controlled switches.
7. Control devices.

END OF SECTION

SECTION 26 0080

ELECTRICAL TESTING

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 general requirements for electrical field testing and inspecting. Detailed requirements are specified in each Section containing components that require testing. General requirements include the following:
   1. Qualifications of testing agencies and their personnel.
   2. Suitability of test equipment.
   3. Calibration of test instruments.
   4. Coordination requirements for testing and inspecting.
   5. Reporting requirements for testing and inspecting.

B. Electrical tests and inspections specified in various Division 26 and 28 Sections shall be provided with the contract by the appropriate manufacturer’s reps. and electrical contractor.

1.3 QUALITY ASSURANCE

A. Testing Agency Qualifications: As specified in each Section containing electrical testing requirements and in subparagraph and associated subparagraph below.
   1. Independent Testing Agencies: Independent of manufacturers, suppliers, and installers of components to be tested or inspected.
      a. Testing Agency's Field Supervisor for Power Component Testing: Person currently certified by the International Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Division 26 power component Sections.

B. Test Equipment Suitability: Comply with NETA ATS, Section 5.2.

C. Test Equipment Calibration: Comply with NETA ATS, Section 5.3.

PART 2 - NOT USED

PART 3 - EXECUTION

3.1 GENERAL TESTS AND INSPECTIONS

A. If a group of tests are specified to be performed by an independent testing agency, prepare systems, equipment, and components for tests and inspections, and perform preliminary tests to ensure that systems, equipment, and components are ready for independent agency testing. Include the following minimum preparations as appropriate:
   1. Perform insulation-resistance tests on all service and feeder cables.
   2. Perform continuity tests.
   3. Perform rotation test (for motors to be tested).
   4. Provide a stable source of single-phase, 240/120-V electrical power for test instrumentation at each test location.
   5. Provide service ground resistance test, see 260510.
   6. Provide voltage test on each phase to ground on panelboards feeding the equipment.

7. Provide ground test on panelboards feeding the equipment.

B. Test and Inspection Reports: In addition to requirements specified elsewhere, report the following:
   1. Manufacturer's written testing and inspecting instructions.
   2. Calibration and adjustment settings of adjustable and interchangeable devices involved in tests.
   3. Tabulation of expected measurement results made before measurements.
   4. Tabulation of "as-found" and "as-left" measurement and observation results.
   5. Remediation measures taken to correct any deficiencies.

END OF SECTION

SECTION 26 0120

CONDUCTORS AND CABLES

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 building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

1.3 SUBMITTALS

A. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.4 QUALITY ASSURANCE

A. Listing and Labeling: Provide wires and cables specified in this Section that are listed and labeled.
   1. The Terms □Listed□ and □Labeled□ as defined in NDPA 70, Article 100.
   2. Listing and Labeling Agency Qualifications: A □Nationally Recognized Testing Laboratory□ as defined in OSHA Regulation 1910.7.

B. Comply with NFPA 70, 2017.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver wires and cables according to NEMA WC 26.

1.6 COORDINATION

A. Coordinate layout and installation of cables with other installations.

B. Revise locations and elevations from those indicated, as required to suit field conditions and as approved by Engineer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
   1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
   2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 CONDUCTORS AND CABLES

A. Manufacturers:
   1. American Insulated Wire Corp.; a Leviton Company.

2. General Cable Corporation.
3. Rome Cable Company.

B. Refer to Part 3 "Conductor and Insulation Applications" Article for insulation type, cable construction, and ratings.

C. Conductor Material: Copper complying with NEMA WC 5 or 7; solid conductor for No. 10 AWG and smaller, stranded for No. 8 AWG and larger.

D. Conductor Insulation Types: Type THHN-THWN, XHHW and XHHW-2 complying with NEMA WC 5 or 7.

E. Multiconductor Cable: MC/Armored cable with ground wire only in existing walls and whips to light fixtures.

F. NM cable is not permitted.

G. Aluminum alloy wires are allowed in 100 Amp and larger feeders with use of crimp connectors and conductive, anti-corrosive termination grease.

2.3 CONNECTORS AND SPLICES

A. Manufacturers:
1. AFC Cable Systems, Inc.
2. AMP Incorporated/Tyco International.
3. Hubbell/Anderson.
4. O-Z/Gedney; EGS Electrical Group LLC.
5. 3M Company; Electrical Products Division.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1 CONDUCTOR AND INSULATION APPLICATIONS

A. Underground Service Entrance: Type XHHW-2, single conductors in raceway. Aluminum alloy conductors, with crimp termination lugs and conductive termination grease, is allowed.

B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.

C. Feeders Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.

D. Feeders Concealed in Concrete, below Slabs-on-Grade, and in Crawlspaces: Type XHHW-2 single conductors in raceway.

E. Exposed Branch Circuits, including in Crawlspaces: Type THHN-THWN, single conductors in raceway.

F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway or flexible metal conduit where permitted for connections to devices not exceeding 3’ in length. Branch Circuits Concealed in Concrete and below Slabs-on-Grade: Type THHN-THWN, single conductors in raceway.

G. Branch circuit homeruns exposed or concealed: Type THHN-THWN, single conductors in EMT or RMC.

H. Control wiring shall be TRS (TriRatedSingle).

I. Flexible metal conduit shall be used at all equipment locations subject to vibration. Length shall not exceed 6’ for power feeds and 36” for control devices.

J. Multi-conductor Cable: MC/Armored cable is permitted only in existing walls where EMT installation is not feasible, for whips to light fixtures, and where specifically approved by the Engineer or Architect.

3.2 INSTALLATION

A. Conceal conduits in finished walls, ceilings, and floors, unless otherwise indicated.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members and follow surface contours where possible.

E. Support cables according to Division 260500 Section "Common Work Results."

F. Seal around cables penetrating fire-rated elements according to Division 078400 Section "Firestopping."

G. Identify and color-code conductors and cables according to Division 260075 Section "Electrical Identification."

3.3 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than un-spliced conductors.

1. Use oxide inhibitor in each splice and tap conductor for aluminum conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches (300 mm) of slack.

3.4 FIELD QUALITY CONTROL

A. Testing: Perform the following field quality-control testing:

1. After installing conductors and cables and before electrical circuitry has been energized, test for compliance with requirements.
2. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.3.1. Certify compliance with test parameters.

B. Test Reports: Prepare a written report to record the following:
1. Test procedures used.
2. Test results that comply with requirements.
3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

END OF SECTION

SECTION 26 0130

RACEWAYS AND BOXES

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 raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

B. Related Sections include the following:
1. Division 3 Concrete for exterior ductbanks, manholes, and underground utility concrete work.
2. Division 078400 Section "Firestopping" for firestopping materials and installation at penetrations through walls, ceilings, and other fire-rated elements.
3. Division 260500 Section "Common Work Results" for supports, anchors, and identification products.
4. Division 262726 Section "Wiring Devices" for devices installed in boxes and for floor-box service fittings.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. ENT: Electrical nonmetallic tubing.

C. FMC: Flexible metal conduit.

D. IMC: Intermediate metal conduit.

E. LFMC: Liquidtight flexible metal conduit.

F. LFNC: Liquidtight flexible non-metallic conduit.

G. RMC: Rigid Metal Conduit.

1.4 SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70, 2017

1.6 COORDINATION

A. Coordinate layout and installation of raceways, boxes, enclosures, cabinets, and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

2.2 METAL CONDUIT AND TUBING

A. Manufacturer:
   1. AFC Cable Systems, Inc.
   2. Alflex Inc.
   3. Anamet Electrical, Inc.; Anaconda Metal Hose.
   4. Electri-Flex Co.
   5. Grinnell Co. /Tyco International; Allied Tube and Conduit Div.
   6. LTV Steel Tubular Products Company.
   7. Manhattan/CDT/Cole-Flex.
   8. O-Z Gedney; Unit of General Signal.
   9. Wheatland Tube Co.

B. Rigid Steel Conduit: ANSI C80.1.

C. IMC: ANSI C80.6.

D. EMT and Fittings: ANSI C80.3.
   1. Fittings: Compression type.

E. FMC: Zinc-coated steel.

F. LFMC: Flexible steel conduit with PVC jacket.

G. Fittings: NEMA FB 1; compatible with conduit and tubing materials.

2.3 METAL WIREWAYS

A. Manufacturer:
   1. Hoffman
   2. Square D
   3. Eaton

B. Material and Construction: Sheet metal sized and shaped as indicated, NEMA 1 or 3R.

C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

D. Select features, unless otherwise indicated, as required to complete wiring system and to comply with NFPA 70.

E. Wireway Covers: Hinged gasketed cover type.

F. Finish: Manufacturer's standard enamel finish.

2.4 SURFACE RACEWAYS

A. Surface Metal Raceways: Galvanized steel with snap-on covers. Finish with manufacturer's standard grey finish coat.

1. Manufacturer:
    a. Walker Systems, Inc.; Wiremold Company (The).
    b. Wiremold Company (The); Electrical Sales Division.

B. Types, sizes, and channels as indicated and required for each application, with fittings that match and mate with raceways.

2.5 BOXES, ENCLOSURES, AND CABINETS

A. Manufacturer:
1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
2. Emerson/General Signal; Appleton Electric Company
3. Erickson Electrical Equipment Co.
4. Hoffman
5. Hubbell, Inc.; Killark Electric Manufacturing Co.
6. O-Z/Gedney; Unit of General Signal
7. RACO; Division of Hubbell, Inc.
8. Robroy Industries, Inc.; Enclosure Division
9. Scott Fetzer Com.; Adalet-PLM Division
10. Spring City Electrical Manufacturing Co.
11. Thomas & Betts Corporation. Walker Systems, Inc.; Wiremold Company
12. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary

B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

C. Cast-Metal Outlet and Device Boxes: NEMA FB 1, Type FD, with gasketed cover.

D. Floor Boxes: Cast metal, fully adjustable, rectangular.

E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

F. Cast-Metal Pull and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.

G. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous hinge cover and flush latch.
1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Nonmetallic Enclosures: Plastic, finished inside with radio-frequency-resistant paint.

H. Cabinets: NEMA 250, Type 1, galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards. Include metal barriers to separate wiring of different systems and voltage and include accessory feet where required for freestanding equipment.

2.6 FACTORY FINISHES

A. Finish: For raceway, enclosure, or cabinet components: provide manufacturer's standard prime-coat finish ready for field painting.

B. Finish: For raceway, enclosure, or cabinet components: provide manufacturer's standard gray paint applied to factory-assembled surface raceways, enclosures, and cabinets before shipping.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors:
1. Exposed: Rigid steel or IMC.
2. Concealed: Rigid steel or IMC.

3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
4. Boxes and Enclosures: NEMA 250, Type 3R or 4.

B. Indoors:
1. Exposed: EMT.
2. Concealed: EMT.
3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except use LFMC in damp or wet locations.
4. Damp or Wet Locations: Rigid or intermediate steel conduit.
5. Boxes and Enclosures: NEMA 250, Type 1, except as follows:
a. Damp or Wet Locations: NEMA 250, Type 4.
6. Where subject to damage, use rigid steel or IMC.

C. Minimum (above grade) Raceway Size: 3/4-inch for power, ½-inch for controls.

D. Minimum (below grade) Raceway Size: 1-1/4-inch and at least one size larger than called for in NEC tables.

E. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

F. Install nonferrous conduit or tubing for circuits operating above 60 Hz.

3.2 INSTALLATION

A. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

B. Complete raceway installation before starting conductor installation.

C. Support raceways as specified in Division 260510 Section "Common Work Results."

D. Install temporary closures to prevent foreign matter from entering raceways. This is particularly necessary for external below grade conduits turned up above grade

E. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portions of bends are not visible above the finished slab.

F. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.

G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.
1. Install concealed raceways with a minimum of bends in the shortest practical distance, considering type of building construction and obstructions, unless otherwise indicated.

H. Raceways Embedded in Slabs: Install in middle 1/3 of slab thickness where practical and leave at least 2 inches of concrete cover.
1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
2. Space raceways laterally to prevent voids in concrete.
3. Run conduit larger than 1-inch trade size parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
4. Change from nonmetallic tubing to rigid steel conduit, or IMC before rising above the floor.

I. Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.

1. Run parallel or banked raceways together on common supports.
2. Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.

J. Join raceways with fittings designed and approved for that purpose and make joints tight.
1. Use insulating bushings to protect conductors.

K. Terminations:
1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.

L. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.

M. Telephone and Signal System Raceways, 2-Inch Trade Size and Smaller. In addition to above requirements, install raceways in maximum lengths of 150 feet and with a maximum of two 90-degree bends or equivalent. Separate lengths with pull or junction boxes where necessary to comply with these requirements.

N. Stub-up Connections: Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with finished floor. Extend conductors to equipment with rigid steel conduit; FMC may be used 6 inches above the floor. Install screwdriver-operated, threaded plugs flush with floor for future equipment connections.

O. Flexible Connections: Use maximum of 72 inches of flexible conduit for recessed and semi-recessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use LFMC in damp or wet locations. Install separate ground conductor across flexible connections.

P. Surface Raceways: Install a separate, green, ground conductor in raceways from junction box supplying raceways to receptacle or fixture ground terminals.

Q. Set floor boxes level and flush with finished floor surface.

R. Set floor boxes level. Trim after installation to fit flush with finished floor surface.

S. Install hinged-cover enclosures and cabinets plumb. Support at each corner.

T. Flexible Metal Conduit may only be used in existing walls or for short, 6’ max., connections to equipment or lights.

U. All conduit to be run concealed in end user areas, except where specifically reviewed and approved by owner.

V. All boxes shall be recessed wherever feasible.

W. Provide expansion-deflection joints in all below grade conduits for services or power feeders of 100 Amps or more. Install in runs exceeding 50’, within 2’ of sweeps turning up to grade.

3.3 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.4 CLEANING

A. After completing installation of exposed, factory-finished raceways and boxes, inspect exposed finishes and repair damaged finishes. Any sharp or damaged edges shall be power sanded, deburred and have corrosion resistant paint applied as needed.

END OF SECTION

SECTION 26 0500

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Supporting devices for electrical components.
   2. Concrete equipment bases.
   3. Cutting and patching for electrical construction.
   4. Touchup painting.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.4 COORDINATION

A. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.

B. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.

C. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work.

D. Coordinate installing large equipment requiring positioning before closing in the building.

E. Coordinate electrical service connections to existing transformer.

F. Coordinate installation and connection of exterior underground utilities and services.

G. Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces. Access doors and panels are specified in Division 8 Section "Access Doors."

H. Coordinate electrical connections by mechanical contractor. Reference mechanical specification 230530, Section 1.2.

PART 2 - PRODUCTS

2.1 SUPPORTING DEVICES

A. Material: Cold-formed steel, with corrosion-resistant coating acceptable to authorities having jurisdiction.

B. Metal Items for use outdoors or in damp locations: Hot-dip galvanized steel.

C. Slotted Steel Channel Supports: Flange edges turned toward web, and 9/16-inch- diameter slotted holes at a maximum of 2 inches o.c., in webs.
   1. Channel Thickness: Selected to suit structural loading.

D. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.

E. Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.

F. Cable Supports for Vertical Conduit: Factory fabricated assembly consisting of threaded body and insulating wedging plug for non-armored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable-iron casting with hot-dip galvanized finish.

G. Expansion Anchors: Carbon steel wedge or sleeve type.

H. Toggle Bolts: All steel springhead type.

2.2 TOUCHUP PAINT

A. For Equipment: Equipment manufacturer's paint selected to match installed equipment finish.

B. Galvanized Surfaces: Zinc rich paint recommended by item manufacturer.

PART 3 - EXECUTION

3.1 ELECTRICAL EQUIPMENT INSTALLATION

A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide the maximum possible headroom.

B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

D. Right of Way: Give to raceways and piping systems installed at a required slope.

3.2 ELECTRICAL SUPPORTING DEVICE APPLICATION

A. Damp Locations and Outdoors: Hot dip galvanized materials or nonmetallic, U channel system components.

B. Dry Locations: Steel materials.

C. Selection of Supports: Comply with manufacturer's written instructions.

D. Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four; minimum of 200-lb design load.

3.3 SUPPORT INSTALLATION

A. Install support devices to securely and permanently fasten and support electrical components.

B. Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assemblies and for securing hanger rods and conduits.

C. Support parallel runs of horizontal raceways together on trapeze or bracket type galvanized hangers.

D. Size supports for multiple raceway installations so capacity can be increased by a 25 percent minimum in the future.

E. Support individual horizontal raceways with separate, malleable-iron pipe hangers or clamps.

F. Install 1/4-inch- diameter or larger threaded steel hanger rods, unless otherwise indicated.

G. Spring-steel fasteners specifically designed for supporting single conduits or tubing may be used instead of malleable-iron hangers for 1-1/2-inch and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings and for fastening raceways to slotted channel and angle supports.

H. Arrange supports in vertical runs so the weight of raceways and enclosed conductors is carried entirely by raceway supports, with no weight load on raceway terminals.

I. Simultaneously install vertical conductor supports with conductors.

J. Separately support cast boxes that are threaded to raceways and used for fixture support. Support sheet-metal boxes directly from the building structure or by bar hangers. If bar hangers are used, attach bar to raceways on opposite sides of the box and support the raceway with an approved fastener not more than 24 inches from the box.

K. Install metal channel racks for mounting cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices unless components are mounted directly to structural elements of adequate strength.

L. Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core-drilled holes are used. Install sleeves for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.

M. All exposed support equipment shall be galvanized.

N. Securely fasten electrical items and their supports to the building structure, unless otherwise indicated. Perform fastening according to the following unless other fastening methods are indicated:
   1. Wood: Fasten with wood screws or screw type nails.
   2. Masonry: Toggle bolts on hollow masonry units and expansion bolts on solid masonry units.
   3. New Concrete: Concrete inserts with machine screws and bolts.
   4. Existing Concrete: Expansion bolts.
   5. Light Steel: Sheet metal screws.
   6. Fasteners: Select so the load applied to each fastener does not exceed 25 percent of its proof test load.

3.4 CUTTING AND PATCHING

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.

B. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed

surfaces. Install new fireproofing where existing fire-stopping has been disturbed. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

3.5 FIELD QUALITY CONTROL

A. Inspect installed components for damage and faulty work, including the following:
   1. Supporting devices for electrical components.
   2. Cutting and patching for electrical construction.
   3. Touchup painting.

3.6 REFINISHING AND TOUCHUP PAINTING

A. Refinish and touch up paint. Paint materials and application requirements are specified in Division 9 Section "Painting."
   1. Clean damaged and disturbed areas and apply primer, intermediate, and finish coats to suit the degree of damage at each location.
   2. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats
   3. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
   4. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.7 CLEANING AND PROTECTION

A. On completion of installation, including outlets, fittings, and devices, inspect exposed finish.

B. Remove burrs, dirt, paint spots, and construction debris.

C. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

D. Protect all open device boxes from painter’s sprays.

END OF SECTION

SECTION 26 0510

GROUNDING AND BONDING

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 grounding of electrical systems and equipment. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.

1.3 SUBMITTALS

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

B. Field Test Reports: Submit written test reports to include the following:
   1. Test procedures used.
   2. Test results that comply with requirements.
   3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

1.4 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with UL 467.

C. Comply with NEC 2017, Article 250

PART - PRODUCTS

2.1 GROUNDING CONDUCTORS

A. For insulated conductors, comply with Division 260120 Section "Conductors and Cables."

B. Material: Copper.

C. Equipment Grounding Conductors: Insulated with green-colored insulation.

D. Grounding Electrode Conductors: Stranded cable.

E. Bare Copper Conductors: Comply with the following:
   1. Solid Conductors: ASTM B 3.
   2. Assembly of Stranded Conductors: ASTM B 8.
   3. Tinned Conductors: ASTM B 33.

F. Copper Bonding Conductors: As follows:
   1. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG copper conductor, 1/4 inch in diameter.
   2. Bonding Conductor: No. 4 or No. 6 AWG, stranded copper conductor.

3. Bonding Jumper: Bare copper tape, braided bare copper conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

G. Grounding Bus: Bare, annealed copper bars of rectangular cross section, with insulators.

2.2 CONNECTOR PRODUCTS

A. Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.

B. Bolted Connectors: Bolted-pressure-type connectors, or compression type.

C. Welded Connectors: Exothermic welded type in kit form and selected per manufacturer's written instructions.

PART 3 - EXECUTION

3.1 APPLICATION

A. Use only copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone and similar materials.

B. In raceways, use insulated equipment grounding conductors.

C. Exothermic-Welded Connections: Use for connections to structural steel and for underground connections.

D. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.

E. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
1. Use insulated spacer; space 1 inch from wall and support from wall 6 inches above finished floor, unless otherwise indicated.
2. At doors, route the bus up to the top of the door frame, across the top of the doorway, and down to the specified height above the floor.

3.2 EQUIPMENT GROUNDING CONDUCTORS

A. Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.

B. Install an insulated green copper equipment ground in all branch circuits and feeders.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage. Conductors shall be in EMT conduit, bond conduit at both ends with approved bonding bushings and #6.

B. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers and supports is not transmitted to rigidly mounted equipment. Use exothermic welded connectors for outdoor locations, unless a disconnect-type connection is required; then, use a bolted clamp. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts. Install straps only in locations accessible for maintenance.

C. Bond interior metal piping systems and metal air ducts to equipment grounding conductors of

associated pumps, fans, blowers, electric heaters, and air cleaners. Use braided-type bonding straps.

3.4 CONNECTIONS

A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
   1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.
   2. Make connections with clean, bare metal at points of contact.
   3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
   4. Make aluminum-to-galvanized steel connections with tin-plated copper jumpers and mechanical clamps.
   5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

B. Exothermic Welded Connections: Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.

C. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use pressure type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.

D. Non-contact Metal Raceway Terminations: If metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a baregrounding conductor to grounding bus or terminal in housing. Bond electrically non-continuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.

E. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturers published torque tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.

F. Compression Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.

END OF SECTION

SECTION 26 2726

WIRING DEVICES

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: Single and duplex receptacles, including ground fault circuit interrupters.
   1. Single and double pole snap switches.
   2. Device wall plates.
   3. Floor service outlets.

1.3 SUBMITTALS

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

B. Shop Drawings: List of legends and description of materials and process used for pre-marking wall plates.

C. Field quality control test reports.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of wiring device through one source from a single manufacturer.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.5 COORDINATION

A. Receptacles for Owner Furnished Equipment: Match plug configurations, minimum of NEMA 20 Amp.

B. Cord and Plug Sets: Match equipment requirements, minimum of NEMA 20 Amp.

PART 2 - PRODUCTS

2.1 RECEPTACLES

A. Straight Blade Type Receptacles: Comply with NEMA WD 1, NEMA WD 6, DSCC, W C 596G, and UL 498.

B. Straight Blade and Locking Receptacles: Heavy Duty grade, 20 Amp.

C. GFCI Receptacles: Straight blade, non-feed through type, heavy Duty grade, with integral NEMA WD 6, Configuration 5-20R duplex receptacle; complying with UL 498 and UL 943. Design units for installation in a 2-3/4-inch- deep outlet box without an adapter.

D. Receptacles shall have separate hex-head grounding screw terminals.

E. Special purpose receptacles to match NEMA designations of various manufacturers' plugs.

F. Arc Flash Receptacles (AFCI): Straight blade, non-feed through type, heavy Duty grade, with integral NEMA WD 6, Configuration 5 20R duplex receptacle; complying with UL 489 and UL 1699A. Design units for installation in a 2-3/4-inch- deep outlet box without an adapter.

G. Tamper resistant receptacles shall comply with NEC 406.12 and UL 498.

2.2 CORD AND PLUG SETS

A. Description: Match voltage and current ratings and number of conductors to requirements of equipment being connected.
   1. Cord: Rubber insulated, stranded copper conductors, with Type SOW- jacket; with green insulated grounding conductor and equipment rating ampacity plus a minimum of 30 percent.
   2. Plug: Nylon body and integral cable clamping jaws. Match cord and receptacle type for connection.

2.3 SWITCHES

A. Single, Double Pole, or 3 Way Switches: Comply with DSCC W-C-896F and UL 20.

B. Snap Switches: Heavy Duty grade, quiet type, 20 Amp.

C. Switches shall have separate hex-head grounding screw terminals.

2.4 WALL PLATES

A. Single and combination types to match corresponding wiring devices.
   1. Plate-Securing Screws: Metal with head color to match plate finish.
   2. Material for Finished Spaces: Brushed Stainless Steel.
   3. Material for Unfinished Spaces: Galvanized steel, with rolled edges to match box size.
   4. Material for Wet Locations: Thermoplastic with spring-loaded lift-cover and listed and labeled for use in "wet locations" and "raintight while in use".

2.5 FINISHES

A. Color:
   1. Wiring Devices Connected to Normal Power System: Grey, unless otherwise indicated or required by NFPA 70.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install devices and assemblies level, plumb, and square with building lines.

B. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical, and with grounding terminal of receptacles on top. Group adjacent switches under single, multi-gang wall plates.

C. Remove wall plates and protect devices and assemblies during painting.

D. Adjust locations of floor service outlets to suit arrangement of partitions and furnishings.

E. AFCI receptacles (or breakers) shall be provided for all 120 VAC devices in Residential and dormitory occupancies.

F. GFCI receptacles (or breakers) shall be provided for all 120 VAC devices in Kitchens and damp

locations in all occupancies.

G. GFCI receptacles, used on refrigeration equipment, shall have integral alarm for tripped condition.

3.2 IDENTIFICATION

A. Comply with Division 26 Section "Electrical Identification."
   1. Receptacles: Identify panelboard and circuit number from which served. Use hot, stamped or engraved machine printing with black filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

3.3 CONNECTIONS

A. Ground equipment according to Division 26 Section "Grounding and Bonding."

B. Connect wiring according to Division 26 Section "Conductors and Cables."

C. Tighten electrical connectors and terminals according to manufacturers published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.4 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:
   1. After installing wiring devices and after electrical circuitry has been energized, test for proper polarity, ground continuity, and compliance with requirements. Test GFCI receptacle operation with both local and remote fault simulations according to manufacturer's written instructions. Operation of the GFCI trip shall not interrupt power to any other receptacle on circuit unless otherwise noted.

B. Remove malfunctioning units, replace with new units, and retest as specified above.

END OF SECTION

SECTION 26 5000

LIGHTING CONTROLS

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 lighting control devices:
   1. Time switches.
   2. Photoelectric switches.
   3. Occupancy sensors.

B. Related Sections include the following:
   1. Division 26 Section "Wiring Devices" for wall-box dimmers and manual light switches.

1.3 DEFINITIONS

A. LED: Light-emitting diode.

B. PIR: Passive Infrared.

1.4 SUBMITTALS

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

B. Shop Drawings: Show installation details for occupancy and light-level sensors.

C. Lighting plan showing location, orientation, and coverage area of each sensor.

D. Interconnection diagrams showing field-installed wiring.

E. Field quality-control test reports.

F. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.6 COORDINATION

A. Coordinate layout and installation of ceiling-mounted devices with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
   1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 GENERAL LIGHTING CONTROL DEVICE REQUIREMENTS

A. Line-Voltage Surge Protection: An integral part of the devices for 120-V solid state equipment. For devices without integral line-voltage surge protection, field mounting surge protection shall comply with IEEE C62.41 and with UL 1449.

2.3 INDOOR OCCUPANCY SENSORS

A. Manufacturers:
   1. Hubbell Lighting Inc.
   2. Leviton Mfg. Company Inc.
   3. Lithonia Lighting.
   4. Novitas, Inc.
   5. RAB Electric Manufacturing, Inc.
   6. Sensor Switch, Inc.
   7. TORK.
   8. Unenco Electronics; a Hubbell Company.

B. General Description: Wall- or ceiling-mounting, solid-state units with a separate relay unit.
   1. Operation: Unless otherwise indicated, turn lights on when covered area is occupied and off when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
   2. Sensor Output: Contacts rated to operate the connected relay, complying with UL 773A. Sensor shall be powered from the relay unit.
   3. Relay Unit: Dry contacts rated for 20-A ballast load at 120 volts for 13Amp, tungsten at 120-Vac, and for 1 hp at 120-V ac. Power supply to sensor shall be 24-V dc, 150-mA, Class 2 power source as defined by NFPA 70.
   4. If not indicated on drawing, device shall be 360° unit.

C. Mounting:
   1. Sensor: Suitable for mounting in any position on a standard outlet box.
   2. Relay: Externally mounted though a 1/2-inch knockout in a standard electrical enclosure.
   3. Time-Delay and Sensitivity Adjustments: Recessed and concealed behind hinged door.
   4. Indicator: LED, to show when motion is being detected during testing and normal operation of the sensor.
   5. Bypass Switch: Override the on function in case of sensor failure.

D. Switchplate Type: 3-wire, wall mounted to replace light switch.
   1. Operation: Unless otherwise indicated, turn lights on when covered area is occupied and off when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
   2. Sensor: Sensor shall use infrared technology, shall cover up to 900 square feet with a 180-degree field of view, and shall have a user adjustable sensitivity setting.
   3. Mounting: Suitable for mounting in a standard switch box. Connect ground wire to electrical ground wire and junction box. Sensitivity adjustment and mounting hardware shall be concealed behind switchplate cover.
   4. Indicator: LED, to show when motion is being detected during testing and normal operation of the sensor.
   5. Bypass Switch: Override the on function in case of sensor failure.

E. Dual-Technology Type: Ceiling mounting; detect occupancy by using a combination of PIR and

ultrasonic detection methods in area of coverage. Particular technology or combination of technologies that controls on and off functions shall be selectable in the field by operating controls on unit.

1. Sensitivity Adjustment: Separate for each sensing technology.
2. Detector Sensitivity: Detect occurrences of 6-inch minimum movement of any portion of a human body that presents a target of at least 36 sq. in. and detect a person of average size and weight moving at least 12 inches in either a horizontal or a vertical manner at an approximate speed of 12 inches/s.
3. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft., when mounted on a 96-inch- high ceiling, for offices and 2000 sq. ft. minimum for class, conference rooms and general spaces.

2.4 OUTDOOR/INDOOR PHOTOELECTRIC SWITCHES

A. Manufacturers:
   1. Area Lighting Research, Inc.
   2. Fisher Pierce
   3. Grasslin Controls Corporation
   4. Intermatic, Inc.
   5. Lithonia Lighting
   6. Novitas, Inc.
   7. Paragon Electric Co.
   8. Square D
   9. TORK
   10. Touchplate Technologies, Inc.

B. Description: Solid state, with SPST dry contacts rated for 1000-VA tungsten, to operate connected relay, contactor coils, microprocessor input, and complying with UL 773A.
   1. Outdoor: Light-Level Monitoring Range: 1.5 to 10 fc, with an adjustment for turn-on and turn-off levels within that range.
   2. Indoor: Light-Level Monitoring Range: 10 to 50 fc, with an adjustment for turn-on and turn-off levels within that range.
   3. Time Delay: 15-second minimum, to prevent false operation.
   4. Surge Protection: Metal-oxide varistor type, complying with IEEE C62.41 for Category A1 locations.
   5. Mounting: Twist lock complying with IEEE C136.10, with base-and-stem mounting or stem- and-swivel mounting accessories as required to direct sensor to the North sky exposure.

2.5 CONDUCTORS AND CABLES

A. Power Wiring to Supply Side of Remote-Control Power Sources: Not smaller than No. 14 AWG, complying with Division 26 Section "Electrical General Requirements “.

PART 3 - EXECUTION

3.1 SENSOR INSTALLATION

A. Install outdoor photocells to avoid direct light from any local lights. Unit should face north.

B. Install indoor photocells to avoid direct light from any local lights. Units should be in skylights.

3.2 WIRING INSTALLATION

A. Wiring Method: Comply with Division 26 Section "Conductors and Cables." Minimum conduit size shall be 3/4 inch.

B. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points. Separate

power-limited and non-power limited conductors according to conductor manufacturer's written instructions.

C. Size conductors according to lighting control device manufacturer's written instructions, unless otherwise indicated.

D. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

E. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.3 IDENTIFICATION

A. Identify components and power and control wiring according to Division 26 “Common Work Results for Electrical”.

B. Label time switches and contactors with a unique designation.

3.4 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports after installing time switches and sensors, and after electrical circuitry has been energized, adjust and test for compliance with requirements:
   1. Operational Test: Verify actuation of each sensor and adjust time delays. Remove and replace lighting control devices where test results indicate that they do not comply with specified requirements.
   2. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.5 ADJUSTING

A. Provide initial adjustments of sensitivity and time delay with owner.

END OF SECTION

SECTION 26 5100

INTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Interior lighting fixtures with lamps and ballasts
   2. Lighting fixtures mounted on exterior building surfaces.
   3. Emergency lighting units.
   4. Exit signs.

B. No Fluorescent, HID, or incandescent sources shall be used except in limited, special applications.

C. All retrofits shall be done with LED light bars unless specifically permitted otherwise by the owner.

D. All light fixtures shall be new unless reusing existing LED fixtures as permitted by the owner.

1.3 DEFINITIONS

A. LED: Light Emitting Diode

B. CRI: Color rendering index.

C. CU: Coefficient of utilization.

D. THD: Total Harmonic Distortion

E. LER: Luminaire efficiency rating, which is calculated according to NEMA LE 5. This value can be estimated from photometric data using the following formula:
   1. LER is equal to the product of total rated lamp lumens times BF times luminaire efficiency, divided by input watts.

F. RoHS: Compliant is no hazardous materials.

1.4 SUBMITTALS

A. Product Data: For each type of lighting fixture scheduled, arranged in order of fixture designation. Include data on features, accessories, finishes, and the following:
   1. Physical description of fixture, including dimensions and verification of indicated parameters.
   2. Emergency lighting unit battery and charger.
   3. All LED sources shall have minimum of 50000 hours rated life expectancy.

B. Product Certificates: For each type of power supply / driver for dimmer-controlled fixtures, signed by product manufacturer.

C. Field quality-control test reports.

D. Operation and Maintenance Data: For lighting equipment and fixtures to include in emergency,

operation, and maintenance manuals. In addition to items specified in Division 1 Sections Closeout Procedures and Operation and Maintenance Data, include the following:

1. Catalog data for each fixture. Include the diffuser, power supply / driver, and lamps installed in that fixture.
2. Warranties: Not less than 1 year or by special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. State of North Carolina Building Code/IBC 2016 Compliance: Comply with visibility and luminance requirements for exit signs.

C. IESNA Illuminating Engineering Society of North America: G-2-10 - Guide for the Application of General Illumination (“White”) Light Emitting Diode (LED) Technologies and applicable LM and TM standards.

D. NEMA - National Electrical Manufacturers Association SSL standards.

E. UL - Underwriters Laboratories, Inc.: 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products and 1598C - Light Emitting Diode (LED) Retrofit Luminaire Conversion Kits.

F. FCC – 47 CFR Part 15 – Radio Frequency Devices

1.6 COORDINATION

A. Coordinate layout and installation of lighting fixtures and suspension system with other construction that penetrates ceilings or is supported by them, including HVAC equipment, fire suppression system, and partition assemblies.

1.7 WARRANTY

A. Special Warranty for Exit Signs: Manufacturer's standard form in which manufacturer of exit sign agrees to repair or replace components that fail in materials or workmanship within specified warranty period.

B. Warranty Period: Five years from date of Final Acceptance. Full warranty shall apply to entire unit for first three years.

C. Special Warranty for LED light bars and drivers: Manufacturer's standard form in which manufacturer agrees to repair or replace any that fail in materials or workmanship within specified warranty period.

D. Warranty Period for light drivers and LED bars: Five years from date of Final Acceptance.

PART 2 - PRODUCTS

2.1 FIXTURES AND COMPONENTS, GENERAL

A. Recessed Fixtures: Comply with NEMA LE 4 for ceiling compatibility for recessed fixtures.

B. Sheet Metal Components: Steel, unless otherwise indicated. Form and support to prevent warping and sagging.

C. Sheet Metal Components: Steel, unless otherwise indicated. Form and support to prevent warping and sagging.

D. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit re-lamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during re-lamping and when secured in operating position.

E. Reflecting surfaces shall have minimum reflectance as follows, unless otherwise indicated:
   1. White Surfaces: 85 percent.
   2. Specular Surfaces: 83 percent.
   3. Diffusing Specular Surfaces: 75 percent.
   4. Laminated Silver Metallized Film: 90 percent.

F. Plastic Diffusers, Covers, and Globes:
   1. Acrylic Lighting Diffusers: 100 percent virgin acrylic plastic. High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
   2. Lens Thickness: At least 0.125 inch minimum unless different thickness is scheduled. UV stabilized.
   3. Glass: Annealed crystal glass, unless otherwise indicated.

G. Drivers shall be integral to fixture. Remote mounting will only be permitted where environmental or space constraints require and by permission of the owner.

H. All fixtures shall be U.L. or other suitable, approved listing agency and bear appropriate label.

2.2 LED

A. Units shall be in accordance with NFPA, UL, as shown on drawings, and as specified.

B. Units shall be modular and allow for separate replacement of LEDs and drivers.

C. LEDs and drivers shall be serviceable from the front or accessible underside of fixture.

D. Units shall include surge protection to withstand line surges, noise and interference.

E. Units shall be dimmable with a 0-10 volt, 3 wire dimming driver and shall be tested-certified by OEM unless otherwise listed on drawings.

F. Units shall not exhibit any audible hum or flicker of source.

G. Minimum CRI of 80.

H. Color temperature of 3500°K unless otherwise listed on drawings.

I. Lumen maintenance rating of L70 minimum, 50000 hours.

J. Minimum 5 years OEM warranty on LEDs and drivers.

K. Tested to IES LM-79 and LM-80 standards.

L. Drivers
   1. Power factor greater than 0.9.
   2. Universal operating voltage at 120 and 277 VAC.
   3. Minimum efficiency of 90%.
   4. Less than 20% THD.
   5. Minimum 5 years warranty.
   6. RoHS compliant
   7. Dimmable on 0-10VDC control source at minimum of 10% without flicker.

2.3 EXIT SIGNS

A. General: Comply with UL 924; for sign colors and lettering size, comply with authorities having jurisdiction.

B. Internally Lighted Signs: Lamps: Light emitting diodes, 70,000 hours minimum of rated lamp life.

C. Provide 90-minute battery backup utilizing 10 year Lithium battery.

2.4 EMERGENCY LIGHT UNITS

A. General: Comply with UL 924; provide per schedule on drawings.

B. Provide 90-minute battery backup utilizing 10 year Lithium battery.

2.5 FIXTURE SUPPORT COMPONENTS

A. Comply with 260500 Common Work Results for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as fixture. Fixtures exceeding 10# shall have safety chains.

C. Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc coated, 12 gage.

D. Rod Hangers: 3/16-inch- minimum diameter, cadmium plated, threaded steel rod.

E. Aircraft Cable Support: Use cable, anchorages, and intermediate supports recommended by fixture manufacturer. Fixtures shall have minimum of (2) supports.

F. Fixtures, long than 8' (nominal) shall have (3) supports or more as required by row length.

2.6 FINISHES

A. Fixtures: Brushed Aluminum, galvanized or stainless steel, unless otherwise indicated.
   1. Metallic Finish: Corrosion resistant.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Fixtures: Set level, plumb, and square with ceilings and walls. Install lamps in each fixture.
   1. Support for Fixtures in or on Grid Type Suspended Ceilings: Install two independent ceiling support system wires for each grid mounted fixture. Locate not more than 6 inches from fixture corners.
   2. Clips: Fasten fixtures to ceiling grid members with clips that are UL listed for the application.
   3. Fixtures of Sizes Less Than Ceiling Grid: Install as indicated on reflected ceiling plans or center in acoustical panel, and support fixtures independently with at least two 3/4-inch metal channels spanning and secured to ceiling tees.
   4. Support wires shall be installed vertical, +/-15%, to structural ceiling. Wires shall be 'tensioned' to support some but not all of fixtures' weight.

B. Suspended Fixture Support: As follows:
   1. Stem Mounted, Single Unit Fixtures: Suspend with twin stem hangers.
   2. Continuous Rows 8 or 12' sections: As indicated on Drawings, suspend from cable; or use tubing or stem for wiring at one point and tubing or stem for suspension for each unit length of fixture chassis, including two at each end or row.
   3. Install per fixture manufacturer's recommendation.

C. Adjust aimable fixtures, such as track heads, with owner's representative.

D. Each fixture shall be bonded with green ground wire back to power source.

E. Each fixture shall have local disconnecting means on or in unit.

F. Fixtures shall have all external ‘stickers’ removed, lenses cleaner, and all bugs debris removed at commissioning.

G. Recessed connections (in ceilings or walls) shall be with FMC or LFMC (if Wet Location). Pendant mounted units shall have OEM furnished cord, color to match fixture finish.

3.2 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturers published torque tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.3 EXIT AND EMERGENCY LIGHTING, SEALED BEAM LAMPS

A. Generally, set beams to focus 30-45º down from horizontal and at egress way about 15-30º into egress path from wall. Intent is to cover the egress pathway.

B. Demonstrate operation and do final focusing with owner’s representative upon completion of work. Units must operate for 90 minutes.

3.4 FIELD QUALITY CONTROL

A. Inspect each installed fixture for damage. Replace damaged fixtures and components.

B. Verify normal operation of each fixture after installation including dimming.

C. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation.

D. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

E. Corroded Fixtures: During warranty period, replace fixtures that show any signs of corrosion.

END OF SECTION

SECTION 28 3105

FIRE ALARM MODIFICATIONS

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 fire alarm systems.

1.3 DEFINITIONS

A. FACU: Fire alarm control unit (panel).

B. NICET: National Institute for Certification in Engineering Technologies.

C. Definitions in NFPA 72 apply to fire alarm terms used in this Section.

1.4 SYSTEM DESCRIPTION

A. Non-coded, addressable system; multiplexed signal transmission dedicated to fire alarm service only.

B. Class B, sensor alarm circuit (SAC)

1.5 PERFORMANCE REQUIREMENTS

A. Comply with NFPA 72.

B. Fire alarm signal initiation shall be by one or more of the following devices:
   1. Smoke detectors.

C. Fire alarm signal shall initiate the following actions:
   1. Alarm notification appliances shall operate continuously.
   2. Identify alarm at the FACU and remote annunciators.
   3. De-energize electromagnetic door holders.
   4. Transmit an alarm signal to the remote alarm receiving station.
   5. Switch heating, ventilating, and air-conditioning equipment controls to fire alarm mode.
   6. Record events in the system memory.

1.6 SUBMITTALS

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

B. Shop Drawings:
   1. Shop Drawings shall be prepared by persons with the following qualifications:
      a. Trained and certified by manufacturer in fire alarm system design.
      b. Fire alarm certified by NICET, minimum Level III.
   2. System Operation Description: Detailed description for this Project, including method of operation and supervision of each type of circuit and sequence of operations for manually and automatically initiated system inputs and outputs. Manufacturer's standard descriptions for generic systems are not acceptable.
   3. Device Address List: Coordinate with final system programming.
   4. System riser diagram with device addresses, conduit sizes, and cable and wire types and

sizes.
5. Wiring Diagrams: Power, signal, and control wiring. Include diagrams for equipment and for system with all terminals and interconnections identified. Show wiring color code.
6. Battery Sizing Calculations: Use battery voltage after 24 hours of battery operation to demonstrate that voltage at the end of the longest NAC is not less than the minimum listed operating voltage of the appliances used, and that the battery has capacity for 5 minutes of alarm load. Include magnetic door holders in calculations.
7. Floor Plans: Indicate final device locations showing address of each addressable device.
8. Show size and route of cable and conduits.

C. Qualification Data: For Installer.

D. Field quality-control test reports.

E. Operation and Maintenance Data: For fire alarm system to include in emergency, operation, and maintenance manuals. Comply with NFPA 72, Appendix A recommendations for Owner's Manual. Include abbreviated operating instructions for mounting at the FACU.

F. Submittals to Authorities Having Jurisdiction: In addition to distribution requirements for submittals specified in Division 1 Section "Submittals," make an identical submittal to authorities having jurisdiction. Include submittal information required by the North Carolina State Building Code. To facilitate review, include copies of annotated Contract Drawings as needed to depict component locations. Resubmit if required to make clarifications or revisions to obtain approval. On receipt of comments from authorities having jurisdiction, submit them to Designer for revie

G. Documentation:
1. Approval and Acceptance: Provide the "Record of Completion" form according to NFPA 72 to Owner, Designer, and authorities having jurisdiction.
2. Record of Completion Documents: Provide the "Permanent Records" according to NFPA 72 to Owner, Designer, and authorities having jurisdiction.
3. Format of the written sequence of operation shall be the optional input/output matrix.
4. Hard copies on paper to Owner, Designer, and authorities having jurisdiction.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Personnel certified by NICET as Fire Alarm Level III.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.8 PROJECT CONDITIONS

A. Interruption of Existing Fire Alarm Service: Do not interrupt fire alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:
1. Notify Owner no fewer than seven days in advance of proposed interruption of fire alarm service.
2. Do not proceed with interruption of fire alarm service without Owner's written permission

PART 2 - PRODUCTS

2.1 FIRE ALARM CONTROL UNIT (FACU)

A. Existing system is Honeywell – Edwards Notifier.

B. General Description: Use existing panel. Provide additional batteries or output circuits as needed.

2.2 SYSTEM SMOKE DETECTORS

A. General Description:
   1. All addressable smoke detectors shall be analog type with automatic drift compensation features to automatically compensate for detector sensitivity changes due to ambient conditions and detector contamination.
   2. UL 268 listed, operating at 24-V dc, nominal.
   3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, for trouble) to the FACU.
   4. Plug-in Arrangement: Detector and associated electronic components shall be mounted in a plug-in module that connects to a fixed base. The fixed base shall have integral terminals for connection of building wiring.
   5. Detectors shall have built-in tamper-resistant locking device to secure the head to the base. Activate locking device after Final Acceptance of system.
   6. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
   7. Integral Visual Indicating Light: LED type. Indicating detector has operating and power on status.
   8. Remote Control: Unless otherwise indicated, detectors shall be analog addressable type, individually monitored at the FACU for calibration, sensitivity, and alarm condition, and individually adjustable for sensitivity from the FACU.

B. Photoelectric Smoke Detectors:
   1. Sensor: LED or infrared light source with matching silicon cell receiver.
   2 Verify detector sensitivity below with manufacturers selected.

C. Detector Sensitivity: Between 2.5 and 3.5 percent/foot smoke obscuration when tested according to UL 268A.

D. Ionization Smoke Detector:
   1. Sensor: Responsive to both visible and invisible products of combustion. Self-compensating for changes in environmental conditions.
   2. Detector Sensitivity: Between 0.5 and 1.7 percent/foot smoke obscuration when tested according to UL 268A.

2.3 ADDRESSABLE INTERFACE DEVICE

A. Description: Microelectronic monitor module listed for use in providing a system address for listed alarm initiating devices for wired applications with normally open contacts.

B. Integral Relay: Capable of providing a direct signal to the elevator controller to initiate elevator recall and to a circuit breaker shunt trip for power shutdown.

C. Communications Protocal: The DACT shall be fully compatible with the Owner’s receiving equipment.

2.4 NOTIFICATION APPLIANCES

A. Description: Equipped for mounting as indicated and with screw terminals for system connections.
   1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly.

B. Speakers: High quality, adjustable ¼ to 2w output in grille enclosure. Speakers shall be capable of producing a sound-pressure level of 90 dBA, measured 10 feet from the speaker.

C. Visible Alarm Devices: Xenon strobe lights listed under UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- high letters on the lens.

1. Strobe Leads: Factory connected to screw terminals.
2. Candela ratings from 15-75 adjustable on unit. See drawings for settings.

2.5 MAGNETIC DOOR HOLDERS

A. Description: Units are equipped for wall mounting and are complete with matching door plate.
   1. Electromagnet: Requires no more than 3 W to develop 25-lbf holding force.
   2. Wall-Mounted Units: Flush mounted, unless otherwise indicated.
   3. Rating: 24-V dc.

B. Material and Finish: Match door hardware.

2.6 WIRE AND CABLE

A. Wire and cable for fire alarm systems shall be UL listed and labeled as complying with NFPA 70, Article 760.

B. Signaling Line Circuits: Unless otherwise indicated, Type FPL/FPLR/FPLP fire alarm cable, AWG 16 minimum, low capacitance, twisted shielded copper pair. Size circuits as recommended by fire alarm system manufacturer. Acceptable cables include Atlas 228-18-1-1STP, Belden YQ28541 or BSCCS1802s19, or West Penn D975, D991 (AWG 16), or D995 (AWG 14); or equal cable having capacitance of 30 pf/ft maximum between conductors. The cable jacket color shall be red, with red (+) and black (-) conductor insulation.
   1. Unshielded cable, otherwise equal to the above, shall be permitted where the manufacturer's written installation instructions unequivocally require, or state a preference for, the use of unshielded cable.
   2. For underground raceway, Type TC or PLTC (PE insulated) cable shall be used.
   3. For plenums use 2 hour rated cable assemblies.

C. Non-Power Limited Circuits: Solid copper conductors with 600-V rated, 75°C, color coded THHN/THWN insulation; AWG 16 minimum for 24 V-dc, AWG 12 minimum for 120V. Color-code as follows:
   1. Alarm notification appliance circuits: Blue (+) / Black (-).
   2. Separate 24 V-dc operating power (for system equipment): Yellow (+) / Brown (-).
   3. Door control circuits (magnet power): Orange.
   4. For plenums use 2 hour rated cable assemblies.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

A. Device Location Indicating Lights: Locate in public space near the device they monitor.

B. When programming the system, activate the automatic drift compensation feature for all smoke detectors. Set smoke detector sensitivities to normal /medium, unless directed otherwise by the Designer.

3.2 WIRING INSTALLATION

A. Install wiring according to the following:
   1. NECA 1.
   2. TIA/EIA 568-A.

B. Wiring Method: Install cabling and wiring in metal raceway according to Division 26 Section "Raceways and Boxes."
   1. Fire alarm circuits and equipment control wiring associated with the fire alarm system shall be installed in a dedicated raceway system. This system shall not be used for any other wire or cable.

C. Wiring Method:

1. Cables and raceways used for fire alarm circuits, and equipment control wiring associated with the fire alarm system, may not contain any other wire or cable.
2. Signaling Line Circuits: Power limited fire alarm wiring shall not be installed in the same cable or raceway as signaling line circuits.

D. Wiring within Enclosures: Separate power limited and non-power limited conductors as recommended by manufacturer. Install conductors parallel with or at right angles to sides and back of the enclosure. Bundle, lace, and train conductors to terminal points with no excess. Connect conductors that are terminated, joined, or interrupted in any enclosure associated with the fire alarm system to terminal blocks. Mark each terminal according to the system's wiring diagrams. Make all connections with approved crimp on terminal spade lugs, pressure type terminal blocks, or plug connectors.

E. Cable Taps: Use numbered terminal strips in junction, pull, and outlet boxes, cabinets, or equipment enclosures where circuit connections are made.

F. For addressable loop controller (signaling line) circuits, T-taps, in excess of 10', shall not be permitted

G. There shall be no splices in system wiring except at device terminals, or on terminal blocks in cabinets. "Wire nuts" and crimp splices shall not be permitted.

H. Permanent wire markers shall be used to identify all connections in the FACU and other equipment, and in terminal cabinets.

I. Color Coding: Color-code fire alarm conductors differently from the normal building power wiring. Use one color-code for alarm circuit wiring and a different color-code for supervisory circuits. Color-code audible alarm indicating circuits differently from alarm initiating circuits. Use different colors for visible alarm indicating devices. Paint fire alarm system junction boxes and covers red prior to installing cabling or wiring. In finished areas, boxes and covers shall be painted to match the surrounding finish color.

J. For signaling line circuit cable, connect cable shield drain wires at each device on the loop to maintain continuity, taped to insulate from ground, and terminated at the FACU.

3.3 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals according to Division 26 Section "Electrical General Requirements."

B. Identify individual detectors with a unique number as follows, in sequence and starting at the FACU: Addressable Loop # - Device #. Permanently mount the nameplate on each detector's base. Record each number on the as-built drawings.

C. Label each isolation module, and record location on the as-built drawings.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory authorized service representative to inspect, test and adjust field assembled components and equipment installation, including connections. Report results in writing.

B. A 10% system acceptance test shall be performed in accordance with the North Carolina State Building Code and NFPA 72.

C. Perform the following field tests and inspections and prepare test reports: Perform each electrical test and visual and mechanical inspection listed in NFPA 72. Certify compliance with test parameters. All tests shall be conducted under the direct supervision of a NICET technician certified under the Fire Alarm Systems program at Level 3.

1. Visual Inspection: Conduct a visual inspection before any testing. Use as-built drawings and system documentation for the inspection. Identify improperly located, damaged, or nonfunctional equipment, and correct before beginning tests.
2. Testing: Follow procedure and record results complying with requirements in NFPA 72. Detectors that are outside their marked sensitivity range shall be replaced.
3. Test and Inspection Records: Prepare according to NFPA 72, including demonstration of sequences of operation by using the matrix style form in Appendix A in NFPA 72.
4. Prepare a complete System Status and Programming Report, to include the following:
    a. Program settings for each alarm initiating device.
    b. Current sensitivity for each smoke detector.
    c. System operational matrix based on 100% testing of all site-specific software functions for the system.

D. After completion of the system acceptance test, submit the following documentation to the Designer and Fire Marshal's Office:
1. Written verification that the system acceptance test was performed, and that the system has no deficiencies.
2. NFPA 72 "Record of Completion" form, completed and signed by the Contractor.
3. The System Status and Programming Report, generated after the system acceptance testing.
4. Written request for a final system acceptance review by the Designer, Fire Marshall, and the Owner's representative. The fire alarm system must operate properly for at least two days prior to this request.

E. Final Acceptance Review: The Contractor and Installer shall accompany the Designer, Fire Marshall, and the Owner's representative on a final acceptance review of the completed system. The Contractor shall furnish two-way radios, ladders, smoke candles, and other materials needed to test the system. The Installer shall test the system as directed by the Owner's Representative, Fire Marshal and Designer.

3.5 ADJUSTING

A. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project outside normal occupancy hours for this purpose.

B. Semiannual Test and Inspection: Six months after date of Substantial Completion, test the fire alarm system complying with the testing and visual inspection requirements in NFPA 72. Perform tests and inspections listed for monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

C. Annual Test and Inspection: One year after date of Substantial Completion, test the fire alarm system complying with the testing and visual inspection requirements in NFPA 72.

D. Perform tests and inspections listed for monthly, quarterly, semiannual, and annual periods. Use forms developed for initial tests and inspections.

3.6 DOCUMENTATION AND TRAINING

A. Engage a factory authorized service representative to train Owner's designated personnel as specified below:
1. Train Owner's personnel on procedures and schedules for operating, troubleshooting, servicing, adjusting, and maintaining system equipment.
2. Training Aid: Use the approved final version of the operation and maintenance manual as a training aid.
3. Coordinate training schedule with Owner, with at least seven days' advance written notice.

B. Operation and Maintenance Manual: Provide to the Designer, for transmittal to the Owner, two

copies of the system Operation and Maintenance manual. The manual shall be bound in a three-ring binder, and shall contain the following information:

1. As-built system wiring diagram showing all loop numbers, device addresses, and wiring terminal numbers.
2. Manufacturer's detailed maintenance requirements.
3. Technical literature on the duct smoke detectors and indicating stations.
4. Battery calculations, reflecting as-built conditions.

C. Complete site-specific programming data for the system shall be stored on electronic media and archived by the system manufacturer or authorized distributor. A compact disk (CD) copy of this data shall be submitted to the Designer for transmittal to the Owner on the day of system Final Acceptance.

D. The system manufacturer or authorized distributor shall maintain software version (VER) records on the system installed. If a new VER is released during the warranty period, the Owner's system software shall be upgraded at no cost to the Owner. For the entire life of the installed system, upgraded VER for correcting operating problems shall be provided to the Owner at no cost to the Owner.

END OF SECTION

F O R M O F P R O P O S A L

Asheville High School – Media Center Renovations Contract: _____

Buncombe County Bidder: _____

Asheville City Schools Date: _____

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 further declares that he and his subcontractors have fully complied with NCGS 64, Article 2 in regards to E-Verification as required by Section 2.(c) of Session Law 2013-418, codified as N.C. Gen. Stat. § 143-129(j).

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The Bidder proposes and agrees if this proposal is accepted to contract with Buncombe County 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 Asheville High School Media Center Renovations in full in complete accordance with the plans, specifications and contract documents, to the full and entire satisfaction of the State of North Carolina, and Buncombe County, 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 of:

SINGLE PRIME CONTRACT: _____

Base Bid:

_____ Dollars($) _____

General Subcontractor: Plumbing Subcontractor:

_____ Lic _____ _____ Lic _____

Mechanical Subcontractor: Electrical Subcontractor:

_____ Lic _____ _____ Lic _____

GS143-128(d) requires all single prime bidders to identify their subcontractors for the above subdivisions of work. A contractor whose bid is accepted shall not substitute any person as subcontractor in the place of the subcontractor listed in the original bid, except (i) 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 bid work, or (ii) with the approval of the awarding authority for good cause shown by the contractor.

ALLOWANCES:

Bidder certifies they have included Allowances indicated in Section 01 2100 – in the indicated Base Bid amount.

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 base bid quantity of the work all in accordance with the contract documents. Refer to Section 01 2200 – Unit Prices

No. 01 Renovation of subflooring Unit Price ($)_____ per Sq Ft.

The bidder further proposes and agrees hereby to commence work under this contract on a date to be specified in a written order of the designer and shall fully complete all work thereunder within the time specified in the Supplementary General Conditions. Applicable liquidated damages amount is also stated in the Supplementary General Conditions.

MINORITY BUSINESS PARTICIPATION REQUIREMENTS

Provide with the bid - Under GS 143-128.2(c) the undersigned bidder shall identify **on its bid** (Identification of Minority Business Participation Form) the minority businesses that it will use on the project with the total dollar value of the bids that will be performed by the minority businesses. **Also** list the good faith efforts (Affidavit **A**) made to solicit minority participation in the bid effort.

NOTE: A contractor that performs all of the work with its own workforce may submit an Affidavit (**B)** to that effect in lieu of Affidavit (**A)** required above. The MB Participation Form must still be submitted even if there is zero participation.

After the bid opening - The Owner will consider all bids and alternates and determine the lowest responsible, responsive bidder. Upon notification of being the apparent low bidder, the bidder shall then file within 72 hours of the notification of being the apparent lowest bidder, the following:

An Affidavit (**C**) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the 10% goal established. This affidavit shall give rise to the presumption that the bidder has made the required good faith effort and Affidavit **D** is not necessary;
If less than the 10% goal, Affidavit (**D**) of its good faith effort to meet the goal shall be provided. The document must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations and other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract.

Note: Bidders must always submit **with their bid** the Identification of Minority Business Participation Form listing all MB contractors, vendors and suppliers that will be used. If there is no MB participation, then enter none or zero on the form. Affidavit A **or** Affidavit B, as applicable, also must be submitted with the bid. Failure to file a required affidavit or documentation with the bid or after being notified apparent low bidder is grounds for rejection of the bid.

Proposal Signature Page

The undersigned further agrees that in the case of failure on his part to execute the said contract and the bonds within ten (10) consecutive calendar days after being given written notice of the award of contract, the certified 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 certified check, cash or bid bond accompanying this proposal shall be returned to the undersigned.

Respectfully submitted this day of _____

_____
(Name of firm or corporation making bid)

WITNESS:

_____
(Proprietorship or Partnership)

By:_____
Signature

Name: _____
Print or type

Title_____
(Owner/Partner/Pres./V.Pres)

Address_____

_____

ATTEST:

By:_____

Title:_____
(Corp. Sec. or Asst. Sec. only)

License No._____

Federal I.D. No. _____

Email Address: _____

(CORPORATE SEAL)

Addendum received and used in computing bid:

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

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

BID BOND

Date of Execution of this Bond _____

Name and Address of Principal (Bidder) _____
_____
_____

Name and Address of Surety _____
_____
_____

Name and Address of Contracting Body _____
_____
_____

Amount of Bond _____

Bid and Proposal Dated: _____

Project Name: Asheville High School – Media Center Renovations

KNOW ALL MEN BY THESE PRESENTS, that we, the PRINCIPAL above named and SURETY above named who is duly licensed to act as SURETY in the State of North Carolina, are held and firmly bound unto _____, a body corporate of the State of North Carolina, as Obligee, in the penal sum of five percent (5%) of the amount bid in the bid and proposal described above, in lawful money of the United States of America, for the payment of which well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such, that if the PRINCIPAL shall be awarded the contract for which the bid and proposal above described is submitted and shall execute the contract, give bond for the faithful performance of the contract, and give bond for the payment of all persons supplying labor and materials in the prosecution of the work provided for in said contract, within ten (10) days after the award of the same to the PRINCIPAL above named, then this obligation shall be null and void; BUT if the PRINCIPAL above named fails to so execute such contract and give performance bond and payment bond as required by Section 129 of Chapter 143 of the General Statutes of North Carolina, as amended, and Article 3 of Chapter 44-A of the General Statutes of North Carolina, as amended, the Surety shall upon demand, forthwith pay the Obligee the amount of this bond set forth above.

IN WITNESS WHEREOF, the Principal above named and the Surety above named have executed this instrument under their several seals on the date set forth above.

WITNESS: _____ (Proprietorship or Partnership) ATTEST: (Corporation) By:_____(SEAL) Title:_____ (Corporation Secretary or Assistant Secretary Only) WITNESS: _____ COUNTERSIGNED: _____ N.C. Licensed Resident Agent	_____ Principal (Name of Individual, individual and trade name, partnership, corporation, or joint venture) By: _____(SEAL) Title: _____ (Owner, partner, office held in corporation, joint venture) **(Corporate Seal of Principal)** _____ Surety (Name of Surety Company) By: _____ Title: _____Attorney in Fact_____ **(Corporate Seal of Surety)** _____ (Address of Attorney in Fact)

PERFORMANCE BOND

Date of Execution of this Bond _____

Name and Address of Principal (Contractor) _____
_____
_____

Name and Address of Surety _____
_____
_____

Name and Address of Contracting Body _____
_____
_____

Amount of Bond _____
_____

Contract That certain contract by and between the Principal and the Contracting Body above named dated _____ for the project entitled _____
_____

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 called 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, and successors, 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, identified 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 well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of the 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.

PERFORMANCE BOND: (Continued)

THIS PERFORMANCE BOND is made and given pursuant to the requirements and provisions of Section 129 of Chapter 143 of the General Statutes of North Carolina and pursuant to Article 3 of Chapter 44-A of the General Statutes of North Carolina, and each and every provision set forth and contained in Section 129 of Chapter 143 and in Article 3 of Chapter 44-A of the General Statutes of North Carolina is incorporated herein, made a part hereof, and deemed to be conclusively written into this Bond.

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

WITNESS:

_____
(Proprietorship or Partnership)

_____
Principal (Name of individual, individual and trade name, partnership, corporation, or joint venture)

BY _____(SEAL)

TITLE_____
(Owner, Partner, Office held in corporation, joint venture)

ATTEST: (Corporation)

(Corporate Seal of Principal)

BY_____

TITLE_____
(Corporation Secretary or Assistant Secretary Only)

_____
Surety (Name of Surety Company)

WITNESS:

BY_____

_____

TITLE____Attorney in Fact_____

(Corporate Seal of Surety)

_____
(Address of Attorney in Fact)

COUNTERSIGNED:

_____
N.C. Licensed Resident Agent

PAYMENT BOND

Date of Execution of this Bond	_____
Name and Address of Principal (Contractor)	_____ _____ _____
Name and Address of Surety	_____ _____ _____
Name and Address of Contracting Body	_____ _____ _____
Amount of Bond	_____ _____
Contract	That certain contract by and between the Principal and the Contracting Body above named, dated _____ for the project entitled _____ _____

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 called 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, and successors, 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, identified and 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 and extensions of time of said contract may be hereafter be made, notice of which modification and extension of item to the Surety being hereby waived, then, this obligation to be void; otherwise, to remain in full force and virtue.

THIS PAYMENT BOND is made and given pursuant to the requirements and provisions of Section 129 of Chapter 143 of the General Statutes of North Carolina and pursuant to Article 3 of Chapter 44-A of the General Statutes of North Carolina, and each and every provision set forth and contained in Section 129 of Chapter 143 and in Article 3 of Chapter 44-A of the General Statutes of North Carolina is incorporated herein, made a part hereof, and deemed to be conclusively written into this Bond.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals of 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.

WITNESS: _____ (Proprietorship or Partnership) ATTEST: (Corporation) By:_____(SEAL) Title:_____ (Corporation Secretary or Assistant Secretary Only) WITNESS: _____ COUNTERSIGNED: _____ N.C. Licensed Resident Agent	_____ Principal (Name of Individual, individual and trade name, partnership, corporation, or joint venture) By: _____(SEAL) Title: _____ (Owner, partner, office held in corporation, joint venture) **(Corporate Seal of Principal)** _____ Surety (Name of Surety Company) By: _____ Title: _____Attorney in Fact_____ **(Corporate Seal of Surety)** _____ (Address of Attorney in Fact)

FINAL CERTIFICATE AND RELEASE

CONTRACTOR:

SURETY:

OWNER: _____ **COUNTY BOARD OF EDUCATION**

REFERENCE: The Contract entered into the _____ day of _____, 20__ by and between the _____ **COUNTY BOARD OF EDUCATION** (hereinafter called the "Board") and _____ (hereinafter called the "Contractor") (collectively referred to as "the Parties"), for the Project entitled _____ (hereinafter called the "Project").

KNOW ALL MEN BY THESE PRESENTS:

1. The Contractor hereby certifies that there is due and payable under the Contract, and all change orders and modifications thereof, the sum of **$**_____ as final payment.

2. The Contractor further certifies that there are no outstanding or unsettled claims or items in addition to the amount set forth in paragraph 1 herein which it claims are just and due and owing by the Board to the Contractor.

3. The Contractor further certifies that all work required under the Contract, including work required under all agreed upon change orders and modifications, has been performed in accordance with the terms thereof, the Contractor will provide to the Board all close-out documents required by the Contract.

4. Except for the amount stated in paragraph 1 herein, the Contractor has received from the Board all sums of money payable to the Contractor under or pursuant to the Contract, change orders, modifications, change directives, claims, demands or otherwise.

5. That in further consideration of the payment of the amount stated in Paragraph 1 herein, the Contractor does hereby release the Board and the Board's past, present and future members, officers, employees and agents, and their respective assigns, successors, heirs and representatives from any and all claims, demands, rights, claims of lien, damages, suits, and causes of action, both legal and equitable, which the Contractor has, might now have, or that subsequently may accrue to it, arising under, growing out of, or in any wise connected with the Contract above referred to and the Project.

Specifically, and without waiving the foregoing in any manner, Contractor agrees not to assert against or pass-through to the Board, in whole or in part, present or future claims from laborers, materialmen, mechanics, subcontractors or sub-subcontractors. Contractor will indemnify and hold-harmless the Board from any and all claims of laborers, materialmen, mechanics, subcontractors or sub-subcontractors for unpaid monies or wages arising out of the performance of the Contract.

6. That the surety for Contractor does hereby consent to payment pursuant to the terms of this Final Certificate and Release.

IN WITNESS WHEREOF, the Contractor has caused this Final Certificate and Release to be executed by its duly authorized officers and its seal to be hereunto affixed, all by authority duly given, this ___ day of _____, 20___. It is the act and intent of the Contractor that this Document be executed under seal.

Contractor:

_____

BY: _____
Print: _____
Title: _____

{Affix Corporate Seal}

ATTEST:

_____
Print: _____
Title: Corporate Secretary

STATE OF NORTH CAROLINA
COUNTY OF_____

I, a Notary Public of the aforementioned State and County do hereby certify that _____ personally appeared before me this day and, being first duly sworn to oath, deposed and said that s/he is the _____ of {insert name of contractor}, and that s/he has read the foregoing Final Certificate and Release and that the matters and things stated therein are, to the best of his knowledge and belief, true and that by authority duly given and as the act of {insert name of contractor}, the foregoing instrument was signed in its name by him/her as its _____, sealed with its corporate seal, and accepted by its Secretary.

WITNESS my hand and Notarial Seal, this __ day of _____, 2017.

My Commission Expires:

_____

_____
NOTARY PUBLIC
Print: _____

CONSENT OF SURETY:

_____

BY: _____
Print: _____
Title: _____

{Affix Corporate Seal}

STATE OF NORTH CAROLINA
COUNTY OF_____

I, a Notary Public of the aforementioned State and County do hereby certify that _____ personally appeared before me this day and, being first duly sworn to oath, deposed and said that s/he is the _____ of {insert name of surety}, and that s/he has read the foregoing Final Certificate and Release and that the matters and things stated therein are, to the best of his/her knowledge and belief, true and that by authority duly given and as the act of {insert name of surety}, the foregoing instrument was signed in its name by him/her as its _____, sealed with its corporate seal, and accepted by its Secretary.

WITNESS my hand and Notarial Seal, this __ day of _____, 20____.

My Commission Expires:

_____

_____
NOTARY PUBLIC
Print: _____

Identification of HUB Certified/ Minority Business Participation

I,_____,
(Name of Bidder)

do hereby certify that on this project, we will use the following HUB Certified/ minority business as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work Type	*Minority	**HUB Category	Certified (Y/N)

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

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

The total value of minority business contracting will be ($)_____.

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

County of _____

_____

(Name of Bidder)

Affidavit of _____

_____

_____

_____

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

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

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

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

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

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title:_____

SEAL

State of_____**, County of**_____

Subscribed and sworn to before me this _____**day of** _____ _____**20**___

Notary Public_____

My commission expires _____

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

County of _____

_____

Affidavit of _____

_____

_____

_____

_____

(Name of Bidder)

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

_____contract.

(Name of Project)

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

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

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

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of_____

Subscribed and sworn to before me this _____day of _____20___

Notary Public _____

My commission expires_____

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

County of _____

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

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

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

_____
(Project Name)

Project ID# _____ Amount of Bid $ _____

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

Attach additional sheets if required

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

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

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

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

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

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____

SEAL

State of _____, County of _____

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

Notary Public_____

My commission expires_____

State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of _____

_____

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

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

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

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

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

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

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

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

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

A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.

B. Copies of quotes or responses received from each firm responding to the solicitation.

C. A telephone log of follow-up calls to each firm sent a solicitation.

D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.

E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

F. Copy of pre-bid roster

G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.

H. Letter detailing reasons for rejection of minority business due to lack of qualification.

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

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

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

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

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of _____

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

Notary Public_____

My commission expires _____

STATE OF NORTH CAROLINA
COUNTY SALES AND USE TAX REPORT
SUMMARY TOTALS AND CERTIFICATION

CONTRACTOR: _____ Page __1____ of _____

PROJECT: _____ FOR PERIOD: _____

	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL ALL COUNTIES
CONTRACTOR							
SUBCONTRACTOR(S)*							
COUNTY TOTAL							

* Attach subcontractor(s) report(s)
** Must balance with Detail Sheet(s)

I certify that the above figures do not include any tax paid on supplies, tools and equipment which were used to perform this contract and only includes those building materials, supplies, fixtures and equipment which actually became a part of or annexed to the building or structure. I certify that, to the best of my knowledge, the information provided here is true, correct, and complete.

Sworn to and subscribed before me,

This the _____ day of _____, 20____

_____
Signed

_____
Notary Public

_____
Print or Type Name of Above

My Commission Expires: _____

Seal

NOTE:
This certified statement may be subject to audit.

STATE OF NORTH CAROLINA
SALES AND USE TAX REPORT DETAIL

CONTRACTOR: _____ Page ___2___ of _____

SUBCONTRACTOR _____ FOR PERIOD: _____

PROJECT: _____

PURCHASE DATE	VENDOR NAME	INVOICE NUMBER	TYPE OF PROPERTY	INVOICE TOTAL	COUNTY TAX PAID	COUNTY OF SALE *
				$	$	
				TOTAL:	$	

* If this is an out-of-state vendor, the County of Sale should be the county to which the merchandise was shipped.

Native Forms Architecture PLLC
PO Box 8211
Asheville NC, 28814
nativeformsarch@gmail.com

Asheville High School Media Center Renovations

June 9, 2023

Addendum 01
Asheville City Schools
Asheville High School Media Center Renovations
419 McDowell Street
Asheville, NC 28801

The following changes, revisions, additions, and/or clarifications shall be made in the Drawings and Specifications and this addendum and all other addenda shall be a part of the Contract Documents. Please acknowledge receipt of this addendum in the place provided on the Proposal Form.

General Items:

- G-1: See attached PreBid Meeting Minutes from 6/9/2023. This document is attached and shall be incorporated as a part of the Bid Documents. Bidding contractors shall acknowledge receipt of Addenda on Bid Forms.

Architectural Items:

- A-1: Keynote D05 on 5/A102 and keynote N13 on 11/A102 refers to a single opening in the existing storefront system. Refer to enclosed SD-1 with exterior elevation of the existing storefront system and size of panel indicated.
- A-2: Two Keynotes N18 at the bulkhead where existing gypsum meets the new ACT shall have textured finish removed and replaced with skim coat and level 4 finish with painted finish to align with new ACT ceiling elevation at the bulkhead area only
- A-3: Provide resilient flooring manufacturer's standard trim and transition strip for new resilient floor to existing carpet finish at four existing door thresholds to M203 and at two flooring transition locations at pass through area between the new resilient floor and alcove outside of Office M204 and Office M205.
- A-4: On drawing 7/A105 provide new vertical L metal termination at intersection of existing gypsum wallboard and existing concrete wall for clean finish transition. Provide skim coat as required to achieve level 4 finish and apply continuous vertical bead of sealant at transition prior to painting.
- A-5: Field Applied finish is acceptable for wood doors in lieu of factory applied finish.

Attachments:

- PreBid Meeting Minutes from June 9, 2023
- Native Forms Architecture SD-1, dated 6/9/2023

This summary authored and respectfully submitted by:
Chip Howell, AIA, LEED AP, NCARB
Native Forms Architecture, PLLC

Native Forms Architecture PLLC
PO Box 8211
Asheville NC, 28814
nativeformsarch@gmail.com

Prebid Conference Meeting Minutes

Asheville High School Media Center Renovations
Meeting Date: June 9, 2023
Meeting Time: 2:00pm

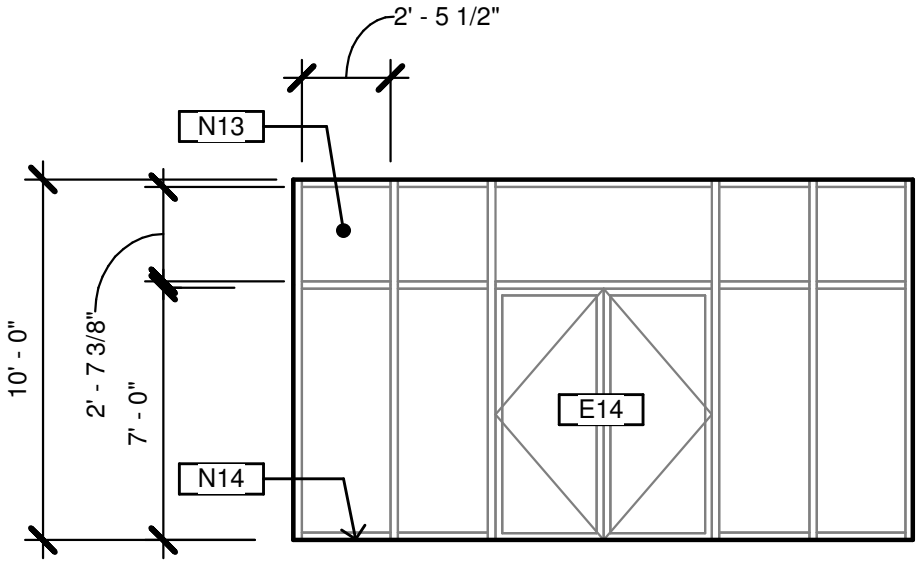
Attendees:

- Tim Holcombe, *Asheville City Schools*
- Chris Pohlman, *Asheville City Schools*
- Chip Howell, *Native Forms Architecture*
- Cassidy Schram, *Sud Associates*
- Hunter Gant, *Ryse Construction*
- Jim Gerety, *Simcon Construction*
- Michael Worley, *Grigg Electric*

Discussion Items:

1. Meeting occurred on site, convening at 2:00pm at the entrance of the Main Building and then proceeding to walk through the project site and surrounding site.
2. Bid Opening will occur on June 15, 2023 at 3:00pm at Asheville City Schools Central Office located at 85 Mountain Street. Bids will be received at this location until 3:00pm on the day of Bid Opening.
3. Anticipated start of construction is July 10, 2023. Work will need to be Substantially Complete within 90 days with Final Completion not later than 30 days following Substantial Completion.
4. Bids shall be Single Prime in Lump Sum.
5. Site may be accessed from the lower level breezeway between the Media Center and Main Building. Site may also be accessed from gravel truck path west of the Arts Building.
6. Construction staging for demolition equipment and dumpsters may be staged from the Cafeteria courtyard north of the Media Center during summer months.
7. Open patio below the Media Center may be made available for construction staging.
8. Media Center breezeway connects central parts of campus and student traffic will be heavy and regular during school hours. Project Site and adjacent areas within the northeast wing will be vacated during construction. Contractor shall establish protective barriers to prevent unauthorized entry into the active jobsite from adjacent campus areas.
9. Buncombe County Inspections will be the Code Enforcement AHJ, Asheville City Fire Marshal will be Fire AHJ.
10. Discussion was had regarding possible requirements for voice activated fire alarm. This has been a common but unexpected upgrade item in recent jobs among the contractors present. Sud will review and confirm if modifications to fire alarms devices will be required to provide voice activated functions.

The minutes contained herein are the author's understanding of the meeting. They are assumed to be complete and correct unless Native Forms Architecture is otherwise notified.
This summary authored and respectfully submitted by:
Chip Howell, AIA, LEED AP, NCARB
Native Forms Architecture, PLLC



(E) SF ELEVATION - SD-1.0 3/16" = 1'-0"

NUMBER	DESCRIPTION
E14	(E) STOREFRONT ASSEMBLY TO REMAIN, TYP.
N13	INSTALL NEW GLAZING AT (E) OPENING. MATCH (E) ADJACENT GLAZING. REFER ALSO TO PROJECT SPECIFICATIONS.
N14	NEW RESILIENT TRANSITION ACCESSORY TO BE INSTALLED AT EXPOSED (E) FINISH FLOORING AT THE (E) STOREFRONT ASSEMBLY THRESHOLD.

native forms ARCHITECTURE

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ASHEVILLE CITY SCHOOLS

AHS MEDIA CENTER RENOVATIONS

EXISTING STOREFRONT ELEVATION

Project number	2208
Date	06-09-2023
Drawn by	CAH
Checked by	CAH

SD-1.0

Scale 3/16" = 1'-0"

Native Forms Architecture PLLC
PO Box 8211
Asheville NC, 28814
nativeformsarch@gmail.com

Asheville High School Media Center Renovations

June 16, 2023

Addendum 02
Asheville City Schools
Asheville High School Media Center Renovations
419 McDowell Street
Asheville, NC 28801

The following changes, revisions, additions, and/or clarifications shall be made in the Drawings and Specifications and this addendum and all other addenda shall be a part of the Contract Documents. Please acknowledge receipt of this addendum in the place provided on the Proposal Form.

General Items:

G-1: Single Prime sealed proposals will be received by Asheville City Schools ("Owner) at the Asheville City Schools Board Room, located at 85 Mountain Street, Asheville, NC 28801 on **June 22, 2023, no later than 10:00 AM local time**, for the *Asheville High School, Media Center Renovations,* at 419 McDowell Street, Asheville, NC 28803.

This summary authored and respectfully submitted by:
Chip Howell, AIA, LEED AP, NCARB
Native Forms Architecture, PLLC