

INVITATION FOR BIDS
TO
COUNTY OF DURHAM
FOR THE CONSTRUCTION OF
Durham County Administration I Building
Emergency Egress Door Improvements

IFB No. 27-001



Date: October 1, 2026

ARCHITECTS/ENGINEERS:
DTW Architects & Planners, Ltd. • 3333 Durham-Chapel Hill Blvd., Suite D100, Durham, NC
Edmondson Engineers, P.A. • MEP Engineers, Durham, NC
J&A Engineering Consultants • Security Engineers, Marietta, GA

DURHAM COUNTY ADMINISTRATION I BUILDING EMERGENCY EGRESS DOOR IMPROVEMENTS

IFB NO. 27-001

TABLE OF CONTENTS

<u>CHAPTERS</u>		<u>PAGE</u>
	BID SCHEDULE	5
0001	Advertisement for Bids	6-7
0002	Instructions to Bidders	8-12
0003	Equal Employment Opportunity	13
0004	General Conditions	14-45
0004A	Special Conditions	46-47
0005	Affidavit of Compliance (E-Verify)	48-49
0006	Bid Form	50-53
0007	Special Notice	54-55
0008	Non-Collusion Affidavit	56
0009	Performance Bond	57-58
0010	Payment Bond	59-60
0011	Vendor application/W-9 Form	61
0012	No Bid Reply form	62-63
0013	Technical Specifications	See below

DIV. #	SECTION NO.	SECTION TITLE	PAGES
1.	GENERAL REQUIREMENTS		
	011100	Summary of Work	1-4
	011150	Alteration Procedures	1-3
	011400	Work Restrictions	1-2
	012100	Allowances	1-3
	012500	Substitution Procedures	1-4
	012600	Contract Modification Procedures	1-3
	012900	Payment Procedures	1-4
	013100	Project Management & Coordination	1-6
	013200	Construction Progress Documentation	1-3
	013216	Construction Progress Schedule	1-4
	013300	Submittals	1-7
	014000	Quality Requirements	1-4
	014100	Regulatory Requirements	1
	014200	References	1-4
	014500	Quality Control	1
	015000	Temporary Facilities & Controls	1-3
	016000	Product Requirements	1-4
	017000	Execution Requirements	1-5
	017413	Cleaning Up	1
	017419	Construction Waste Management & Disposal	1-2
	017700	Closeout Procedures	1-5
	017800	Contract Closeout	1
2.	EXISTING CONDITIONS		
	024000	Demolition	1-2

3. CONCRETE		NOT USED	
4. MASONRY		NOT USED	
5. METALS			
	054000	Cold Formed Metal Framing	1-2
6. WOOD & PLASTICS & COMPOSITES		NOT USED	
7. THERMAL & MOISTURE PROTECTION		NOT USED	
8. OPENINGS (DOORS & WINDOWS)			
	081100	Metal Doors and Frames	1-5
	081400	Wood Doors	1-3
	087000	Finish Hardware	1-10
	088000	Glazing	1-2
9. FINISHES			
	092116	Gypsum Wallboard	1-3
	098000	Acoustical Treatment	1-3
	099000	Painting	1-7
10. SPECIALTIES		NOT USED	
11. EQUIPMENT		NOT USED	
12. FURNISHINGS		NOT USED	
13. SPECIAL CONSTRUCTION		NOT USED	
14. CONVEYING SYSTEMS		NOT USED	
21. FIRE PROTECTION		NOT USED	
22. PLUMBING		NOT USED	
23. HVAC		NOT USED	
26. ELECTRICAL			
	260500	Basic Electrical Materials & Methods	1-10
	260519	Low Voltage Electrical Power Conductors & Cables	1-4
	260526	Grounding & Bonding for Electrical Systems	1-6
	260529	Hangers & Supports for Electrical Systems	1-5

260533	Raceway & Boxes for Electrical Systems	1-5
260534	Voice and Data Communications Systems	1-9
260553	Identification for Electrical Systems	1-6
260923	Lighting Control Devices	1-3
262200	Dry-Type Transformers (1000 V and Less)	1-4
262416	Panelboards	1-5
262726	Wiring Devices	1-4
262813	Fuses	1-2
262816	Enclosed Switches & Circuit Breakers	1-3
263600	Transfer Switches	1-9
265100	Interior Lighting	1-4

27. AUDIO VISUAL SYSTEMS

NOT USED

28. ELECTRONIC SAFETY & SECURITY

NOT USED

31. EARTHWORK

NOT USED

32. EXTERIOR IMPROVEMENTS

NOT USED

33. UTILITIES

NOT USED

BID SCHEDULE

(Note: The dates below are subject to change)

Durham County Administration I Building Emergency Egress Door Hardware

IFB No. 27-001

Advertisement Date	August 30, 2026
Pre-Bid Conference	September 8, 2026, at 10:00 A.M., Eastern Time
Site Visit	September 8, 2026, immediately following the pre-bid conference.
Last Date for Questions	September 22, 2026, at 3:00 P.M., Eastern Time
Bids Due Date	October 1, 2026, at 2:00 P.M., Eastern Time

0001 – Advertisement for Bids



ADVERTISEMENT FOR BIDS

IFB No. 27-001

Durham County Administration I Building Emergency Egress Door Improvements

Bids will be received by the County of Durham Purchasing Division, Durham County, 201 East Main Street, 7th Floor, Durham, North Carolina 27701, until 2:00 P.M. Eastern Time, on **October 1, 2026**. The work contemplated will include Emergency Egress Doors and Hardware.

A Pre-Bid Conference will be held on **September 8, 2026, at 10:00 A.M. Eastern Time**, in Willaim V. Bell Building (Administration I Building) , Durham County 1st Floor, Room 126, 201 East Main Street, Durham, NC 27701. All bidders who intend to bid are encouraged to attend.

Site Visit: to follow immediately after the pre-bid conference. **THIS will be the ONLY opportunity to visit the site.**

Instructions for submitting bids, specifications, and a complete description of the work involved and the apparatus, supplies, materials, equipment for this bid can be examined at the office of the Durham county Purchasing Division (919) 560-0051; DTW Architects & Planners, Ltd. located at 3333 Durham-Chapel Hill Blvd., Suite D100, Durham, NC 27707; and at the following locations:

Durham Equity & Inclusion Department Plan Room
Durham, NC 27701
Eric.miller@durhamnc.gov / www.durhamnc.gov

NC Institute of Minority Economic Development
Durham, NC 27701
info@theinstitute.org

Construct Connect
Cary, NC
www.content@constructionconnect.com

Dodge Data & Analytics
www.construction.com

Construction Journal

www.constructionjournal.com

The Blue Book Online Plan Room

www.thebluebook.com

Questions concerning administrative matters should be directed to Delta Farrington, Senior Procurement Specialist at (919) 560-0054 or via email at purchasinggroup@dcnc.gov.

Prospective Bidders should request access from DTW Architects at the contact noted below in order to be e-mailed a link to download the project manual and bid documents and to receive a list of bidders. Contractors may secure document sets after 8:30 A.M., until 5:00 P.M., Monday through Friday.

Please contact:

Dawn Vanorsdale, Senior Business Administrator

(phone) 919.317.4020 / (e-mail) dvanorsdale@dtwarch.com

Contractors who bid must be licensed to do work in the State of North Carolina under the Act to Regulate the Practice of General Contracting. The Contractor's North Carolina License number shall be designated on the outside of the envelope containing the bid.

A 5% bid security is required with each bid that equals or exceeds \$500,000.00.

Bids will be evaluated and the Contract will be awarded in accordance with statutory public contract requirements as supplemented.

The County reserves the right to reject any and/or all bids, waive informalities, and/or accept such bid as appears in its judgement to be in the best interest of the County.

Publication Date: August 30, 2026

0002 – Instructions to Bidders

INSTRUCTIONS TO BIDDERS

1. For a Bid to be considered, it must be in accordance with the following instructions:

Bids must be made in strict accordance on the “Bid Form” provided therefore and all blank spaces for the Bid Alternates and Unit Prices shall be properly filled in. When alternates are requested, and alternates are not included in the bid, the bid will be considered non-responsive. The Bidders agree that Bids on Bid Form detached from Specifications will be considered and will have the same force and effect as if attached hereto. **Numbers shall be stated both in writing and in figures for the Base Bid and Alternates. One (1) original copy shall be submitted to the Purchasing Division.**

Any modification to the Bid Form (including Alternates and Unit Prices) may disqualify the Bid and may cause the Bid to be rejected.

The Contractor shall fill in the Bid Form as follows:

- A. If the documents are executed by a sole Owner, that fact shall be evidenced by the word of “Owner” appearing after the name of the person.
 - B. If the documents are executed by a Partnership, that fact shall be evidenced by the word of “Co-Partner” appearing after the name of the partner executing them.
 - C. If the documents are executed on the part of a Corporation, they shall be executed by either the President or the Vice-President and attested by the Secretary or Assistant Secretary in either case, and the title of the office of such person shall appear after their signatures. The Seal of the Corporation shall be impressed on each signature page of the documents.
 - D. If the Bid is made by a Joint Venture, it shall be executed by each member of the Joint Venture in the above form for sole Owner, Partnership, or Corporation, whichever form is applicable.
 - E. All signatures shall be properly witnessed.
 - F. It shall be the specific responsibility of the Bidder to deliver this Bid to the proper official at the appointed place and prior to the time for the opening of the Bids. Late delivery of a Bid for any reason, including delivery by the United States Mail, shall disqualify the Bid.
 - G. Modifications of previously deposited Bids will be acceptable only if delivered to the place of the bid opening prior to the time for opening Bids.
 - H. Unit Prices quoted in the Bids shall include overhead and profit and shall be the full compensation for the Contractor’s cost involved in the work.
2. It is understood and mutually agreed that by submitting a Bid the Contractor acknowledges that he/she has carefully examined the bidding documents pertaining to the work, the locations, accessibility and general character of the site of the work and all existing buildings and structures within and adjacent to the site; and has satisfied him/herself as to the nature of the work, the condition

of the existing buildings and structures, the conformation of the ground, the character, quality and quantity of the materials to be encountered; the character of the equipment, machinery, plant and other facilities needed preliminary to and during prosecuting of the work; the general and local conditions; the construction hazards; and all other matters, including but not limited to, the labor situation which can in any way affect the work under the Contract; and including all safety measures required by the Occupational Safety Health Act of 1970 and all rules and regulations issued pursuant thereto. It is further mutually agreed that by submitting a Bid, the Contractor acknowledges that he/she has satisfied him/herself as to the feasibility and meaning of the plans, drawings, Specifications, and other contract documents for the construction of the work and that he/she accepts all terms, conditions and stipulations contained therein and that he/she is prepared to work in cooperation with the other contractors performing work on the site.

3. **Material substitutions will be considered during the bidding phase until 3:00 p.m. on September 22, 2026. No substitutions will be considered after that time and date.**

For proposed material substitutions submit the following information directly to the Architect/Engineer at: **DTW Architects & Planners, Ltd. • Attn: J. Paul Young, AIA at pyoung@dtwarch.com Email or 919.371.4020 (Office Phone)**

- Name of manufacturer
- Address of manufacturer
- Phone number of manufacturer
- Trade name
- Model or catalogue designation
- Manufacturer's data including:
 - Performance and test data
 - Reference standards

- Detailed comparison with specified product including:
 - Performance
 - Test results
 - Warranties
 - Gauge, thickness or strength of material finish
- Other pertinent data
- Other information requested by the Project Manager

4. **To ensure a fair bidding process, all other questions from the contractors must be emailed to purchasinggroup@dconc.gov no later than 2:00 P.M. Eastern Time, on September 22, 2026. These questions will be addressed in an Addendum.**

Any Addenda to Specifications issued during the time of bidding will be sent to each bidder and are to be considered covered in the bid and in closing a Contract will become part thereof. All Addenda issued will be posted on our eBid System. All Addenda shall be acknowledged by the bidder(s) on the Bid Form. Failure to do so may disqualify the bid and may cause the bid to be rejected.

It shall be the Contractor's responsibility to ascertain prior to bid time the Addenda issued and to see that his/her bid includes any changes thereby required.

5. Neither the Owner nor the Project Manager will be responsible for any oral instructions. Any interpretation of the proposed document will be made only by Addendum duly issued, a copy of which will be mailed or delivered to each person receiving a set of such documents.
6. For projects that equals or exceeds \$500,000.00 on the bids, a bid bond is required. No bid that equals or exceeds the \$500,000.00 amount will be considered or accepted unless accompanied by a Bid Guarantee in the form a cash deposit or certified check drawn on a bank authorized to do business in North Carolina and licensed by the Federal Deposit Insurance Corporation and is payable to the order of County of Durham, representing five percent (5%) of the total Bid. Said deposit to be retained by the Owner if the successful bidder fails to execute the contract within fifteen (15) days after the award or gives satisfactory Surety as required by law.

Such deposit of cash or certified check may be held by the County of Durham until the successful bidder has executed and delivered the contract documents, including Performance and Payment Bonds, to the County of Durham. Bid deposits submitted in the form of cash, cashier's check or certified check will be deposited in the County's account as required by North Carolina Local Government Budget and Fiscal Control Act (N.C. General Statute Chapter 159, Article 3). The bids will be evaluated, and the contract will be awarded in accordance with statutory public contract requirements as supplemented.

7. Bids shall be received in strict accordance with requirements of the General Statutes. All copies of the Bid, the Bid Security, if any and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope can be hand delivered or mailed and shall be addressed to the Durham County Purchasing Division, Durham County Administrative Complex, 201 East Main Street, 7th Floor Durham, NC 27701, and should be identified with the project name, time and date of Bid Opening, the Bidder's name and address, Bidder's license number and designated portion of the work for which the Bid is submitted.
8. It is the responsibility of the bidder to ensure that the bid arrives at or before the time and date indicated.

A Bidder may withdraw its formal Bid after the Bids are opened without forfeiting its Bid deposit in certain limited circumstances. Withdrawal after opening is permitted only if all conditions specified in North Carolina General Statutes Section 143-129.1 are met.

9. Bids shall be evaluated using the Total Bid. The Total Bid shall be the summation of the product of all of the Items' Unit Bid Prices by their Estimated Quantities. In the event of a math error, the Extended Totals and the Total Bid will be corrected based on the Unit Price furnished in the bid. Bids with math errors will be compared using the corrected Total Bid (i.e., the math must be correct before a bid is considered for award).
10. The Owner shall award the contract to the lowest responsible, responsive bidder taking into consideration the past performance of the Bidder on Construction Contracts for the County of Durham, the State of North Carolina, or other governmental agencies with particular concern given to completion times, quality of work, cooperation with other Contractors, and cooperation with the

Project Manager and Owner. The Owner shall have the right to accept Alternates in any order of combination.

11. The successful Bidder, upon award of the Contract, shall furnish a Performance Bond in an amount equal to one hundred percent (100%) of the Contract Price.
12. The successful Bidder, upon award of Contract, shall furnish a Payment Bond in an amount equal to one hundred percent (100%) of the Contract Price.
13. For all work being performed under this Contract, the County of Durham has the right to inspect, examine, and to make copies of any books, accounts, records, and other writings related to the performance of the work. Audit shall take place at times and locations mutually agreed upon by both parties, although the contractor must make the materials to be audited available within one (1) week of the request.
14. Contract completion time for all work on this project is **150 calendar days** or 30 days from substantial completion, whichever is first. Bidders shall note the 150 calendar day-time limit for the substantial completion of such work as may be contracted for as follows: **See schedule in Division 1, Section 013216 Construction Schedule for specific dates and time allowed for the Emergency Egress Door Improvements.**
15. Bids will be examined promptly after opening and award will be made at the earliest possible date. The prices quoted must be held firm for ninety (90) days. Bids may be withdrawn by written notice of a request to withdraw the bid within seventy-two hours of the bid opening date, not including Saturdays, Sundays, or other days (such as holidays) on which the local government offices are closed.
16. All bidders must complete the Vendor Application/W-9 Form and include it with their bid package. This information will be used to create or update Durham County's electronic Bidder/Vendor files if awarded bid.
17. A Pre-Bid Conference will be held on **September 8th, at 10:00 A. M. Eastern Time**, in the Willaim V. Bell Building (Administration I Building), Durham County 1st Floor, Room 126, 201 East Main Street, Durham, NC 27701. All bidders who intend to bid are encouraged to attend
18. **Security of Non-public Records:** Pursuant to N.C.G.S. § 132-1.7, entitled, "Sensitive Public Security Information", public records, as defined in G.S. 132-1, shall not include information containing specific details of public security plans and arrangements or the detailed plans and drawings of public buildings and infrastructure facilities. Therefore, all information provided, received, gathered or obtained by BIDDER containing specific details of public security plans and arrangements or the detailed plans and drawings of public buildings and infrastructure facilities shall be held confidential and shall be used by the BIDDER only for the purpose of responding to this bid. All plans and drawings shall be returned to the County. Any breach of this paragraph by the BIDDER may result in BIDDER being barred from being awarded any contracts with the COUNTY.
19. **E-VERIFY:** As a condition of payment for services rendered under this agreement, CONTRACTOR shall comply with the requirements of Article 2 of Chapter 64 of the General Statutes. Further, if CONTRACTOR provides the services to the County utilizing a subcontractor, CONTRACTOR shall

require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the General Statutes as well. CONTRACTOR shall verify, by affidavit, compliance of the terms of this section upon request by the COUNTY.

20. **DRUG FREE WORKPLACE:** The Contractor acknowledges and certifies that they understand that the following acts by the Contractor, its employees and/or agents performing services on County property is prohibited.

- The unlawful manufacture, distribution, dispensing, possession or use of alcohol or other drugs, and;
- Any impairment or incapacitation from the use of alcohol or other drugs (except the use of drugs for legitimate medical purposes).

The Contractor further acknowledges and certifies that it understands that a violation of these prohibitions constitutes a breach of contract and may result in default action being taken by the County of Durham in addition to any criminal penalties that may result from such conduct.

21. The following forms/documents must be returned with your original Bid Proposal:

- a. Bid Form (All Addenda issued must be acknowledged on the Bid Form)
- b. Non-Collusion Affidavit (**Notarized**)
- c. Vendor Application with W-9 Form
- d. Bid Deposit, **if required** (Bid Bond, cash, cashier's check, or certified check). Power of Attorney must be included when submitting a Bid Bond.
- e. Affidavit of Compliance (**Notarized**)

END OF INSTRUCTIONS TO BIDDERS

0003 – Equal Employment Opportunity

EQUAL EMPLOYMENT OPPORTUNITY

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

- A. The contractor will not discriminate against any employee or applicant for employment because of race, handicap, age, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to race, handicap, age, color, religion, sex or national origin. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruiting advertising, layoff or termination rates of pay or other forms of compensation, and selection for training including apprenticeship. The contractor agrees to post in conspicuous places available to employees and applicants for employment notices setting forth the provisions of the nondiscrimination clause.
- B. The contractor will in all solicitations or advertisements for employees placed by or on behalf of the contractor state that all qualified applicants will receive consideration for employment without regard to race, handicap, age, color, religion, sex, or national origin.
- C. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding a notice to be provided advising the labor union or workers' representative of the contractor's commitments under the Equal Employment Opportunity section of this contract and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- D. In the event of the contractor's noncompliance with nondiscrimination clauses of this contract or with any such rules, regulations or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further County contracts.
- E. The contractor will include the provisions of this section in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Board of County Commissioners of the County of Durham, North Carolina so that such provisions will be binding such subcontractor or vendor.

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

TABLE OF ARTICLES

1. GENERAL PROVISIONS
2. OWNER
3. CONTRACTOR
4. ADMINISTRATION OF THE CONTRACT
5. SUBCONTRACTORS
6. CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7. CHANGES IN THE WORK
8. TIME
9. PAYMENTS AND COMPLETION
10. PROTECTION OF PERSONS AND PROPERTY
11. UNCOVERING AND CORRECTION OF WORK
12. MISCELLANEOUS PROVISIONS
13. TERMINATION OR SUSPENSION OF THE CONTRACT

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

ARTICLE 1 GENERAL PROVISIONS

1.1. BASIC DEFINITIONS

- 1.1.1 Contract for Construction. 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.
- 1.1.2 Contract Documents. The Contract Documents consist of the Agreement between Owner and Contractor (hereinafter the Agreement), Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, addenda issued prior to execution of the Contract, Advertisement or Invitation to Bid, Instructions to Bidders, other documents listed in the Agreement and Modifications issued after execution of the Contract. In the event of conflicts among the contract documents, the Specifications shall take precedence over the Drawings, and the Supplementary Conditions shall take precedence over the General Conditions. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Owner and a Subcontractor or Sub-subcontractor.
- 1.1.3 Contractor. The person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. Unless otherwise stated, the term “Contractor” means the General Contractor or the General Contractor’s authorized representative.
- 1.1.4 Drawings. The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.
- 1.1.5 Designer. The Architect or Engineer registered in accordance with the provisions of Chapter 89C of the NC General Statutes, identified as such in the Contract for Construction and is referred to throughout the Contract Documents as if singular in number. The term “Designer” refers to the Designer or the Designer’s authorized representative(s). The Designer shall be entitled to performance and enforcement of obligations under the Contract for Construction intended to facilitate performance of the Designers’ duties.
- 1.1.6 Modification. A Modification is (1) a written amendment to the Contract signed by the parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Designer.
- 1.1.7 Owner. The person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term “Owner” means the Owner or the Owner’s authorized representative.
- 1.1.8 Project. The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.

- 1.1.9 Project Manual. The Project Manual is the volume usually assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract and Specifications.
- 1.1.10 Specifications. The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.
- 1.1.11 Work. The term “Work” means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor’s obligations. The Work may constitute the whole or a part of the project.

1.2 EXECUTION, CORRELATION, AND INTENT

- 1.2.1 The Contract Documents shall be signed by the Owner and Contractor as provided in the Agreement. If either the Owner or Contractor or both do not sign all the Contract Documents, the Designer shall identify such unsigned Documents and insure that they are properly signed by the necessary parties.
- 1.2.2 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, correlated personal observations with requirements of the Contract Documents, has checked and verified all site conditions, and hereby waives any and all claims, present or future, for misrepresentation on the part of the Owner or Designer.
- 1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.
- 1.2.4 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any Subcontractor.

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

1.3 OWNERSHIP AND USE OF DESIGNER’S DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS

- 1.3.1 The Drawings, Specifications and other documents prepared by the Designer are instruments of the Designer’s service through which the Work to be executed by the Contractor is described. The Contractor may retain one contract record set. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Designer. The Owner will retain all common law, statutory and other reserved rights, in addition to the copyright of the drawings, specifications and other documents prepared by the Designer. All copies of them, except the Contractor’s record set, shall be returned or suitably accounted for to the Designer, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Designer, and copies thereof

furnished to the Contractor, are for use solely with respect to this Project; they are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects without the specific written consent of the Owner and Designer. The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Designer appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this license shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Designer. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Owner's copyright or other reserved rights.

1.4 CAPITALIZATION

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

13.5 INTERPRETATION

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

ARTICLE 2 **OWNER**

2.1 INFORMATION AND SERVICES REQUIRED OF THE OWNER

- 2.1.1 The Owner shall furnish plan and profile of existing County utilities. The Contractor is responsible for locating all existing utilities prior to Work.
- 2.1.2 Except for permits and fees which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.
- 2.1.3 Information or services under the Owner's control shall be furnished by the Owner with reasonable promptness to avoid delay in orderly progress of the Work.
- 2.1.4 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, such copies of Drawings and Project Manuals as are reasonably necessary for execution of the Work.

13.5 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 seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may after such seven-day period, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case, an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the cost of correcting such

deficiencies, including compensation for the Designer's additional services and expenses made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior review and confirmation by the Designer. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

3.1. REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

- 3.1.1 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner pursuant to Section 2.1, and shall at once report to the Designer errors, inconsistencies or omissions discovered. If the Contractor performs any construction activity knowing or should have known it involves an error, inconsistency or omission in the Contract Documents without such notice to the Designer, the Contractor shall assume full responsibility for such performance and shall bear the full costs for correction.
- 3.1.2 The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Designer immediately.
- 3.1.3 The Contractor shall perform the Work in accordance with the Contract Documents and submittals approved pursuant to Section 3.11.

3.2 SUPERVISION AND CONSTRUCTION PROCEDURES

- 3.2.1 The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters.
- 3.2.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.
- 3.2.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Designer in the Designer's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.
- 3.2.4 The Contractor shall be responsible for inspection of portions of Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

3.3 LABOR AND MATERIALS

- 3.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.
- 3.3.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.
- 3.3.3 Materials, equipment or items required for a complete job which are shown on the drawings but not mentioned in the specifications or materials, equipment or items required by the specifications but not shown on the drawings, shall be furnished and installed the same as though both shown on the drawings and required by the specifications.

3.4 WARRANTY

- 3.4.1 The Contractor warrants to the Owner and Designer that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents; that the Work will be free from defects not inherent in the quality required or permitted; and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the Designer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.
- 3.4.2 Except as otherwise specifically stated below, the Contractor shall guarantee his materials and workmanship against defect due to faulty materials or faulty workmanship or negligence for a period of twelve (12) months following Substantial Completion of the Work. Where the manufacturer's warranty on equipment or parts thereof exceeds twelve (12) months, the guarantee period on such equipment or parts thereof shall be extended to include the full warranty of the manufacturer. The Contractor shall repair or replace such defective materials, equipment or workmanship to the full satisfaction of the Owner within the stipulated guarantee period without cost to the Owner.

3.5 TAXES

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

3.6 PERMITS, FEES AND NOTICES

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

- 3.6.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work.
- 3.6.3 It is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Designer and Owner in writing, and necessary changes shall be accomplished by appropriate Modification.
- 3.6.4 If the Contractor performs Work the Contractor knows or should have known it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Designer and Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs.

3.7 ALLOWANCES

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

3.8 SUPERINTENDENT

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

3.9 CONTRACTOR'S CONSTRUCTION SCHEDULES

- 3.9.1 Promptly after being awarded the Contract, the Contractor shall prepare and submit for the Designer's review and comment a construction schedule for the Work. The schedule shall not exceed time limits provided in the Contract Documents. The Contract Documents shall be revised at appropriate intervals as required by the conditions of the Work and Project. The Contract Documents shall be related to the entire Project to the extent

required by the Contract Documents. The Contract Documents shall provide for expeditious and practicable execution of the Work. If separate prime contracts are awarded by the Owner in connection with this Project, the Contractor shall additionally submit a Contractor's construction schedule for the Work to the General Contractor in order for the General Contractor to carry out its duties under Article 6.

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

3.9.3 The Contractor shall conform to the most recent schedules.

3.10 DOCUMENTS AND SAMPLES AT THE SITE

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

3.11 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

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

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

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

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

3.11.5 The Contractor shall review, approve and submit to the Designer Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.

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

- 3.11.7 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.
- 3.11.8 The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Designer's review and approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Designer in writing of such deviation at the time of submittal and the Designer has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Designer's approval thereof.
- 3.11.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, product Data, Samples or similar submittals, to revisions other than those requested by the Designer on previous submittals.
- 3.11.10 Informational submittals upon which the Designer is not expected to take responsive action may be so identified in the Contract Documents.
- 3.11.11 When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the Designer shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

3.12 USE OF SITE

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

3.13 CUTTING AND PATCHING

- 3.13.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.
- 3.13.2 The Contractor shall not damage or endanger a portion of the work or fully or partially completed construction of the Owner or separate contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

3.14 CLEANING UP

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

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

3.15 ACCESS TO WORK

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

3.16 ROYALTIES AND PATENTS

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

3.17 INDEMNIFICATION

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

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

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

ARTICLE 4
ADMINISTRATION OF THE CONTRACT

4.1 DESIGNER'S ADMINISTRATION OF THE CONTRACT

- 4.1.1 The Designer will provide administration of the Contract as described in the Contract Documents and will be the Owner's representative during construction through final payment, and with the Owner's concurrence, from time to time during the correction period described in Paragraph 11.2. The Designer will advise and consult with the Owner. The Designer will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with other provisions of the Contract.
- 4.1.2 The Designer will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in Paragraph 3.2. The Designer will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Designer will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work.
- 4.1.3 Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate through the Designer. Communications by and with the Designer's consultants shall be through the Designer. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Designer.
- 4.1.4 Based on the Designer's inspections, observations and evaluations of the Contractor's Applications for Payment, the Designer will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.
- 4.1.5 The Designer will have authority to reject Work which does not conform to the Contract Documents. Whenever the Designer considers it necessary or advisable for implementation of the intent of the Contract Documents, the Designer will have authority to require additional inspection or testing of the Work in accordance with Paragraphs 12.5.2 and 12.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Designer nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Designer to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.
- 4.1.6 The Designer will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Designer's action will be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Owner, Contractor or separate contractors, while allowing sufficient time in the Designer's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Designer's review of the Contractor's submittals shall not relieve the

Contractor of the obligations under Article 3. The Designer's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Designer, of any construction means, methods, techniques, sequences or procedures. The Designer's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

- 4.1.7 The Designer will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Paragraph 7.4.
- 4.1.8 The Designer will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, will receive and forward to the Owner for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents.
- 4.1.9 The Designer will interpret and decide matters concerning performance under and requirements of the Contract documents on written request of either the Owner or Contractor. The Designer's response to such requests will be made with reasonable promptness and within any time limits agreed upon. If no agreement is made concerning the time within which interpretations required of the Designer shall be furnished in compliance with this Paragraph 4.1.9, then delay shall not be recognized on account of failure by the Designer to furnish such interpretations until 15 days after written request is made for them.
- 4.1.10 Interpretations and decisions of the Designer will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Designer will endeavor to secure faithful performance by both Owner and Contractor and will not show partiality to either.
- 4.1.11 The Designer's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.
- 4.1.12 If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Article 11.2 or persistently fails to carry out Work in accordance with the Contract Documents, the Designer may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Designer to stop the Work shall not give rise to a duty on the part of the Designer to exercise this right for the benefit of the Contractor or any other person or entity.

4.2 CLAIMS AND DISPUTES

- 4.2.1 A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be made pursuant to the Dispute Resolution Procedure set forth in Paragraph 4.4. The responsibility to substantiate Claims shall rest with the party making the Claim.
- 4.2.2 DECISION OF DESIGNER. Claims, including those alleging an error or omission by the Designer, shall be referred initially to the Designer for action as provided in Paragraph 4.4. A decision by the Designer shall be required as a condition precedent to mediation and litigation of a Claim between any party involved in this

construction Project as to all such matters arising prior to the date final payment is due, regardless of whether such matters relate to execution and progress of the Work or the extent to which the Work has been completed. The decision by the Designer in response to a Claim shall not be a condition precedent to litigation in the event (1) the position of Designer is vacant, (2) the Designer has not received evidence or has failed to render a decision within agreed time limits, or (3) 45 days have passed after the Claim has been referred to the Designer.

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

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

WAIVER OF CLAIMS: FINAL PAYMENT. The making of final payment shall constitute a waiver of Claims by the Owner except those arising from:

- (1) unsettled claims arising out of the Contract; or
- (2) failure of the Work to comply with the requirements of the Contract Documents; or
- (3) terms of special warranties required by the Contract Documents.

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

4.2.7 CLAIMS FOR ADDITIONAL COST. If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Paragraph 10.3. If the Contractor believes additional cost is involved for reasons including but not limited to (a) a written interpretation from the Designer, (b) a written order for a minor change in the Work issued by the Designer, (c) termination of the Contract by the Owner, Claim shall be filed in accordance with the procedure established herein. This Article and Article 7 shall be the exclusive means by which the Contractor may claim additional cost or damages from

the Owner, and the Contractor hereby waives any and all right to claim additional cost or damages by any other remedy including, without limitation, quantum meruit, subrogation, or implied contract.

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

4.3 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or of others for whose acts such party is legally liable, written notice as such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 10 days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for additional cost or time related to this Claim is to be asserted, it shall be filed as provided in Subparagraphs 4.2.7 or 4.2.8.

4.4 DISPUTE RESOLUTION PROCEDURE

- 4.4.1 To prevent all disputes and litigation, it is agreed by the parties that any claim, question, difficulty or dispute arising from this Agreement or the construction process shall be first submitted to the Designer to address the issue. Upon review of the Claim, the Designer shall take one or more of the following preliminary actions within ten (10) days of receipt of a Claim: (1) request additional supporting data from the claimant, (2) submit a schedule to the parties indicating when the Designer expects to take action, (3) reject the Claim in whole or in part stating reasons for rejection, (4) recommend approval of the Claim by the other party, or (5) suggest a compromise. The Designer may also, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim.
- 4.4.2 If a Claim has been resolved, the Designer will prepare or obtain appropriate documentation.
- 4.4.3 If a Claim has not been resolved, the party making the Claim shall, within ten (10) days after the Designer's preliminary response, take one or more of the following actions: (1) submit additional supporting data requested by the Designer, (2) modify the initial Claim and resubmit it to the Designer, or (3) notify the Designer that the initial Claim stands and submit the Claim to the Durham County Manager for mediation pursuant to Paragraph 4.4.4, below.
- 4.4.4 The Durham County Manager, as mediator, shall address any properly submitted claim, question, difficulty or dispute arising from this Agreement or the construction process, which has not been satisfactorily resolved by the Designer. Such requests shall be made to the Durham County Manager in writing within ten (10) days after the Designer's preliminary response. The mediator shall notify Contractor in writing of the decision within thirty (30) calendar days from the date of the submission of the claim, question, difficulty or dispute, unless the mediator requires additional time to gather information or allow the parties to provide additional information. The mediator's orders, decisions and decrees shall be non-binding. Mediation, pursuant to this Section, shall be a pre-condition to initiating litigation concerning the dispute. During the pendency of any dispute and after a determination thereof, the parties to the dispute shall act in good faith to mitigate any potential damages including utilization of construction schedule changes and alternate means of construction.

- 4.4.5 The mediation session shall be private. Prior to commencement of mediation, if requested by either party or the mediator, the parties and the mediator shall execute a written confidentiality agreement in accordance with the provisions of North Carolina law. All such mediation sessions shall be held in Durham County, North Carolina.
- 4.4.6 If, as a result of mediation, a voluntary settlement is reached and the parties to the dispute agree that such settlement shall be reduced to writing, the mediator shall be deemed appointed and constituted an arbitrator for the sole purpose of signing the mediated settlement agreement. Such agreement shall be and shall have the same force and effect as an arbitration award, and judgement may be entered upon it in accordance with applicable law in any court of competent jurisdiction.
- 4.4.7 If the disputed issue cannot be resolved in mediation or either party disagrees with the results of the mediation, the parties may seek resolution in the General Court of Justice in the County of Durham and the State of North Carolina. If a party fails to comply in strict accordance with the requirements of this Article, the non-complying party specifically waives all of its rights provided hereunder, including its rights and remedies under State law.
- 4.4.8 The dispute resolution procedure set forth in this Section shall be made available to any party involved in this construction project including County, Contractor, Designer, Subcontractors as well as Sub-subcontractors and is a precondition to initiation of litigation concerning the dispute.

ARTICLE 5 SUBCONTRACTORS

5.1 DEFINITIONS

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

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

- 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Designer the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work, including (1) Heating, ventilating, and air conditioning, (2) Plumbing, (3) Electrical, and (4) General. The Designer will promptly reply to the Contractor in writing stating whether or not the Owner or the Designer, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Designer to reply promptly shall constitute notice of no reasonable objection.

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

5.3 SUBCONTRACTUAL RELATIONS

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

ARTICLE 6

CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

- 6.1.1 The Owner reserves the right to perform construction or operations related to the project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site.
- 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner- Contractor Agreement.
- 6.1.3 The General Contractor shall provide for coordination of the activities of each separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate Contractors and the General Contractor in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor and separate contractors until subsequently revised.
- 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same

obligations and to have the same rights which apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10 and 11.

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

6.2 MUTUAL RESPONSIBILITY

- 6.2.1 The Contractor shall afford the Owner and separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.
- 6.2.2 If part of the Contractor's Work depends on proper execution or results upon construction or operations by the Owner or a separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Designer apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor to report shall constitute an acknowledgment that the Owner's or separate Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.
- 6.2.3 Costs caused by delays, by improperly timed activities, defective construction, or any other damages shall be borne by the party responsible therefor. The Owner shall not be liable nor responsible for any delays or damages to the Contractor caused by separate Contractors or the Designer.
- 6.2.4 The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate Contractors as provided in Paragraph 10.2.5.
- 6.2.5 Claims and other disputes and matters in question between the Contractor and a separate Contractor shall be subject to the provisions of Sections 4.2 and 4.4, provided the separate Contractor has reciprocal obligations.
- 6.2.6 The Owner and each separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Paragraph 3.13.

6.3 OWNER'S RIGHT TO CLEAN UP

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

ARTICLE 7
CHANGES IN THE WORK

7.1 CHANGES

- 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive, or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.
- 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Designer; a Construction Change Directive requires agreement by the Owner and Designer and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Designer alone pursuant to Paragraph 7.4.
- 7.1.3 Changes in the work shall be performed under applicable Provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.
- 7.1.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are so changed in a proposed Change Order or Construction Change Directive that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.
- 7.1.5 Overhead and profit shall not exceed 15% of the value of labor and material for work performed by any contractor or subcontractor. If the work is performed by a subcontractor, the prime contractor's overhead and profit shall not exceed 5%.

7.2 CHANGE ORDERS

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

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

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

7.3 CONSTRUCTION CHANGE DIRECTIVES

- 7.3.1 A Construction Change Directive is a written order prepared by the Designer and signed by the Owner and Designer, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or 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.

If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation; unit prices stated in the Contract Documents or subsequently agreed upon; cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or as provided in Paragraph 7.3.6.

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

7.3.5 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor 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.

7.3.6 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Designer on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, a reasonable allowance for overhead and profit. In such case, and also under clause 7.3.3(3), the Contractor shall keep and present, in such form as the Designer may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Paragraph 7.3.6 shall be limited to the following:

costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance; costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed; rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others; costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and additional costs of supervision and field office personnel directly attributable to the change.

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

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

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

7.4 MINOR CHANGES IN THE WORK

The Designer will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be affected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

ARTICLE 8 **TIME**

8.1 DEFINITIONS

- 8.1.1 Unless otherwise provided, 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. The date shall not be postponed by the failure to act of the Contractor or of persons or entities for whom the Contractor is responsible.
- 8.1.3 The date of substantial Completion is the date certified by the Designer in accordance with Paragraph 9.9.
- 8.1.4 The term “day” as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

8.2 PROGRESS AND COMPLETION

- 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work. The Contractor and the Contractor’s surety shall be liable for and shall pay the Owner such sums as shall be set forth in the Agreement between Owner and Contractor as liquidated damages each calendar day of delay until the work is substantially complete.
- 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by the Contract for Construction to be furnished by the Contractor. The date of commencement of the work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by a notice to proceed given by the Designer, the Contractor shall notify the Owner and Designer in writing not less than five days before commencing the Work.
- 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

8.3 DELAYS AND EXTENSIONS OF TIME

- 8.3.1 If the Contractor is delayed at any time in progress of the Work by an act or neglect of the Owner or Designer, or of an employee of either, or of a separate Contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidably casualties or other causes beyond the Contractor's control, or by delay authorized by the Owner pending litigation, or by other causes which the Designer determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Designer may determine.
- 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Paragraph 4.2.8.
- 8.3.3 Should the work be interrupted or hindered by the Owner or Designer, the Contractor shall be entitled to an extension of time pursuant to Paragraph 4.2 in an amount equal to such interruption or hindrance but such interruption or hindrance shall not constitute a claim for damages nor for loss of anticipated profits by the Contractor.
- 8.3.4 Should the work be delayed in whole by any act or acts of the Contractor, the Contractor shall not be entitled to an extension of time pursuant to Paragraph 4.2, nor shall such delay constitute a claim either for damages or for loss of anticipated profits by the Contractor. Should the work be delayed in part by any act or acts of the Contractor and in part by any act or acts of the Owner or Designer, the Contractor shall be entitled to an extension of time pursuant to Paragraph 4.2 in an amount equal to that portion of the delay for which the Contractor is not responsible, but such delay shall not constitute a claim either for damages or for loss of anticipated profits by the Contractor.
- 8.3.5 Should the work be delayed, interrupted or hindered, in whole or in part, by any act or acts of any separate prime contractors, the Contractor shall be entitled to an extension of time pursuant to Paragraph 4.2.8 in an amount equal to such delay, interruption or hindrance but such delay, interruption or hindrance shall not constitute a claim for damages nor for loss of anticipated profits by the Contractor.

ARTICLE 9 **PAYMENTS AND COMPLETION**

9.1 CONTRACT SUM

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

9.2 SCHEDULE OF VALUES

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

9.3 APPLICATIONS FOR PAYMENT

- 9.3.1 At least twenty (20) days before the date established for each progress payment, the Contractor shall submit to the Designer an itemized Application for Payment for operations completed in accordance with the schedule of values. Such application shall be notarized, supported by such data substantiating the Contractor's right to payment as the Owner or Designer may require, such as copies of requisitions from subcontractors and material suppliers and reflecting retainage if provided for elsewhere in the Contract Documents.
- 9.3.2 Such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives but not yet included in Change Orders.
- 9.3.3 Such applications may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.
- 9.3.4 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.
- 9.3.5 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work.
- 9.3.6 Provided an Application for Payment is received by the Designer not later than the tenth (10th) day of a month, the Owner shall make payment to the Contractor not later than the thirtieth (30th) day of the month.

9.4 RETAINAGE

To ensure proper performance of this Contract, Owner shall retain five percent (5%) of the amount of each approved Application for Payment until the project work is 50% complete provided that the Contractor continues to perform satisfactorily, and any non-conforming work identified in writing prior to that date has been corrected by the Contractor and accepted by the Owner. If the Owner determines the Contractor's performance is unsatisfactory, the Owner may reinstate retainage in the amount of 5% for each subsequent periodic Application for Payment until the Contractor's performance becomes satisfactory. The project shall be deemed fifty percent (50%) complete when the Contractor's gross project invoices, excluding the value of materials stored off-site, equal or exceed fifty percent (50%) of the value of the contract, except the value of materials stored on-site shall not exceed twenty percent (20%) of the contractor's gross project invoices for the purpose of determining whether the project is fifty percent (50%) complete. Following 50% completion of the project, the Owner may also withhold additional retainage from any subsequent periodic payment, not to exceed 5%, in order to allow the Owner to retain 2 ½% total retainage through the completion of the project. Within sixty (60) days after the

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

9.5 CERTIFICATES FOR PAYMENT

- 9.5.1 The Designer will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Designer determines is properly due, or notify the Contractor and Owner in writing of the Designer's reasons for withholding certification in whole or in part as provided in Paragraph 9.6.1.
- 9.5.2 The Designer's certification for payment shall constitute a representation to the Owner, based on the Designer's inspections at the site and on the data comprising the Contractor's Application for Payment, that the Work has progressed to the point indicated and that the inspections of the construction, repairs, or installations have been conducted with the degree of care and professional skill and judgment ordinarily exercised by a member of his profession; and that to the best of his knowledge and in the professional opinion of the Designer, the Contractor has fulfilled the obligations of such plans, specifications, and contract. The Designer's certification for payment shall be signed and sealed by the Designer and presented to the Owner. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to minor deviations from the Contract Documents correctable prior to completion and to specific qualifications expressed by the Designer. The issuance of a Certificate for Payment shall further constitute a representation by the Designer, that the Contractor is entitled to payment in the amount certified.

9.6 DECISIONS TO WITHHOLD CERTIFICATION

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

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

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

9.7 PROGRESS PAYMENTS

- 9.7.1 After the Designer has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Designer.
- 9.7.2 The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in similar manner.
- 9.7.3 The Designer will furnish to a Subcontractor, upon request and if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Designer and Owner on account of portions of the Work done by such Subcontractor.
- 9.7.4 Neither the Owner nor Designer shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.
- 9.7.5 Payment to material suppliers shall be treated in a manner similar to that provided in Paragraphs 9.7.2, 9.7.3, and 9.7.4.
- 9.7.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

9.8 FAILURE OF PAYMENT

The Contractor shall not stop the Work for the failure of the Designer to issue a Certificate of Payment, or the Owner to make timely payment.

9.9 SUBSTANTIAL COMPLETION

- 9.9.1 Substantial Completion is the stage in the progress of the Project when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents, so the Owner can occupy or utilize the Work for its intended use.
- 9.9.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Designer a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item or such list does not alter the responsibility for the Contractor to complete all Work in accordance with the contract Documents. Upon receipt of the Contractor's list, the Designer will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Designer's inspection discloses any item, whether or not included on the Contractor's list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Designer. The Contractor shall then submit a request for another inspection by the Designer to determine Substantial Completion. When the Work or designated portion thereof is substantially complete, the Designer will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate.
- 9.9.3 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Designer, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

9.10 PARTIAL OCCUPANCY OR USE

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

9.11 FINAL COMPLETION AND FINAL PAYMENT

- 9.11.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Designer will promptly make such inspections and, when the Designer finds

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

- 9.11.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Designer (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract for Construction to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5) if required by the Owner, other or additional data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances rising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.
- 9.11.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Designer so confirms, the Owner shall, upon application by the Contractor and certification by the Designer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for work not fully completed and accepted is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Designer prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.
- 9.11.4 Acceptance of final payment by the Contractor, Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

- 10.1.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract and construction of the Project.
- 10.1.2 In the event the Contractor encounters on the site material reasonably believed to be asbestos or polychlorinated biphenyl (hereinafter PCB) which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner and Designer by phone and in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of the Owner and Contractor if in fact the material is asbestos or PCB and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos or PCB, or when it has been rendered harmless, by written agreement of the Owner and Contractor, or in accordance with final determination by the Designer.

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

10.2 SAFETY OF PERSONS AND PROPERTY

- 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

employees working on the Project and other persons who may be affected thereby;
the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors;
and

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

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

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

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

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

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

- 10.2.8 Existing utilities have been identified and described in the Contract Documents insofar as information is reasonably available, however, it is the Contractor's responsibility to verify such information and to preserve all existing utilities whether shown in the Contract Documents or not. If utility conflicts are encountered by the

Contractor during construction, Contractor shall file sufficient notice to the owners of the utilities so that they may make the necessary adjustments, as well as the Designer or Owner.

10.3 EMERGENCIES

In an emergency affecting the safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Paragraphs 4.2.7, 4.2.8 and Article 7.

ARTICLE 11 **UNCOVERING AND CORRECTION OF WORK**

11.1 UNCOVERING OF WORK

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

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

11.2 CORRECTION OF WORK

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

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

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

11.2.4 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Paragraph 2.2. If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Designer, the Owner may remove it and store the salvageable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten days after written notice, the Owner may upon ten additional days written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the

Designer's services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

- 11.2.5 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.
- 11.2.6 Nothing contained in this Section 11.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the time period of one year as described in Paragraph 11.2.2, relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the work.

11.3 ACCEPTANCE OF NONCONFORMING WORK

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

ARTICLE 12 **MISCELLANEOUS PROVISIONS**

- 12.1 **GOVERNING LAW.** This Contract for Construction shall be governed by and in accordance with the laws of the State of North Carolina. All actions relating in any way to this Contract, shall be brought in the General Court of Justice in the County of Durham and the State of North Carolina, after exhausting the dispute resolution procedure set forth in Section 4.4, herein.
- 12.2 **SUCCESSORS AND ASSIGNS.** The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.
- 12.3 **WRITTEN NOTICE.** Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the business address listed in the Contract for Construction.
- 12.4 **RIGHTS AND REMEDIES.** Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.
- 12.5 **WAIVER OF A RIGHTS.** No action or failure to act by the Owner or Designer shall constitute an obligation or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.
- 12.6 **COMPLIANCE WITH LAWS.** Contractor represents that it is in compliance with all Federal, State, and local laws, regulations or orders, as amended or supplemented. The implementation of this contract will be carried out in strict compliance with all Federal, State, or local laws regarding discrimination in employment.

12.7 TESTS AND INSPECTIONS

- 12.7.1 Tests, inspections, and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and the Owner shall bear the costs of tests, inspections, and approvals. Should any retest be necessary due to the failure of the Work to pass the first test or for any other reason whatsoever, the Contractor shall bear all related costs of retests, inspections or re-inspections, and approvals. The Contractor shall give the Designer timely notice of when and where tests and inspections are to be made so the Designer may observe such procedures.
- 12.7.2 If the Designer, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Paragraph 12.5.1, the Designer will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Designer of when and where tests and inspections are to be made so the Designer may observe such procedures.
- 12.7.3 If such procedures for testing, inspection or approval under Paragraphs 12.5.1 and 12.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the Designer's services and expenses.
- 12.7.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Designer.
- 12.7.5 If the Designer is required by the Contract Documents to observe tests, inspections, or approvals, the Designer will do so promptly and, where practicable, at the normal place of testing.
- 12.7.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

12.8 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

As between the Owner and Contractor:

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

Between Substantial Completion and Final Certificate for Payment. As to acts or failures to act occurring subsequent to the relevant date of Substantial Completion and prior to issuance of the Final Certificate for Payment, any applicable statute of limitations shall commence to run, and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of issuance of the Final Certificate for Payment; and after Final Certificate for Payment. As to acts or failures to act occurring after the relevant date of issuance of the Final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Contractor pursuant to any warranty provided under Paragraph 3.4, the date of any correction of the Work or failure to correct the Work by the Contractor under Section 11.2 or the date of actual commission of any other act or failure to perform any duty or obligation by the Contractor or Owner, whichever occurs last.

ARTICLE 13
TERMINATION OR SUSPENSION OF THE CONTRACT

13.1 TERMINATION BY THE CONTRACTOR

13.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 180 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor, for any of the following reasons:

issuance of an order of a court or other public authority having jurisdiction;
an act of government, such as a declaration of national emergency, making material unavailable;
because the Designer has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Paragraph 9.6.

13.1.2 If one of the above reasons exists, the Contractor may, upon seven (7) additional days written notice to the Owner and Designer, terminate the Contract and recover from the Owner payment for work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, not including overhead, profit, or damages.

13.2 TERMINATION BY THE OWNER FOR CAUSE

13.2.1 The Owner may terminate the Contract if the Contractor:

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

fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or otherwise is in substantial breach of a provision of the Contract Documents.

13.2.2 When any of the above reasons exist, the Owner, upon certification by the Designer that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days written notice, terminate employment of the Contractor and may, subject to any prior rights of surety:

take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor; and finish the Work by whatever reasonable method the Owner may deem expedient.

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

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

13.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

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

13.4 BANKRUPTCY

- 13.4.1 The bankruptcy of the Contractor shall not terminate this Contract until such time that it is specifically rejected by the Trustee or Contractor in bankruptcy. During the election period the Contractor has to assume or reject this Contract, the Contractor shall continue to perform its Work under the Contract.
- 13.4.2 In the event the Contractor in Bankruptcy assumes the Contract, the Contractor shall apply progress payments to all of its unpaid obligations on this project before using any of these monies for either administrative expenses of the bankruptcy or as general assets of the estate.

13.5 SECURITY OF NON-PUBLIC RECORDS

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

0004– Special Conditions

SPECIAL CONDITIONS

**PROJECT: DURHAM COUNTY ADMINISTRATION BUILDING I
EMERGENCY EGRESS DOOR IMPROVEMENTS**

SCOPE OF WORK: The work consists of Emergency Egress Door Improvements to a historic (1916), 105,000 SF building. The work includes general construction and electrical, work on all floors.

PROJECT DESCRIPTION: Work on this project shall be covered by a Single Prime Contract. See technical specification sections 011100 Summary of Work (Work Covered by Contract) for details.

BASE CONTRACT: The Work includes furnishing of all materials and labor necessary for the completion of the Project: Durham County Administration Building Emergency Egress Door Hardware and Security Improvements as shown on the plans and as outlined in these specifications. The scope includes all work indicated or implied by the drawings or specifications. It includes all items that may not be specifically shown but are required for a complete and finished job or may be required by codes or regulations.

LOCATION:

**200 East Main Street
Durham, NC 27701**

DURHAM COUNTY’S REPRESENTATIVE(S):

Durham County Engineering and Environmental Services

- **Peri Manns – Assistant Director**
- **James Faress, P.E. – Senior Project Manager**

201 East Main Street, 5th Floor

Durham, North Carolina 27701

Telephone: (919) 560-7996 or (919) 560-7963

Fax: (919) 560-0740

ARCHITECT:

J. Paul Young, AIA, Project Architect

Susan O. Straw, Associate, Project Manager

DTW ARCHITECTS & PLANNERS, LTD.

3333 Durham-Chapel Hill Blvd., Suite D100

Durham, North Carolina 27707

Telephone: (919) 317.4020 Fax: (919) 317.4023

CONTRACTOR USE OF PREMISES:

Access to the site shall be from Ramseur Street loading dock. Keep Ramseur Street and Main Street clear at all times; do not use the road for parking unless otherwise permitted by the Durham County General Services and/or Engineering Departments and/or Sheriff's Department. See Section 011400 – Work Restrictions.

CONTRACT COMPLETION TIME/SCHEDULE: Contract completion time for all work on this project is for 150 calendar days from the Notice to Proceed. Failure to complete the work within the designated time period will result in the assessment of liquidated damages in the amount of \$500 per calendar day.

WORK SCHEDULE: Within **ten (10) days** from the Contract Award, the Contractor shall submit a **schedule of work** for the installation of all the work under this contract to the Owner for approval.

DURHAM COUNTY SMOKE-FREE POLICY:

This notice is to advise all contractors, vendors and consultants providing services for the Renovations of the Durham County Administration Building that the Durham County Board of County Commissioners has recently adopted a **“Smoke Free” Policy effective August 1, 2012**. The ordinance prohibits smoking on all County property to include sidewalks that are owned, leased, maintained or occupied by the City or County of Durham and abut the grounds of the City of Durham and Durham County. The policy applies to County construction sites, the entire building and grounds of the site, including any abutting sidewalks, which are owned, leased or maintained by the County or City of Durham. The contractor is to advise all employees, subcontractors, vendors and consultants visiting the site of this policy.

END OF SPECIAL CONDITIONS

0005 – Affidavit of Compliance (E-Verify)

STATE OF NORTH CAROLINA

COUNTY OF DURHAM

AFFIDAVIT OF COMPLIANCE with N.C. E-Verify Statutes

I, _____ (hereinafter the "Affiant"), being duly authorized by and on behalf of _____ (hereinafter "Contractor") after first being duly sworn hereby swears or affirms as follows:

1. Contractor understands that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with Article 2 of Chapter 64 of the North Carolina General Statutes; and
2. Contractor understands that an "Employer", as defined in NCGS§64-25(4), is required by law to use E-Verify to verify the work authorization of its employees through E-Verify in accordance with NCGS§64-26(a). The term "Employer" does not include State agencies, counties, municipalities, or other governmental bodies.
3. Contractor is a person, business entity, or other organization that transacts business in this State and that employs 25 or more employees in the state of North Carolina. (Mark Yes or No)
 - a. YES _____
 - b. NO _____
4. Contractor will ensure compliance with E-Verify to the extent applicable and will ensure compliance by any subcontractors subsequently hired by Contractor to perform work under Contractor's contract with Durham County.

This ____ day of _____, 20__.

Signature of Affiant

Print or Type Name: _____

State of _____

County of _____

Signed and sworn to (or affirmed) before me, this the _____

day of _____, 20__.

My Commission Expires:

Notary Public

(Affix Official/Notarial Seal)

0006 – Bid Form

BID FORM

GENERAL CONSTRUCTION CONTRACT

PROPOSAL TO THE COUNTY OF DURHAM

EMERGENCY EGRESS DOOR IMPROVEMENTS FOR DURHAM COUNTY ADMINISTRATION I BUILDING

DURHAM, NORTH CAROLINA

IFB No. 27-001

BID FROM: _____

1. The undersigned BIDDER agrees, if this Bid is accepted, to enter into an agreement with OWNER, in the form included in the Bidding Documents, to perform and furnish the work as specified or indicated in the Bidding Documents for the Bid Price and within the Bid Times indicated in this Bid in accordance with the other terms and conditions of the Contract Documents.
2. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:
 - a) This Bid will remain subject to acceptance for ninety (90) days after the day of Bid opening;
 - b) The Owner has the right to reject this bid;
 - c) Accompanying this proposal is a certified check (or bid bond) for \$_____, which represents not less than five (5) percent of the aggregate amount of the proposal. Said check, or the full amount of the bond, shall become the property of County and be retained by the County in the event of withdrawal of the bid after the public opening or should the undersigned fail to execute a contract with the County and give satisfactory surety within fifteen (15) days after the award. Otherwise, said check or bid bond, to be returned to the undersigned. The undersigned agree, if awarded the contract, to deliver satisfactory surety bond in the amount equal to not less than 100 percent (100%) of the contract within fifteen (15) days after Notice of Award;
 - d) BIDDER will sign and submit the Agreement with the Bonds and other documents within 15 days after the date of the Owner's Notice of Award;
 - e) BIDDER has examined copies of all the Bidding Documents.
 - f) BIDDER has visited the site and become familiar with the general and local site conditions;
 - g) BIDDER is familiar with federal, state, and local laws and regulations;

- h) **BIDDER certifies that no federal excise or state sales taxes have been included in this bid;**
- i) BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Bidding Documents and additional examinations, investigations, tests, studies and data with the Bidding Documents;
- j) BIDDER certifies that this proposal is made in good faith and without collusion or connection with any other person bidding on the same work, or that any official or employee of the County of Durham will be admitted to any share or part of the contract or any benefits that may arise therefrom if the contract is awarded to this company;
- k) BIDDER acknowledges receipt of the following **Addenda**, which have been considered in the preparation of this Bid:

No: _____ Dated: _____

No: _____ Dated: _____

No: _____ Dated: _____

No: _____ Dated: _____

Dated in _____ this _____ day of _____, 20____.

- 3. BIDDER will complete the work in accordance with the Contract Documents for the following price(s):

SINGLE PRIME CONTRACT:

Base Bid Lump-Sum Price \$ _____

Base Lump Sum Price In Words

UNIT PRICES: Unit prices are gross, inclusive of all adjustments, profit or overhead.

ITEM	(Detailed Descriptions in Section 012000)	PRICE	UNIT
01	Access Door 18x18, ceiling mounted, UL 1 hr. gypsum edge, In place.	\$ _____	EA

Unit prices to be used for computation of authorized added or omitted work.

ALTERNATES: There are no alternates for this project.

Pursuant to N.C.G.S. 143-128(d), all bidders shall identify on their bid the contractors they have selected for the subdivisions or branches of work for:

(1) Electrical _____ Lic. # _____

(1) General _____ Lic. # _____

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. The terms, conditions, and requirements of each contract between the contractor and a subcontractor performing work under a subdivision or branch of work listed in this subsection shall incorporate by reference the terms, conditions, and requirements of the contract between the contractor and the County.

4. BIDDER agrees that the Work will be substantially complete and ready for final payment in accordance with the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
5. The following documents are attached to and made a condition of the Bid:
 - (a) Required Bid security in the form of _____:
_____:
6. BIDDER acknowledges the provisions in the General Conditions for Liquidated Damages of \$500 per calendar day for Final Completion.

SUBMITTED ON _____, 20_____.

SIGNATURE OF BIDDER: _____

North Carolina Contractor's License Number _____

If an Individual: _____

as: _____

If a Partnership: _____

by: _____, partner

If a Corporation: _____

(a _____ Corporation)

by: _____ Attested By: _____

Title: _____ Title: _____

Subscribed and sworn before me,
this _____ day of _____, 20____.

(SEAL)

Notary Public

My Commission Expires _____

Business Address of Bidder: _____

If Bidder is a joint venture, other party must sign below.

North Carolina Contractor's License Number _____

If an Individual: _____

Doing business as: _____

If a Partnership: _____

by: _____

Title: _____

If a Corporation: _____

(a _____ Corporation)

by: _____ Attested By: _____

Title: _____ Title: _____

Subscribed and sworn before me,
this ____ day of ____, 20__.

(SEAL)

Notary Public

My Commission Expires _____

We have the following necessary and suitable equipment in good condition and ready for use on this work.

0007 – Special Notice

SPECIAL NOTICE

NORTH CAROLINA SALES TAX

The Committee Substitute for Senate Bill No. 78, passed by 1961 Legislature, requires that contractors pay North Carolina Sales Tax on materials and equipment purchased for construction of municipal work, and further provides that those taxes on certain items are refundable to municipalities under submission of proper evidence by the Owner to the North Carolina Department of Revenue. Reference is made to “Sales and Use Tax Regulation 42”.

BIDDER WILL NOT INCLUDE REFUNDABLE NORTH CAROLINA SALES TAX IN HIS OR HER LUMP-SUM BID. The Contractor will be reimbursed at the time each monthly estimate is paid for refundable North Carolina Sales Taxes paid during any preceding month, provided he or she submits to the Owner information which will make it possible to show the sales tax as a separate item on the estimate. The tax may be shown at the bottom of the estimate in the following manner.

“Total of refundable N.C. Sales Tax paid on the above estimate amounted to
\$ _____.”

To substantiate the payment of the sales tax indicated, the CONTRACTOR MUST IN ADDITION,

Submit a SWORN NOTARIZED statement itemizing the tax, showing each amount and to whom paid, and certifying that the articles purchased were used in the work performed for the Owner. Receipts for these amounts must be included with the estimate. Such receipts should include all taxes paid by the prime contractor and any of his subcontractors.

The above must accompany each estimate for payment and is required by the Owner in making claims for tax refunds.

Every person/business who purchases any taxable tangible personal property, taxable services or certain digital property for storage, use, or consumption in North Carolina (NC) for business use from out-of-state vendors upon which the tax has not been fully paid must register with the NC Department of Revenue and remit the balance of tax due on such purchases based on NC’s sales and use tax rate. Out-of-state contractors are required to register for sales and use tax purposes with the State of NC. Registration Application, Form NC-BR, must be completed and mailed to the NC Department of Revenue. Out-of-state contractors should also seek a Certificate of Exemption or Certificate of Resale Form from their state’s Department of Revenue office when purchasing taxable tangible personal property from their local state to be stored, used, or consumed in NC provided their state participates in the Streamlined Sales Tax Agreement. Out

of state sales tax is not reimbursable by the state of North Carolina. For additional information on North Carolina regarding sales and use tax, please contact the NC Department of Revenue.

0008 –Non-Collusion Affidavit

NON-COLLUSION AFFIDAVIT

STATE OF NORTH CAROLINA
COUNTY OF DURHAM

_____, being first duly sworn, deposes
and says that:

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

TITLE

Subscribed and sworn before me,
this ____ day of _____, 20__.

(SEAL)

Notary Public

My Commission Expires _____

0009 – Performance Bond

PERFORMANCE BOND

DATE OF EXECUTION: _____

NAME OF PRINCIPAL: _____
(CONTRACTOR) _____

NAME OF SURETY: _____

NAME OF CONTRACTING BODY: COUNTY OF DURHAM

AMOUNT OF BOND: _____

CONTRACT NUMBER _____

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

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

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

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

Principal (SEAL)

Surety (SEAL)

Name and Title

Name and Title

Executed in _____ counterparts.

Name of Principal (Contractor)

Witness

By _____
(Print)

(Signature)

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

Attest: (Corporation)

By _____
(Print)

(Signature)

Title: _____

(Corp. Sec. Or Assist. Sec.)

(Corporate Seal)

(Surety Company)

Witness:

By: _____
(Print)

By: _____
(Print)

(Signature)

(Signature)

Title: _____
(Attorney-in-Fact)

Countersigned:

N.C. Licensed Resident, Agent

(Surety Corporate Seal)

Name and Address - Surety Agency

Surety Company Name and N.C.
Regional or Branch Office Address

0010 – Payment Bond

PAYMENT BOND

DATE OF EXECUTION: _____

NAME OF PRINCIPAL: _____
(CONTRACTOR) _____

NAME OF SURETY: _____

NAME OF CONTRACTING BODY: COUNTY OF DURHAM

AMOUNT OF BOND: _____

CONTRACT NUMBER: _____

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

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

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

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

Principal (SEAL)

Surety (SEAL)

Name and Title

Name and Title

Executed in _____ counterparts. _____
Name of Principal (Contractor)

Witness By _____
(Print)

(Signature)

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

Attest: (Corporation)

By _____
(Print)

(Signature)

Title: _____
(Corp. Sec. Or Assist. Sec.) _____
(Corporate Seal)

(Surety Company)

Witness: By: _____
(Print)

By _____
(Print) _____
(Signature)

Title: _____
(Attorney-in-Fact)

Countersigned:

N.C. Licensed Resident, Agent

(Surety Corporate Seal)

Name and Address - Surety Agency

Surety Company Name and N.C.
Regional or Branch Office Address

0011– Vendor Application/W-9 Form

[Vendor Application and W9 Form | Durham County](#)

0012 – No Bid Reply Form

NO BID REPLY FORM

TO: Durham County
Purchasing Division
201 East Main Street, 7th Floor
Durham, NC 27701

IFB No. 27-001

BID TITLE: Durham County Administration I
Building Emergency Egress Door Hardware and Security
Improvements

To assist us in obtaining good competition on our Invitation for Bids, we ask that each firm that has received an invitation, but does not wish to submit a Bid, state their reason(s) below and return to this office. This information will not preclude receipt of future invitations unless you request removal from the Bidders' List by so indicating below, or do not return this form or bona fide Bid.

Unfortunately, we must offer a "No Bid" at this time because:

- _____ 1. We do not wish to participate in the bid process.
- _____ 2. We do not wish to submit a Bid under the terms and conditions of the Invitation for Bids document. Our objections are:
- _____
- _____
- _____ 3. We do not feel we can be competitive.
- _____ 4. We cannot submit a Bid because of the marketing or franchising policies of the manufacturing company.
- _____ 5. We do not wish to sell to the Durham County. Our objections are:
- _____
- _____
- _____ 6. We do not sell the items/services on which Bids are requested.
- _____ 7. Other: _____
- _____

FIRM NAME

DATE

SIGNATURE

PHONE

_____ We wish to remain on the Bidders' List.

_____ We wish to be deleted from the Bidders' List

0013 - Technical Specifications

DIVISION 1

GENERAL REQUIREMENTS

SECTION 011100 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Project consists of Durham County Administrative I Building Emergency Egress Door Hardware.

1. Project Location: **200 East Main Street, Durham, NC 27701**
2. Owner: **County of Durham Engineering & Environmental Services
201 East Main Street, 5th Floor
Durham, NC 27701**

- B. Architect Identification: The Contract Documents, dated **August 30**, **2026**, were prepared for this Project by **DTW Architects & Planners, Ltd., 3333 Durham Chapel Hill Blvd., Suite D100, Durham, NC 27707**.

The Work consists of emergency egress door hardware and egress improvements. The Work architectural and electrical work on floors indicated on drawings.

1.3 CONTRACT[S]

- A. Project will be constructed under a general construction single contract.

1.4 WORK SEQUENCE

- A. The Work shall be conducted in **(1)** phase.
1. Work for this phase shall be substantially complete within **150** days of Notice to Proceed.

Substantial Completion (Issuance of Certificate of Occupancy). **150** Calendar Days from NTP

Final Completion of Owner / Architect Punchlist.....**10** Calendar Days from SC

1.5 USE OF PREMISES

- A. General: Contractor shall have full use of premises for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

1.6 WORK UNDER OTHER CONTRACTS

- A. Cooperate fully with separate contractors so work may be carried out smoothly, without interfering with or delaying work under this Contract.

1.7 OWNER-FURNISHED PRODUCTS

- A. Owner will furnish items as indicated on drawings. The Work includes providing support systems to receive Owner's equipment and any plumbing, mechanical, and electrical connections as required.
 - 1. Owner will arrange for and deliver Shop Drawings, Product Data, and Samples to Contractor.
 - 2. Owner will arrange and pay for delivery of Owner-furnished items according to Contractor's Construction Schedule.
 - 3. After delivery, Owner will inspect delivered items for damage. Contractor shall be present for and assist in Owner's inspection.
 - 4. If Owner-furnished items are damaged, defective, or missing, Owner will arrange for replacement.
 - 5. Owner will arrange for manufacturer's field services and for delivery of manufacturer's warranties to Contractor.
 - 6. Owner will furnish Contractor the earliest possible delivery date for Owner-furnished products. Using Owner-furnished earliest possible delivery dates, Contractor shall designate delivery dates of Owner-furnished items in Contractor's Construction Schedule.
 - 7. Contractor shall review Shop Drawings, Product Data, and Samples and return them to **Architect** noting discrepancies or anticipated problems in use of product.
 - 8. Contractor is responsible for receiving, unloading, and handling Owner-furnished items at Project site.
 - 9. Contractor is responsible for protecting Owner-furnished items from damage during storage and handling, including damage from exposure to the elements.
 - 10. If Owner-furnished items are damaged as a result of Contractor's operations, Contractor shall repair or replace them.

1.8 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 2015 Edition format and CSI/CSC's "MasterFormat" numbering system.
 - 1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011100

SECTION 011150: ALTERATION PROCEDURES

PART 1: GENERAL

1-01: Work Included: The work described herein includes Emergency Egress Door Hardware for a historic (1916) 105,000 SF existing building as outlined on the drawings and specified herein for the Durham County Administration II Building Emergency Egress Door Hardware

1-02: Existing Utilities: General Contractor shall coordinate Utility Companies for disconnecting, removal, relocating or stubbing out of existing services (gas, power, telephone) to locations as shown on drawings.

1-03: Standards: Except as modified by governing codes and these specifications, comply with all applicable provisions and requirements of ANSI A10.2, Safety Code for Building Construction, OSHA and NFPA 101.

1-04: Schedules: Before beginning any work, the General Contractor shall submit for review by the Owner, A/E and other Subcontractors, an abbreviated schedule showing the start and finish dates for the work. Outline shall conform to schedule defined in the Contract Documents.

1-05: Existing Conditions: Prior to beginning any demolition activities of work, the Owner, and General Contractor shall inspect the premises and agree upon the disposition of the overall extent and process of building and site demolition. The Owner shall salvage any items of building and site equipment and furnishings to be reused prior to the Contract Start Date.

1-06: Related Work and Precautions: The General Contractor shall notify “North Carolina 811” (800.632.4949 or www.nc811.org) prior to the start of excavation for location of unknown underground utilities. Locations of known utilities are indicated on drawings. Refer to Section 024000 for site demolition requirements. Utilities in areas of work shall be protected during excavating and backfilling operations.

PART 2: PROCEDURES

2-01: Protection:

a) The Owner, A/E, or their agents, employees or representatives are not responsible for the means, methods, techniques, sequences or procedures utilized by the General Contractor or Subcontractors in the execution of the work, or for safety precautions and programs in connection with the work. General Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work.

b) General Contractor shall exercise extreme caution for the safety of, and shall provide protection to prevent injury, damage or loss to:

- 1) All Construction Personnel on County property.
- 2) All the Work and all the materials and equipment to be incorporated therein, whether stored on or offsite and under care of the General Contractor or Tiered Subcontractors, machinery, and equipment.

3) All Property on the grounds or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

c) General Contractor shall give all notices and comply with all applicable laws, ordinances, permits, rules, regulations and lawful orders of any public authority having local jurisdiction bearing on the safety of persons or property or their protection from damage, injury or loss.

d) The General Contractor shall erect passageways, guard fences, temporary lighting and other facilities required for protection by applicable safety regulations and providing access to the existing site facilities.

e) The General Contractor shall erect and maintain, as required by the existing conditions and progress of the work, all safeguards for safety and protection, including posting danger signs and other warning devices against hazards, promulgating safety regulations and notifying Owners and Users of adjacent utilities.

f) The storage of explosives or other hazardous materials will not be permitted on property. When hazardous materials or equipment must be used for the execution of the work, the General Contractor shall exercise the utmost care and shall expedite such activities under the supervision of properly qualified personnel.

g) The General Contractor shall promptly remedy at his own cost and expense all damage or loss to any property caused in whole or in part by the General Contractor or Tiered Subcontractors or anyone directly or indirectly employed by them, or by anyone for whose acts any of them may be liable and for which the General Contractor is responsible. The General Contractor shall perform corrective restoring as required by the Owner and A/E, or shall make good such damage in a manner satisfactory to the Owner. In case of failure on the part of the General Contractor to make good the corrective actions required to restore the damaged property, the Owner may, upon two (2) calendar days written notice to the General Contractor, proceed with the corrective action required and the cost thereof will be deducted from moneys due or to become due the General Contractor under the terms of the Contract.

h) Prior to beginning demolition operations, make explorations and probes as necessary to ascertain required protective measures. Give particular attention to shoring and bracing requirements for adjacent construction to remain; consult with the Structural Engineer if questionable structural conditions exist. Prevent dust and dirt from rising and spreading through the existing building by wetting demolished masonry, concrete, plaster and other debris. Protect unaltered portions of the existing building affected by demolition operations by erecting temporary dust proof partitions as shown on drawings.

i) It shall be the responsibility of the General Contractor to provide temporary fire protection. Requirements may consist of 10 lb. min. ABC Fire Extinguishers, fire blankets, water hoses or a combination of devices as specified and located by the Fire Marshal assigned to this project.

j) The General Contractor shall protect all utilities encountered while performing the work, whether indicated on the Contract Drawings or not. Maintain all utilities in service until scheduled to be moved (or abandoned), tested and made ready for use. Exercise extreme care around utilities being excavated and restore any utilities damaged by personnel or machine to the same condition or better as existed prior to starting the work, at no cost to the Owner.

2-02: Emergencies:

a) In any emergency affecting the safety of persons or property, General Contractor shall act at his discretion to prevent threatened damage, injury or loss. The General Contractor shall notify the Owner and the Architect of the situation and all actions taken immediately thereafter.

b) If, in the opinion of the General Contractor, immediate action is not required, the General Contractor shall notify the Owner and Architect of the emergency situation and proceed in accordance with the Owner's instructions. However, if any loss, damage, injury or death occurs that could have been prevented by the General Contractor's immediate action, the General Contractor shall be held liable for all costs, damages, claims, actions, suits, attorney's fees and all other expenses arising from the emergency. Any additional compensation or extension of contract time claimed by the General Contractor on account of emergency work shall be determined in accordance with the General and Special Conditions.

c) Prior to demolition, make explorations as necessary to discover any hazardous materials or materials which, if released, would cause environmental contamination. Upon discovery of suspicious material, immediately notify the Owner and Architect for instructions as to procedure.

d) Should any toxic or hazardous material be accidentally released, immediately notify the Owner and Architect. Take immediate action to seal off area from airborne contamination by erecting dust proof partitions. With dikes or earth berms, physically contain liquid contamination from entering into storm drains, sewers, adjacent waterways or streets. If an underground fuel line, vent or tank is encountered, stop work and notify the Fire Marshal for instructions. If an underground septic system, grease trap, holding tank or cesspool is encountered, stop work and notify the Durham County Health Department for instructions.

PART 3: EXECUTION

3-01: Workmanship: Demolition and alteration work shall be conducted as shown on drawings. General Contractor shall be responsible for all cutting, fitting or patching that is required to complete the work of fitting old components with new components or to penetrate existing construction. Cut existing construction to a

reasonable dimension in order to fit new material or equipment in place and minimize patching; where adjacent construction is damaged unnecessarily, it shall be the responsibility of the General Contractor to restore the material to a condition matching the original as close as possible, at no additional cost to the Owner. See respective M/E/P drawings for UL penetration details.

3-02: Cleaning Up: The General Contractor shall be responsible at all times for keeping the premises free from accumulation of waste materials or rubbish caused by his work. At the completion of the work, all waste materials and rubbish, tools, construction equipment, machinery and surplus materials shall be removed from the site. If the General Contractor fails to clean up during or at the completion of the work, the Owner may do so as provided in the General and Special Conditions, and the cost thereof shall be withheld from moneys due the General Contractor.

3-03: Adjoining Surfaces: Where new and existing surfaces adjoin and are detailed for a flush condition, clean existing surface free from dirt, grease, loose paint, etc. before refinishing. Cut out embedded anchorage and attachment items as required to properly restore and repair existing substrate prior to refinishing.

3-04: Existing Equipment: (Ref: Demolition Drawings)

- a) Materials or items not designated on the drawings or removed in accordance with 1-05 above shall become the property of the General Contractor and shall be removed from the property or refinished for use in new facility.
- b) Materials or items on the contract drawings to remain in place shall be protected from damage or loss due to the progress of the work as described under Part 2-01: Protection above.
- c) Materials or items removed under a) shall be inspected, repaired and refinished as required to good working order prior to reinstallation.

END OF SECTION 011150

SECTION 011400 - WORK RESTRICTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 USE OF PREMISES

- A. Use of Building: Limit use of premises to work in areas indicated. Do not disturb portions of building beyond areas in which the Work is indicated.
 - 1. Limits: Confine construction operations to areas as shown on drawings.
 - 2. Driveways and Entrances: The primary contractor entrance will be the existing loading dock. No long-term parking will be allowed at the loading dock. The one larger elevator can be used for staff and material deliveries. The contractor will be responsible for installing protective covering in the elevator.
 - a. Schedule deliveries to minimize use of existing loading dock.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 - 3. All work will need to be completed during regular working hours, Monday thru Friday, 8:00 a.m. to 5:00 p.m. There will be time when electrical or life safety system work will need to be done after regular working hours and will need to be coordinated with the Owner.
 - 4. Durham County staff will be occupying the areas under construction throughout the project. Access for County staff will need to be maintained from 8:00 a.m. to 5:00 p.m., Monday through Friday. The building also has public meetings during the day and evenings. Access for the public and staff for these meetings will need to be maintained.
 - 5. The existing HVAC system will need to be operational in the occupied areas of the building throughout all construction phases. Notify the owner and design team prior to any shutdowns required.
 - 6. The existing life safety system will need to be operational in occupied areas throughout all construction phases. Contractor to notify the owner and design team of any required temporary shutdowns.
 - 7. Dust protection barriers must be used in any areas where county staff are located and there is work being done. This especially applies to all renovations on the Fifth Floor.

1.3 OCCUPANCY REQUIREMENTS

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

END OF SECTION 011400

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
 - 1. Certain materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
 - 2. Unit-cost allowances.
 - 3. Contingency allowances.
 - 4. Testing and inspecting allowances.
 - 5. Quantity allowances.
- C. Related Sections include the following:
 - 1. Division 1 Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
 - 2. Division 1 Section 012000 "Unit Prices" for procedures for using unit prices.
 - 3. Division 1 Section 014000 "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.4 SUBMITTALS

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

1.5 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.6 TESTING AND INSPECTING ALLOWANCES

- A. Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.
- B. The allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspections result in failure.
- C. Costs of services not required by the Contract Documents are not included in the allowance.
- D. At Project closeout, credit unused amounts remaining in the testing and inspecting allowance to Owner by Change Order.

1.7 UNUSED MATERIALS

- A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

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

Allowance No. 1: RENOVATION CONTINGENCY
Allowance Amount = \$20,000

Allowance No. 2: FINISH HARDWARE - See Section 087000.

Allowance Amount Base Bid = \$60,000

Allowance shall include only material cost of the hardware, delivery to the site and sales tax. Installation of the hardware to be included in the Base Bid.

END OF SECTION 012100

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for products selected under an allowance.
 - 2. Section 012300 "Alternates" for products selected under an alternate.
 - 3. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 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.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies 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 cannot be provided, if applicable.
 - b. Coordination 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 substitution 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 and names and addresses of Architects, Engineers 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 substitution 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.
3. 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.

1.5 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.

1.6 PROCEDURES

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

PART 2 - PRODUCTS

2.1 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 commencement of the Work. 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 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 1 Section 012000 "Allowances" for procedural requirements for handling and processing allowances.
 - 2. Division 1 Section 012000 "Unit Prices" for administrative requirements for using unit prices.
 - 3. Division 1 Section 016000 "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 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.

1.4 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. Proposal Requests issued by **Architect** are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within **time specified in Proposal Request** or **10 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 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 unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change 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 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.
- C. Proposal Request Form: For Change Order proposals, use forms provided by Owner.

1.5 ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. 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 margins claimed.
 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. Submit claims within [21] days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than [21] days after such authorization.
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.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on forms provided by the Owner.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive. 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 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 3. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 4. Section 013200 "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule of Values and Submittals Schedule.

1.3 DEFINITIONS

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

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - 2. Submit the Schedule of Values to Owner through Construction Project Manager at earliest possible date but no later than seven (7) days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use the 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. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect

- c. Architect project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value.
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 5. 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. Include evidence of insurance or bonded warehousing if required.
 6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
 9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.
- 1.5 APPLICATIONS FOR PAYMENT
- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Designer and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets 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. The Designer 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 of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit three (3) signed and notarized original copies of each Application for Payment to Designer by a method ensuring receipt within 24 hours. Each copy shall include waivers of lien, sub-contractor's report, 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 every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
- 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.
 5. Submittals Schedule (preliminary if not final).
 6. List of Contractor's staff assignments.
 7. List of Contractor's principal consultants.
 8. Copies of building permits.
 9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 10. Initial progress report.
 11. Report of preconstruction conference.
 12. Certificates of insurance and insurance policies.
 13. Data needed to acquire Owner's insurance.
 14. Initial settlement survey and damage report if required.
 15. Results from all required testing.

- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final, liquidated damages settlement statement.
 10. As-built documentation, warranties & manuals.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Conservation.
 - 3. Coordination Drawings.
 - 4. Administrative and supervisory personnel.
 - 5. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section 013200 "Construction Progress Documentation" for preparing and submitting the Contractor's Construction Schedule.
 - 2. Division 1 Section 017000 "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Division 1 Section 017700 "Closeout Procedures" for coordinating Contract closeout.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in various 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.
- B. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with 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 with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.

- C. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and 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. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.
- E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
 - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work.

1.4 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
 - 1. Indicate relationship of components shown on separate Shop Drawings.
 - 2. Indicate required installation sequences.
 - 3. Refer to Division 23 Section 230500 "Basic Mechanical Materials and Methods" and Division 26 Section 260500 "Basic Electrical Materials and Methods" for specific Coordination Drawing requirements for mechanical and electrical installations.
- B. Staff Names: Within **15** days of starting construction operations, submit a list of principal staff assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
 - 1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone.

1.5 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

1. Include special personnel required for coordination of operations with other contractors.

1.6 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within **3** days of the meeting.
- B. Preconstruction Conference: Schedule 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. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
 1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All 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. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing.
 - d. Designation of responsible personnel.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for processing Applications for Payment.
 - g. Distribution of the Contract Documents.
 - h. Submittal procedures.
 - i. Preparation of Record Documents.
 - j. Use of the premises.
 - k. Responsibility for temporary facilities and controls.
 - l. Parking availability.
 - m. Office, work, and storage areas.
 - n. Equipment deliveries and priorities.
 - o. First aid.
 - p. Security.
 - q. Progress cleaning.
 - r. Working hours.
- C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires 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 Change Orders.
 - d. Purchases.
 - e. Deliveries.
 - f. Submittals.
 - g. Review of mockups.
 - h. Possible conflicts.
 - i. Compatibility problems.
 - j. Time schedules.
 - k. Weather limitations.
 - l. Manufacturer's written recommendations.
 - m. Warranty requirements.
 - n. Compatibility of materials.
 - o. Acceptability of substrates.
 - p. Temporary facilities and controls.
 - q. Space and access limitations.
 - r. Regulations of authorities having jurisdiction.
 - s. Testing and inspecting requirements.
 - t. Required performance results.
 - u. Protection of construction and personnel.
 3. Record significant conference discussions, agreements, and disagreements.
 4. 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 **weekly** intervals. Coordinate dates of meetings with preparation of payment requests.
1. 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 conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. 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.
 - 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 utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Change Orders.
 - 14) Documentation of information for payment requests.
3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - 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.
- E. Coordination Meetings: Conduct Project coordination meetings at **weekly** intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.
 1. 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 conference shall be familiar with Project and authorized to conclude matters relating to the Work
 2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined 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.
 - b. Schedule Updating: Revise Combined Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each contractor 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 utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Change Orders.
3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200: CONSTRUCTION PROGRESS DOCUMENTATION

PART 1: GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's Construction Schedule.
 - 2. Submittals Schedule.
 - 3. Weekly construction reports.
 - 4. Field condition reports.
 - 5. Construction photographs.
- B. Related Sections include the following:
 - 1. Section 012900 "Payment Procedures" for submitting the Schedule of Values.
 - 2. Section 013300 "Submittal Procedures" for submitting schedules and reports.
 - 3. Section 014000 "Quality Requirements" for submitting a schedule of tests and inspections.
 - 4. Section 017700 "Closeout Procedures" for submitting Project Record Documents at Project closeout.

1.3 DEFINITIONS

- A. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.

1.4 SUBMITTALS

- A. Qualification Data: For firms and persons specified in "Quality Assurance" Article and in-house scheduling personnel to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- B. Submittals Schedule: Submit three (3) copies of schedule. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Name of subcontractor.
 - 3. Description of the Work covered.
 - 4. Scheduled date for Owner's Representative final release or approval.

- C. Contractor's Construction Schedule: Submit two (2) printed copies of initial schedule large enough to show entire schedule for entire construction period.
 - a. Submit an electronic copy of schedule, in MS Project, MS Excel, or MS Word format, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.
- D. Weekly Construction Reports: Submit two (2) copies at monthly pay applications.
- E. Field Condition Reports: Submit two (2) copies at time of discovery of differing conditions.

1.5 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Submit proposed construction schedule to Architect within seven days of date established for the Notice to Proceed. Provide updated Construction schedules with each pay application.
 - 1. Indicate each significant construction activity separately.
 - 2. Monitor construction and update schedule for reporting progress. Indicate an estimated completion for each activity.
 - 3. Note the critical path on the schedule.

2.3 REPORTS

- A. Weekly Construction Reports: Prepare a weekly construction report recording the following information concerning events at Project site and submit relevant copies with pay applications:
 - 1. List of subcontractors at Project site.
 - 2. List of separate contractors at Project site.
 - 3. Approximate count of personnel at Project site.
 - 4. High and low temperatures and general weather conditions.
 - 5. Accidents.
 - 6. Meetings and significant decisions.
 - 7. Unusual events (refer to special reports).

8. Stoppages, delays, shortages, and losses.
9. Orders and requests of authorities having jurisdiction.
10. Change Orders received and implemented.
11. Construction Change Directives received.
12. Services connected and disconnected.

PART 3 - EXECUTION

3.1 CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule with each pay application.
 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. As the Work progresses, indicate Actual Completion percentage for each activity.
 3. Distribution: Distribute copies of approved schedule to Architect and Owner.

3.2 CONSTRUCTION PHOTOGRAPHS

- A. Date Stamp: Unless otherwise indicated, date and time stamp each photograph as it is being taken so stamp is integral to photograph.
- B. Preconstruction Photographs: Before starting construction, take color photographs of Project site and surrounding properties from different vantage points. Show existing conditions adjacent to property.
- C. Periodic Construction Photographs: Take photographs weekly, coinciding with cutoff date associated with each pay application. Select vantage points to best show status of construction and progress since last photographs were taken. Provide hard copies or electronic copies to Construction Project Manager with pay applications.
- D. Final Completion Construction Photographs: Take photographs after date of Substantial Completion for submission as Project Record Documents.

END OF SECTION 013200

SECTION 013216: CONSTRUCTION PROGRESS SCHEDULE

PART 1: GENERAL

1-01: Work Included: This sections includes the labor and related services necessary to develop, report and update project scheduling as proposed herein.

1-02: Objectives: The primary objective of the construction schedule is to insure the adequate planning, scheduling and execution of the construction activities so that they proceed in an orderly manner within the Contract Time.

1-03: Services: The General Contractor, in collaboration with the other Subcontractors, shall provide a schedule, as defined in the Owner's General Conditions and in this Section. This schedule shall provide the basis for monitoring the individual progress of the Prime Contractor to detect problems early in order to institute corrective actions, and to be a mechanism for monitoring such corrective actions.

1-04: Pre-Bid Conference: Each Bidder shall review and analyze the proposed Start/Completion Dates, determine the feasibility of activity duration and sequences as outlined, and access the interface requirements as they relate to the Prime Contract. Discussion of problems, conflicts, or alternative approaches will be a primary agenda item in order to issue timely addenda regarding any changes in the dates or sequence of the work.

1-05: Notice To Proceed: Following the Notice to Proceed and in accordance with the General and Supplementary Conditions, the Prime Contractor shall submit within 15 days of Notice to Proceed, to the Owner and A/E a preliminary schedule, in precedence format, for the scope of construction/renovation work. The preliminary schedule shall reflect proposed activity duration of the Prime Contractor, proposed testing and inspection duration, proposed occupancy dates based on separate permits, and proposed punchlist duration; the duration shown shall be given in calendar days and shall extend no later than the project's required completion date.

PART 2: PRODUCTS

2-01: Schedule Distribution: Following a review and correction process by all parties, the General Contractor shall distribute the completed schedule as follows:

- Owners Rep.
- Fire Marshal
- Architect
- MEP Engineer
- Electrical Subcontractor

2-02: Start/Completion Dates: The Owner and A/E make no warranty, either express or implied, as to the reasonableness or feasibility of the following time required to complete the work.

The issuance of the Certificate of Occupancy to the Prime Contractor shall be the date of Substantial Completion, certified by the local Inspections Office that construction is sufficiently complete, in accordance with the Contract Documents, so that the Owner can occupy the space for its intended use.

"Substantial Completion" shall be defined as the date of Final Inspection and Issuance of the Certificate of Occupancy along with a dated punchlist issued by the Architects.

Anticipated construction schedule is as follows:

COMMENCEMENT OF CONTRACT**Upon Owner's Notice to Proceed
(Anticipated NTP – Date that permit is received)**

Substantial Completion (Issuance of Certificate of Occupancy by Inspections Dept): **150 Calendar Days from NTP**

Final Completion of Owner / Architect Punchlist.....**10 Calendar Days from SC**

2-03: Construction Progress Schedule: The schedule shall be a diagram designed to illustrate the following:

- a) The order and inter dependencies of the General Contractors' activities and the major points of interface, including specified points of inspection and occupancy dates based on separate permits as outlined above.
- b) General sequence of operations of the work with time limits specified as "Early/Late \Start", "Early/Late Finish", "Actual Start/Finish" and "Float Time".
- c) Work to be started and completed by the Owner or Separate Contractors.

2-04: Schedule Maintenance: The General Contractor shall have control of and maintain the overall Project Schedule as update information is submitted from the other Subcontractors. Once a month at one of the Construction Progress Meetings, the General Contractor shall submit updated progress data consisting of:

- a) Actual start dates of activities in process.
- b) Estimated duration of activities in process.
- c) Actual finish dates of activities completed.
- d) Actual or anticipated deviations from the schedule.
- e) Solutions for alleviating the effects of deviations.

At approximately 50% completion of the Work, the General Contractor shall again distribute copies of the computerized schedule diagram, accurately reflecting the current progress of the work, to all parties who received the initial diagram.

PART 3: EXECUTION

3-01: Schedule Alteration: The intent of this section is to set forth the required completion dates of the work and to which the General Contractor is required to adhere. In the event that the General Contractor desires to change their plan of construction, the proposed change must be submitted to the Owner and A/E for review. The changes must be accompanied by a written description of the reasons for changing, and method of maintaining adherence to activity duration already in process and the impact of the rescheduling. No schedule alteration shall be undertaken by the General Contractor unless approval in writing is issued by the Owner. The General Contractor shall issue revised data, following approval from the Owner, at the next regularly scheduled progress meeting.

3-02: Extensions of Time: If the General Contractor or Sub Contractor requests an extension of time as a part of a change request in the contract, he shall submit a written statement as described in the paragraph above. Any request for time extension shall include a schedule impact narrative and "fragnet" of activities detailing which activities are affected by the change and to what degree.

The time extension request shall be forwarded to the General Contractor for schedule forecasting predicting the actual Project Completion Dates.

Extensions of time shall be considered as required by the General and Supplementary Conditions and compliance with these specifications; the Owner shall not be held responsible or liable to the General Contractor for any schedule deviation due to failure of the Owner to grant time extensions under the

Contract Documents should the General Contractor fail to substantially comply with the submission and justification requirements as described above. The General Contractor's failure to perform in accordance with the Construction Schedule shall not be excused, nor be chargeable to the Owner, because the General Contractor has submitted time extension requests.

3-03: Coordination: General Contractor shall coordinate his work fully with that of the other Sub Contractors and shall cooperate fully with the Owner and A/E in maintaining orderly progress toward completion of the work as scheduled. The Owner shall be responsible for keeping the General Contractor fully aware of schedules for Work by Subcontractors (e.g. asbestos removal) and delivery dates for Owner-furnished equipment to be installed by General Contractor and delivery dates of movable equipment to be stored in the building. Failure of such equipment to arrive on schedule shall not be justification for an adjustment to the contract time. Failure of subcontractors to meet their schedules shall be considered cause for an extension of time only if the delay is considered by the Owner and A/E as unreasonable in its direct impact on the progress of the work, in accordance with the requirements of the Contract.

3-04: Float Time: Float Time is defined as the amount of time between the earliest start date and the latest start date or between the earliest finish date and the latest finish date in a chain of construction activity duration. Float Time is not for the exclusive use of benefit of the General Contractor or the Owner. It shall be assumed that the progress of the work shall proceed according to the early start dates; apportionment of float time by the General Contractor shall be reviewed by the Owner and A/E in accordance with the needs of the project. The General Contractor acknowledges that any delays affecting paths of activities containing float time, will not have any affect upon the Start/Completion Dates, provided that the actual delay does not exceed the float time associated with these activities.

3-05: Contractors Guarantees: General Contractor guarantees that he will not:

a) Misrepresent to the Owner the planning, scheduling or execution of the work.
b) Prepare schedules, updates, revisions or reports for the work which do not accurately reflect the intent of the General Contractor as to:

- 1) Sequences of activities.
- 2) Duration of activities.
- 3) Responsibility of activities.
- 4) Resources availability.
- 5) Labor availability or efficiency.
- 6) Completion of any item of work or activity.
- 7) Completion dates.
- 8) Delays or problems encountered or expected.
- 9) Subcontractor delay claims.
- 10) If applicable, the float time available.

END OF SECTION

SECTION 013300: SUBMITTALS

PART 1: GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- B. Related Sections include the following:
 - 1. Section 012900 "Payment Procedures" for submitting Applications for Payment.
 - 2. Section 017700 "Closeout Procedures" for submitting warranties Project Record Documents and operation and maintenance manuals.

1.3 DEFINITIONS

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

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Owner's Representative reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner's Representative receipt of submittal.
 - 1. Initial Review: Allow seven (7) days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Designer will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Allow seven (7) days for processing each resubmittal.

4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- C. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Construction Project Manager.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Owner.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Unique identifier, including revision number.
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Other necessary identification.
- D. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- E. Additional Copies: Unless additional copies are required for final submittal, and unless Designer or Construction Project Manager observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
1. Submit One 1) Digital copy of submittal to Owner's Representative.
- F. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Designer will discard submittals received from sources other than Contractor.
1. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Submittal and transmittal distribution record.
 - i. Remarks.
 - j. Signature of transmitter.
- G. Use for Construction: Use only final submittals with mark indicating action taken by Designer connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
 - 1. Number of Copies: Submit one (1) Digital copy of each submittal, unless otherwise indicated.
- B. 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 printed data are not suitable 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 written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Manufacturer's catalog cuts.
 - e. Standard product operating and maintenance manuals.
 - f. Compliance with recognized trade association standards.
 - g. Compliance with recognized testing agency standards.
 - h. Notation of coordination requirements.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Include the following information, as applicable:
 - a. Notation of dimensions established by field measurement.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Schedules.
 - f. Design calculations.
 - g. Pressure loss calculations.
 - h. Compliance with specified standards.
 - 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 11 by 17 inches.
 - 3. Number of Copies: Submit one (1) Digital print of each submittal, unless prints are required for operation and maintenance manuals. Submit five (5) prints where prints are required for operation and maintenance manuals. Architect will retain two (2) prints; remainder will be returned.
- D. Samples: Prepare physical units of materials or products, including the following:
 - 1. Comply with requirements in Section 014000 "Quality Requirements" for mockups.

2. 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.
3. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. 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.
4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Owner's Representative sample where so indicated. Attach label on unexposed side that includes the following:
 - a. Description of Sample including any certificates and pertaining assurances.
 - b. Product name or name of manufacturer.
 - c. Sample source.
5. Submit Samples for review of kind, color, pattern, material, warranty, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
 - a. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
6. Number of Samples for Initial Selection: Submit one (1) 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. 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.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 1. Number of Copies: Submit one (1) Digital copy of each submittal, unless otherwise indicated. Designer and Construction Project Manager will not return copies.
 2. Certificates and Certifications: Provide a notarized 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.
 3. Test and Inspection Reports: Comply with requirements in Section 014000 "Quality Requirements."
- B. Construction Schedule: Comply with requirements in Section 013200 "Construction Progress Documentation."
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

- D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project; include evidence of installation experience.
- F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with all requirements. Include evidence of manufacturing experience where required.
- G. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- H. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- I. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.
- J. Compatibility Test Reports: Prepare reports written by a qualified testing agency, 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.
- K. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, 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.
- L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. 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.
- M. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Section 017700 "Closeout Procedures".
- N. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- O. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a

product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
 2. Required substrate tolerances.
 3. Sequence of installation.
 4. Required installation tolerances.
 5. Required adjustments.
 6. Recommendations for cleaning and protection.
- P. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- Q. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- R. Construction Photographs and Videotapes: Comply with requirements in Division 1 Section 013200 "Construction Progress Documentation."
- S. Material Safety Data Sheets: Submit information directly to Owner.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Designer.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 OWNER'S REPRESENTATIVE

- A. General: Designer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Designer will review each submittal, make marks to indicate corrections or modifications required, and return it.

- C. Informational Submittals: Designer will review each submittal and will not return it, or will reject and return it if it does not comply with requirements.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting 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. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Owner or authorities having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Owner.
- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.4 SUBMITTALS

- A. Qualification Data: 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. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Description of test and inspection.
 - 3. Identification of applicable standards.
 - 4. Identification of test and inspection methods.
 - 5. Number of tests and inspections required.

6. Time schedule or time span for tests and inspections.
7. Entity responsible for performing tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

C. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number 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. Ambient conditions at time of sample taking and testing and inspecting.
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.

D. Permits, Licenses, and Certificates: For Owner's records, 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 QUALITY ASSURANCE

- A. 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.
- B. 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.
- C. Installer Qualifications: A firm or individual experienced in installing, erecting, 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.
- D. Manufacturer Qualifications: A firm with then (10) years documented experience in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
- E. Specialists: Certain sections of the Specifications 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. Requirement for specialists shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.

- F. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.

1.6 QUALITY CONTROL

- A. Owner's 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 the types of testing and inspecting they are engaged to perform.
2. Cost for retesting and re-inspecting 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. 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.

- 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 revised or replaced Work that failed to comply with requirements established by the Contract Documents.

- D. Testing Agency Responsibilities: Cooperate with the Owner's Representative and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Owner, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
5. Do not perform any duties of Contractor.

- F. 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 inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
- 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 014000

SECTION 014100: REGULATORY REQUIREMENTS

PART 1: GENERAL

In addition to regulatory requirements of governing authorities, codes, ordinances, industry requirements and association requirements noted in or reasonably implied from these specifications, the following shall become a part of the Contract Documents:

- A) North Carolina State Building Code - Latest Editions.
- B) City of Durham Zoning Ordinance - Latest Edition.
- C) UL fire Resistance Rating - Latest Edition.
- D) FM Engineering Corporation - Latest Edition.
- E) NFPA 101 Life Safety Standards - Latest Edition.

PART 2: SPECIFIC REFERENCES

2-01: NFPA 101 (If Needed): Provide exterior sign at the primary entrance to the facility indicating the street address. Sign must be clearly visible from a vehicle on the street.

2-02: Fire Lanes and Public Roadway access to the existing site buildings and temporary parking areas shall be clearly marked and maintained during the construction period by the Contractor. All access shall be approved by the Durham County Fire Marshal's Office.

2-03: NCSBC - Chapter 6, 702.1.6 (If needed): Corridor partitions, smoke-stop partitions, horizontal exit partitions, exit enclosures, and fire walls shall be effectively and permanently identified with signs or stenciling in a manner acceptable to the local building authority. Identification shall be located above any decorative ceiling and in concealed spaces. Suggested wording shall read:

“1-HOUR FIRE BARRIER – PROTECT ALL OPENINGS”

“1-HOUR FIRE PARTITION – PROTECT ALL OPENINGS”

(Verify with Fire Marshall and Building Inspector prior to starting).

2-04: NCSBC - Chapter 6 and NFPA 101 (if needed):

Smoke doors in Corridor shall have a permanently installed sign mounted on the face of each door in the open position. Suggested wording shall read:

“IN CASE OF FIRE, SMOKE DOORS WILL CLOSE AUTOMATICALLY.
DO NOT BLOCK”.

END OF SECTION

SECTION 014200 – REFERENCES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 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. "Reviewed": The term "reviewed," when used in conjunction with Architect's action on Contractor's submittals, applications, and requests, is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- D. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- E. "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."
- F. "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.
- G. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- H. "Install": Operations at project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- I. "Provide": Furnish and install, complete and ready for the intended use.
- J. "Installer": An installer is Contractor or another entity engaged by Contractor, as an employee, subcontractor, or contractor of lower tier, to perform a particular construction operation, including installation, erection, application, and similar operations.
- 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.

1.3 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.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Abbreviations and Names: Abbreviations and acronyms are frequently used in the Specifications and other Contract Documents to represent the name of a trade association, standards-developing organization, authorities having jurisdiction, federal government agency, stage agency or other entity in the context of referencing a standard or publication. 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."
- B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.
 - 1. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
 - 2. ICC - International Code Council; www.iccsafe.org.
 - 3. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.
- C. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
 - 1. ASA - Acoustical Society of America, <http://asa.aip.org>
 - 2. ACCA - Air Conditioning Contractors of America, <http://acca.org>
 - 3. ADC - Air Diffusion Council, <http://flexibleduct.org>
 - 4. AMCA - Air Movement and Control Association International, <http://amca.org>
 - 5. AHRI - Air-Conditioning, Heating and Refrigeration Institute, <http://www.ahrinet.org>
 - 6. AA - Aluminum Association, <http://www.aluminum.org>
 - 7. AAMA - American Architectural Manufacturers Association, <http://www.aamanet.org>
 - 8. ABMA - American Bearing Manufacturers Association, <http://www.americanbearings.org>
 - 9. AGA - American Gas Association, <http://www.aga.org>
 - 10. AISC - American Institute of Steel Construction, <http://www.aisc.org>

11. ALI – American Ladder Institute, <http://www.americanladderinstitute.org>
12. ANSI – American National Standards Institute, <http://www.ansi.org>
13. ASNT – American Society for Nondestructive Testing, <http://www.asnt.org>
14. ASHRAE - American Society of Heating, Refrigeration and Air-Conditioning Engineers, <http://www.ashrae.org>
15. ASME – American Society of Mechanical Engineers, <http://www.asme.org>
16. AABC - Associated Air Balance Council, <http://www.aabc.com>
17. ASTM – American Society for Testing and Materials, <http://www.astm.org>
18. CISCA – Ceilings and Interior Systems Construction Association, <http://www.cisca.org>
19. CFSEI - Cold formed Steel Engineers Institute, www.cfsei.org
20. CSI - Construction Specifications Institute, www.csinet.org
21. ICC – International Code Council, www.iccsafe.org
22. MHIA - Material Handling Industry of America, www.mhia.org
23. MSS – Manufacturers Standardization Society of the Valve and Fittings Industry Inc., www.mss-hq.org
24. NAAMM - National Association of Architectural Metal Manufacturers, www.naamm.org
25. NEMA - National Electrical Manufacturers Association, www.nema.org
26. NFPA – National Fire Protection Association, <http://www.nfpa.org>
27. NRCA – National Roofing Contractors Association, <http://www.nrca.net>
28. NAIMA - North American Insulation Manufacturers Association, www.naima.org
29. PMCA – Plumbing and Mechanical Contractors Association, <http://www.pmcaoregon.com>
30. SMACNA – Sheet Metal and Air-Conditioning Contractors' National Association, <http://www.smacna.org>
31. SPRI - Single Ply Roofing Industry, www.spri.org
32. SSPC - Society for Protective Coatings, <http://www.sspc.org>
33. SPFA - Spray Polyurethane Foam Alliance, www.sprayfoam.org
34. SDI - Steel Deck Institute, <http://www.sdi.org>
35. USGBC – U.S. Green Building Council, <http://www.usgbc.org>
36. UL – Underwriters Laboratories, <http://www.ul.com>

D. Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Information is subject to change and is up-to-date as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. DOD - Department of Defense; Military Specifications and Standards; Available from Department of Defense Single Stock Point; <http://dodssp.daps.dla.mil>.
3. DOE – U.S. Department of Energy, www.eere.energy.gov
4. DSCC - Defense Supply Center Columbus; (See FS).
5. FED-STD - Federal Standard; (See FS).
6. FS - Federal Specification; Available from Department of Defense Single Stock Point; <http://dodssp.daps.dla.mil>.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.
7. MILSPEC - Military Specification and Standards; (See DOD).
8. USAB - United States Access Board; www.access-board.gov.
9. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 014500: QUALITY CONTROL

PART 1: GENERAL It shall be the responsibility of the General Contractor to schedule periodic meetings between the, subcontractors, suppliers, foremen, inspectors and other parties involved with the daily progress of the work. Cooperation among all parties is expected for timely completion of the project.

PART 2: CRITICAL EVENTS The General Contractor shall exercise control over the project regarding events such as site demolition, steel erection and installation of Equipment, during which no other activity can take place in a given area. For areas to be inspected and covered up, 48-hour notice must be given to Local Inspectors and A/E.

PART 3: COOPERATIVE ARRANGEMENTS

A) Safety

Because of the nature of work taking place in an active restrictive setting, the Owner and Architect advise the Contractor to establish a Safety Committee, consisting of the Job site Superintendents for each subcontractor, to monitor job site safety, report violations, and maintain protective devices and warnings in accordance with OSHA guidelines. Access around the existing site by Fire Department must be maintained during the construction time period.

B) Cleanup

Since the accumulation of trash and debris can contribute to unsafe and unclean site conditions, the Owner and Architect advise that the Safety Committee described in Paragraph A) be responsible for coordinating the removal and storage of debris at remote locations until it can be safely removed from the site. Cleaning of site and building shall be done daily with scheduled intervals (preferably weekly) for large-scale cleanup and removal of debris from the workplace.

Coordinate material separation for recycling. Maintain a cardboard recycling program, masonry materials recycling program and coordinate with the City of Durham solid waste department for recycling program for gypsum board and other reusable building products.

END OF SECTION 014500

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes requirements, as necessary, for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
- B. Temporary utilities may include, but are not limited to, the following:
 - 1. Temporary utilities, support facilities, and security and protection facilities.
 - 2. Lighting.
- C. Support facilities include, but are not limited to, the following:
 - 1. Project identification and temporary signs.
 - 2. Construction aids and miscellaneous services and facilities.
 - 3. Portable Toilet.
- D. Security and protection facilities may include, but are not limited to, the following:
 - 1. Environmental protection.
 - 2. Tree and plant protection.
 - 3. Site enclosure fence.
 - 4. Security enclosure and lockup.
 - 5. Barricades, warning signs, and lights.

1.3 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:
 - 1. Owner's construction representatives.
 - 2. Occupants of Project.
 - 3. Testing agencies.
 - 4. Personnel of authorities having jurisdiction.

1.4 SUBMITTALS

- A. Implementation and Termination Schedule: Within fifteen (15) days of date established for submittal of Contractor's Construction Schedule, submit a schedule indicating implementation and termination of each temporary utility.

1.5 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
 - 1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
 - 2. 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.

1.6 PROJECT CONDITIONS

- A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
 - 1. Keep temporary services and facilities clean and neat.
 - 2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - EXECUTION

2.1 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Locate sanitary facilities for easy access.
- B. Project Identification and Temporary Signs: Prepare Project identification and other signs in sizes indicated. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.

2.2 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.
- B. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and sub-grade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains if determined necessary by the Owner.

2.3 OPERATION, TERMINATION, AND REMOVAL

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

- B. 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.

END OF SECTION 015000

SECTION 016000 – PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes 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.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for products selected under an allowance.
 - 2. Section 012500 "Substitution Procedures" for requests for substitutions.

1.3 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 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 specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify 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 one week 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 Approval: As specified in Section 013300 "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 013300 "Submittal Procedures." Show compliance with requirements.

1.5 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. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 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 weather tight 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.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 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.

- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

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 not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Engineer will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. 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.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.
- C. 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: 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 the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of Architects and owners, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017000 - EXECUTION REQUIREMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Coordination of Owner-installed products.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
 - 8. Correction of the Work.
- B. Related Sections include the following:
 - 1. Division 1 Section 013300: "Submittals".
 - 2. Division 1 Section 017700: "Closeout Procedures"

1.3 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - EXECUTION

2.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning Work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of all elements to remain and to be demolished. Verify all salvageable material with the Owner.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2. Furnish location data for Work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the Work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - d. Recommended corrections.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
4. Examine floors and roofs for suitable conditions where products and systems are to be installed.
5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

2.2 PREPARATION

- A. Existing Utility Information: Obtain information necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 1. Do not proceed with utility interruptions without Owner's written permission.
- C. 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.
- D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- E. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

2.3 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. Architect is not responsible if discrepancies are noted by the Contractor but are not reported to the Architect prior to construction.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 1. Establish benchmarks and control points to set lines and levels at each stage of construction and elsewhere as needed to locate each element of Project.
 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 3. Inform installers of lines and levels to which they must comply.
 4. Check the location, level and plumb, of every major element as the Work progresses.
 5. Notify the Architect when deviations from required lines and levels exceed allowable tolerances.
 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. 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 Owner.
- E. Use of Architect's CAD drawings is at Contractor's own risk. Architect is not responsible if discrepancies are discovered but not reported.
- F. The Contractor shall demolish and replace any work that does not meet the intentions of the drawings or that has unresolved discrepancies that are not brought to the Architect's attention prior to construction.

2.4 FIELD ENGINEERING

- A. Identification: Existing benchmarks, control points, and property corners are noted in the drawings.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Owner. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Owner before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two (2) permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

2.5 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.
- 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. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Landscape Architect.
- F. 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.
- G. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

2.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with current requirements in National Fire Protection Association (NFPA) 241 for removal of combustible waste materials and debris.
 - 2. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- 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: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
 - 1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- I. 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.
- J. 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.
- K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period to the extent possible for normal events.

2.7 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If required, a factory-authorized service representative shall inspect field-assembled components and equipment installation.

2.8 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. Comply with manufacturer's written instructions for temperature and relative humidity.

2.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

END OF SECTION 017000

SECTION 017413: CLEANING UP

PART 1: GENERAL

1.1 General

- a) The requirements specified in this section are in addition to those described in the General and Special Conditions.
- b) All debris and waste materials shall become the property of the Contractor, and shall be removed from the site as it accumulates and so as to comply with anti-pollution laws.
- c) Burning or burying of rubbish and waste materials on the project site is not permitted.
- d) Disposal of volatile fluid wastes such as mineral spirits, oil, or paint thinner in storm or sanitary sewer systems is not permitted, nor shall such materials be deposited anywhere on the project site.

PART 2: MATERIALS

2.1 Materials

The Contractor shall:

- a) Use only cleaning materials recommended by the manufacturer of surfaces to be cleaned.
- b) Use cleaning materials only on surfaces recommended by the cleaning material manufacturer.

PART 3: EXECUTION

3.1 Execution during Construction

- a) The Contractor shall provide suitable containers and locate on site for collection of waste materials, rubbish, and debris.
- b) The Contractor shall not allow mud, earth droppings and dust from movement of vehicles to accumulate for more than one half day before removal from paved areas. At no time shall any accumulation be allowed which will create a hazard to safety or bad public relations.

PART 4: FINAL CLEANING

4.1 Final Cleaning

- a) At completion of construction and just prior to acceptance, the Contractor shall conduct a final inspection of the site. The Contractor shall remove grease, oil, dirt, stains, and other foreign materials within contract limits that are not part of the finished construction.
- b) The Contractor shall repair, patch and touch up any marred surfaces to match adjacent finishes.

END OF SECTION 017413

SECTION 017419: CONSTRUCTION WASTE MANAGEMENT & DISPOSAL

PART 1: GENERAL

1-01: Waste Management Goals: The goal for this project in regards to construction waste management is to recycle or salvage for reuse 75 percent by weight of the total waste generated by this project. This specifically includes reducing the amount of waste that is typically deposited at landfills. This shall include the diverting and recycling of project waste, but is not specifically limited to: land clearing debris (trees, mulch, etc.), wood used during construction (including dimensional lumber, OSB, etc.), concrete, brick, concrete masonry units, asphalt, cardboard, paper, paint, glass, plastics, carpet, aluminum beverage cans, etc.

PART 2: WASTE MANAGEMENT PLAN

2-01: Waste Prevention Measures:

- a. Each major material supplier will be sent a letter requiring cooperation in planning for minimal or take-back packaging, such as crates, pallets, and boxes. All major suppliers and subcontractors will be required to deliver materials only when they are ready for installation.
- b. A storage container will be provided in the early stages to allow for small material storage, as deemed necessary.
- c. As construction progresses specific areas of the project site will be used for subcontractor storage.

2-02: Communication Plan:

- a. Details of the Waste Management Plan shall be developed by the Contractor and will be presented to all subcontractors at the on site preconstruction meeting. All subcontractors will be provided a copy of the project Waste Management Plan and be required to abide by it.
- b. Waste prevention and recycling activities will be discussed during the weekly project coordination meetings.
- c. All recycling containers will be labeled in English and Spanish to identify the recyclable materials and their appropriate containers.
- d. If recycling methods and container locations change as construction progresses, the Waste Management Coordinator will notify subcontractors and update the site logistics plan accordingly.

2-03: Land Clearing and Grubbing Materials:

- a. All land clearing of trees and brush materials will be removed by grading / clearing contractor. Any merchantable timber will be removed from site and sent to Pruitt Lumber in Louisburg, NC or approved timber recycler. Chip material will be removed from site and sent to B&B Chip Mill in New Hill, NC. or approved chip recycler. Each logging truck on average can remove 25 logs per load. Mulch to be stockpiled onsite for reuse on this project. All stumps and miscellaneous wood products will be ground/chipped and sent to an approved recycling site.

2-04: Off Site Separation of Waste Materials:

Contractor will contract with Waste Industries, LLC or equal to provide roll off trash containers for depositing of all construction waste that is generated during demolition and construction activities. Waste Managing subcontractor will haul these containers to their facility, for sorting and will then haul to the designated recycling center listed below:

- a. Clean Wood and Sheetrock - McGill Environmental - 634 Christian Chapel road, New Hill, NC 27526 (919.362.1161).
- b. Metal - Raleigh Metal Processors - 2310 Garner Road, Raleigh, NC 27610 (919.828.5426).
- c. Cardboard - CRA - 1815 Capital Boulevard, Raleigh, NC 27602 (919.829.1311)

d. Concrete, Brick, Block & Asphalt - Ground at Waste Industries site and used for Landfill cover or Non-Dot Roadbed.

PART 3: PROCEDURE

3-01: Monthly Records and Reporting

a. On a monthly basis, Waste Managing subcontractor will generate a report which includes the following: Customer Name, ID #, Hauler, Date Dumpster Pulled, Material Received Ticket #, Gross Weight, Tare Weight, Net Weight, Total Tons, % Wood recycled, % Dry Wall recycled, % Ferrous Material recycled, % Aggregate/Dirt recycled, % Cardboard recycled, % Non Ferrous recycled and % Landfilled. In addition to the Waste Managing subcontractor's monthly report, Contractor will prepare a monthly report to be submitted with the Pay Application that will include the following: monthly amount in tons of each type of material recycled, monthly amount in tons of each type of material land filled, identity of the recycling center, total cost in tipping fees, and total project to date amounts of recycled and land filled material.

b. A sample of the monthly Recycled Material Log will be developed by Contractor.

c. At the completion of the project, Contractor will issue a cumulative report showing all items reported in the monthly reports summarized in a final accounting tab.

3-02: Estimated Quantities

Contractor shall estimate the tons of materials to be diverted from landfills and recycles. Categories shall include:

- a. Concrete
- b. Asphaltic Concrete
- c. Brick / Block
- d. Metals
- e. Clean Wood and Sheetrock

Please note that these are estimated quantities only. Contractor will endeavor to limit the amount of materials to landfill and recycle as much as possible. Contractor cannot determine the amount of waste to be actually generated, but estimate the amount based on projects of similar scope and size.

END OF SECTION

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Project Record Documents.
 - 3. Operation and maintenance manuals.
 - 4. Warranties.
 - 5. Instruction of Owner's personnel.
 - 6. Final cleaning.
- B. Related Sections include the following:
 - 1. Division 1 Section 013200: "Construction Progress Documentation" for submitting Final Completion construction photographs and negatives.
 - 2. Division 1 Section 017000: "Execution Requirements" for progress cleaning of Project site.
 - 3. Division 2 for specific closeout and special cleaning requirements for products of those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit 2 copies of specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit (1) Project Record Documents, (3) operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information as indicated herein.
 - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 7. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 8. Submit changeover information related to the Owner's occupancy, use, operation, and maintenance.
 - 9. Complete final cleaning requirements, including touchup painting.
 - 10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 - 11. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Designer will either proceed with inspection or notify Contractor of unfulfilled requirements. Designer 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 the Designer, that must be completed or corrected before certificate will be issued.
 - 1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
 - 1. Submit a final Application for Payment according to Division 1 requirements.
 - 2. Submit certified copy of Designers Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Owner. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Designer and Construction Project Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Designer 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. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit (3) three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Owner
 - d. Name of Contractor.
 - e. Page number.

1.6 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Owner's reference during normal working hours.
- B. Record Drawings: Maintain and submit **one original and one copy** of blue- or black-line white prints of Contract Drawings and Shop Drawings.
 - 1. 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 prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Accurately record information in an understandable drawing technique.

- c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.
2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
3. Mark important additional information that was either shown schematically or omitted from original Drawings.
4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
- C. Record Specifications: Submit (2) copies of Project's Specifications, including addenda and contract modifications. Mark copies 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. Note related Change Orders, Record Drawings, where applicable.
- D. Miscellaneous Record Submittals: Assemble (2) copies of miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.7 OPERATION AND MAINTENANCE MANUALS

- A. Assemble two (3) complete sets of operation and maintenance data indicating the operation and maintenance of each piece of equipment. Include operation and maintenance data required in individual Specification Sections and as follows:
 1. Maintenance Data:
 - a. Manufacturer's information, including list of spare parts.
 - b. Name, address, and telephone number of Installer or supplier.
 - c. Maintenance procedures.
 - d. Maintenance and service schedules for preventive and routine maintenance.
 - e. Maintenance record forms.
 - f. Sources of spare parts and maintenance materials.
 - g. Copies of maintenance service agreements.
 - h. Copies of warranties and bonds.
- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

1.8 WARRANTIES

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

- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

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 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Provide instruction at mutually agreed-on times.
 - 2. Schedule training with Owner with at least 10 days' advance notice.
- B. Develop an instruction session that includes training for all equipment as required by individual Specification Sections. Include instruction for the following:
 - 1. Review of documentation.
 - 2. Adjustments.
 - 3. Maintenance.
 - 4. Repair.

3.2 FINAL CLEANING

- A. Cleaning: 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 portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface and apply a layer of mulch.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Clean exposed exterior 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.

- f. Remove labels that are not permanent.
 - g. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - h. Leave Project clean and ready for occupancy.
- B. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

PART 4: GUARANTEE

- A. Neither the final certificate of payment nor any provision in the Contract Documents nor partial or entire occupancy of the premises by the Owner shall constitute an acceptance of Work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship.
- B. The Contractor shall remedy any defects in the Work, and pay all expenses for any damage to other Work resulting there from, which shall appear within a period of one (1) year from the date of final acceptance of the work unless a longer period is specified elsewhere. The Owner shall give notice of observed defects with reasonable promptness. Mechanical equipment that carries a manufacturer's warranty will be considered guaranteed for the extent of the warranty only.
- C. The Contractor shall submit to the Owner's Representative, before final acceptance, two (3) copies of all warranties, guaranties, and surety bonds on the Work, as required in the Contract Documents. All such documents shall show the name of the Project, location, and name of the Owner.

END OF SECTION 017700

SECTION 017800: CONTRACT CLOSEOUT

PART 1: GENERAL

Following Substantial Completion and prior to Final Payment of retainage, the Contractor shall furnish to the Architect/Engineer the documents required for certifying completion of the work.

PART 2: DOCUMENTS REQUIRED

2-01: As-built Prints (1 Digital Copy) (2 sets), Operation and Maintenance Manuals (1 Digital Copy) (3 bound sets)

2-02: Name and address of Prime Contractor and major subcontractors.

2-03: (Final) Application & Certificate for Payment, AIA G702 (4 copies) with 4 copies of final application, schedule of values, and copies of the certificate of occupancy issued by local inspection department to be included in the submittal binder.

2-04: Consent of Surety to Final Payment, AIA G707 or Owners Form (4 copies).

2-05: Contractor's Affidavit of Payment of Debts and Claims, AIA G706 (4 copies).

2-06: Contractors Affidavit of Release of Liens, AIA G706A (4 copies).

2-07: Letter certifying that no materials containing asbestos or Lead have been used in the construction of this project.

2-08: Contractors Warranty Letter for specific items identified in the Contract Documents and a general building guaranty for Materials and Labor.

2-09: All above items except AS-Built prints shall be contained in 3-ring binders, clearly labeled with project name, having dividers labeled as to contents of addressed section.

END OF SECTION

DIVISION 2

EXISTING CONDITIONS

SECTION 024000: DEMOLITION

PART 1: GENERAL

1-01: Reference to Other Documents: The General Conditions, Special Conditions and Division 1 contain requirements relevant to the work covered by this Section.

1-02: Work Included: This section includes the labor, material, to provide demolition as shown on drawings and as listed below:

a) Interior Demolition:

- Existing paints and coatings may contain lead and General Contractor shall exercise care when removing items to be demolished. All painted surfaces shall be encapsulated using coatings specified. Areas to be demolished include, but are not limited to:
- Interior demolition is minimal as required to install conduits, hardware and new doors.

1-03: Standards: Except as modified by governing codes and these specifications, comply with all applicable provisions and recommendations of ANSI A10.2, Safety Code for Building Construction. New Construction. Extreme care is needed to preserve existing.

1-04: Utility Companies: Notify A/E of work required by Utility Companies not designated on plans. Work by Utilities shall include disconnecting, removal and reinstallation of respective piping or conduit to point of metering, service entrance or designated valve. No work shall be done to any existing lines without Utility Company knowledge and approval.

PART 2: PROTECTION

2-01: “North Carolina 811”: Prior to commencing any work, notify “North Carolina 811” (1.800.632.4949 or www.nc811.org) for establishment of all known underground utility lines. Maintain all site markings in good condition, except in case of removal.

2-02: Discovery of Hazardous or Contaminated Material: Make explorations and probes as necessary to ascertain any required protective measures before proceeding with demolition and removal. Should any toxic or contaminated material be discovered, immediately notify the Owner and the Architect/Engineer. If material in liquid form is disturbed, take precautions to contain material with earthen dike or berm in order to prevent run-off into adjacent waterways, sewer easements, storm water systems and public streets. If any underground storage tank or container is encountered, stop work immediately in vicinity and notify the Owner’s Project Manager.

2-03: Provide, erect and maintain barriers, warning signs and other items as required for proper protection of workmen engaged in demolition operations, the general public and adjacent construction.

2-04: Take necessary precautions to prevent mud and debris from being deposited on corridors, sidewalks or parking areas. Maintain all temporary entranceways into the site in good condition until more permanent paving and drainage systems are in place.

2-05: Provide temporary fire protection measures in accordance with Durham County Fire Marshal requirements.

PART 3: WORKMANSHIP

3-01: Demolition and hauling work shall be performed to the extent shown on drawings. Perform required work, particularly work involving removal of subsurface items, with extreme care.

PART 4: CONSTRUCTION WASTE MANAGEMENT

4-01: The General Contractor will establish a construction waste management plan of all construction and demolition. The project goal is to send 50% of non-hazardous construction and demolition to be diverted from disposal at the landfill or incinerators.

END OF SECTION

DIVISION 5

METALS

SECTION 054000: COLD-FORMED METAL FRAMING

PART 1: GENERAL

1-01: Reference to Other Documents: The General Conditions, Special Conditions and Division 1 contain requirements relevant to work covered by this section.

1-02: Work Included: This section includes labor, materials, equipment, and related services necessary to furnish and install metal studs, channels, plates and angles for stud wall assemblies, soffits and fascias, with related accessories and specialties, called for on the drawings and specified herein.

1-03: Examination of Adjacent Work: Framing Subcontractor must examine areas to receive metal stud systems and report defects to Architect and Prime Contractor prior to installing material. Installation of metal components shall be considered as acceptance of surfaces to which system is attached.

1-04: Substitutions: For purposes of establishing type and quality of materials required for work included in this section, manufacturer's names, types, patterns, etc., are used. Equal products of other manufacturers will be acceptable, provided that request for substitutions are accompanied by supporting technical literature, samples, and performance data for comparative evaluation. Manufacturers approved for use include:

UNIMAST INC.	Schiller Park, IL.	847-928-3400
DIETRICH INC.	Rock Hill, SC	803-324-4144
DALE INDUSTRIES	Dearborn, MI	313-846-9400

PART 2: PRODUCTS

2-01: Soffits: Studs for exterior and interior soffit supports shall be 18-gauge galvanized steel equal to UNIMAST SN studs. Widths shall be as noted on drawings.

2-02: Interior Partitions: Studs shall be channel type, roll-formed from galvanized steel not lighter than 18-gauge, equal to UNIMAST ST studs. Runners shall be formed of 20-gauge, galvanized steel into channel shapes to receive stud widths as noted on drawings.

2-03: Fasteners: Secure studs to runners with fasteners equal to USG Type S-12 Pan Head; length shall be not less than 3/8". Fasteners for attaching studs to structural steel members shall be equal to Teks/4 self-drilling fasteners, not lighter than #12 diameter x lengths to suit field conditions. Fasteners for all other framing conditions shall be equal to USG Type S-12 Pan Head x length to suit field conditions for proper thread penetration.

Fasteners shall be capable of withstanding 193 pounds single shear and 200 pounds bearing load without exceeding allowable design stress after installation.

PART 3: EXECUTION

3-01: Qualification of Mechanics: Work specified in this section shall be performed by mechanics experienced and skilled in the erection of metal stud system components.

3-02: Installation: Cut components accurately to proper angles to fit tightly against abutting members. Framing members shall be held firmly in position until properly fastened. Track members shall be secured

to concrete with powder-driven fasteners and to structural steel with self-tapping screws or by approved welding methods. Space members typically at 16" centers elsewhere. Locate fasteners 2" from ends and at 16" centers elsewhere. Locate studs accurately, seated squarely in track with stud web and flange abutting track web, plumbed or aligned, and securely attached to flanges or webs of both upper and lower tracks. Splices in studs will not be permitted.

3-03: Stud Partition Erection: Locate runners and align accurately in accordance with details and partition layouts. Attach runners to concrete with powder-driven fasteners capable of withstanding 193 pounds single shear and 200 pounds bearing force when driven into structural head or base without exceeding allowable design stress in runner or structural support. Locate fasteners 2" from each end and at 24" on centers elsewhere. Attach ceiling runners to metal deck, structural framing or other structural elements as detailed.

3-04: Blocking and Reinforcement: Position studs plumb and vertical in runners; space 16" on centers. Provide additional studs and supplementary back-up framing members where required to support shelving, equipment or accessories at door openings, corners, etc. Secure studs supporting shelving, equipment or accessories adjacent to openings, at partition intersections, and at corners, to floor and ceiling runner flanges with USG Pan Head screws. Headers over openings shall be cut-to-length sections of runners with web bent at each end and secured to support with 2 minimum pan head screws. Jack studs shall be placed at vertical panel joints extending from headers to ceiling runners. Provide bracing to structure, reinforcing, and back-up members for attachment of equipment and accessories as shown on drawings for a rigid assembly.

3-05: Cutouts: Effective cross section of studs shall not be damaged by any trade. Sizes of cutouts in studs shall be carefully sized to permit passage of conduit or other mechanical equipment; reinforce studs as required or directed by Architect/Engineer.

END OF SECTION

DIVISION 8

OPENINGS (DOORS & WINDOWS)

SECTION 081100: METAL DOORS AND FRAMES

PART 1: GENERAL

1-01: Reference to Other Documents: The General Conditions, Special Conditions and Division 1 contain requirements relevant to work covered by this Section.

1-02: Scope of Work: This section includes labor, materials, equipment, and related services necessary to furnish and install the following:

- Hollow metal doors (swinging, flush, glazed, louvered).
- Hollow metal frames (for single doors, doors w/transoms and/or sidelights, and for (multiple or combination openings).
- Labeled hollow metal doors and frames.
- Hollow metal panels.
- Hollow metal fillers, closures, or covers.

1-03: Shop Drawings Submit one (1) digital copy of shop drawings showing elevations and details of each door and frame type; location in the building for each item; conditions at openings with various wall thickness and materials; typical and special details of construction; methods of assembling section; type of shop primer with dry mil thickness; locations and installation requirements for hardware; size, shape, and thickness of materials. Materials shall not be delivered to site until drawings have been reviewed by Architect. Doors and frames shall be manufactured by same manufacturer.

1-04: Storage: Doors and frames shall be stored at the site under cover, above grade, in a manner which will prevent physical injury or damage due to moisture. Care shall be taken to avoid creating a humidity chamber by not properly venting the area covered.

1-05: Substitutions: For purposes of establishing type and quality of materials required for work in this section, manufacturer's names and brand names are used. Equal products of other manufacturers will be acceptable provided that requests for substitutions are accompanied by supporting technical literature, samples, drawings and performance data for comparative evaluation 10 days prior to receipt of Bids.

Products approved for use shall include:

- Steelcraft ., Cincinnati, Ohio., 800.930.8585.
- Windsor Republic Doors & Frames, McKenzie Tenn. 800.733.3667
- Curries Co.. Mason City, Iowa 515.423.1334.

1-06: Hardware Locations: Unless dimensioned otherwise on drawings, the location of hardware on doors and frames shall be as follows:

- Hinges: Top - 9+” to max 11 3/4” from bottom of frame head to centerline of hinge.
- Bottom - 10 3/8” to 13” from bottom of frame to centerline of hinge.
- Intermediate - centered between top and bottom hinges, equally spaced.
- Unit and Integral Type of Locks and Latches - 39-40” from bottom of frame to centerline of knob, lever, or strike.
- Deadlocks - 48” from bottom of frame to centerline of cylinder.
- Panic Hardware - 39-40” from bottom of frame to centerline of crossbar.
- Door Pulls - 42” from bottom of frame to center of grip.
- Push-Pull Bars - 42” from bottom of frame to centerline of bar.
- Arm Pulls - 41 1/4” from bottom of frame to centerline. of lower base
- Push Plates - 41 1/4” from bottom of frame to centerline of plate.
- Roller Latches - 38” from bottom of frame to centerline.

1-07: Clearances Provide edge clearances as follows:

- Between doors and frame, at head and jambs - 1/8".
- At door sills without thresholds - 3/8" max. above fin. fl.
- At door sills with thresholds - 3/4" max. above fin. fl.
- Between meeting edges of pairs of doors - 1/8".

Note that "finished floor" is defined as the top surface of the floor except that when resilient flooring or carpet is used - when it then becomes the top of the concrete slab. Where the carpet exceeds 1/2" in depth, allow 1/4" clearance max. above the top of the carpet.

PART 2: PRODUCTS

2-01: Hollow Metal Frames

a) Material:

- 1) Frames for exterior openings shall be made of commercial grade cold-rolled steel conforming to ASTM A366-68, not less than 14 gauge, and shall have a zinc coating of not less than 0.60 oz. per sq.ft.
- 2) Frames for interior openings shall be made of either commercial grade cold-rolled steel conforming to ASTM A366-68 or commercial grade hot-rolled and pickled steel conforming to ASTM A569-66T. Metal thickness shall be not less than 16 gauge for frames in openings 48" or less in width, and not less than 14 gauge for frames in openings over 48" in width.

b) Design and Construction:

- 1) A knocked down frame is acceptable in this case in order to minimize the damage to the existing wall.
- 2) All finished work shall be strong and rigid, neat in appearance, square, true and free of defects, warpage or buckling. Moulded members shall be clean cut, straight and uniform in profile throughout their lengths.
- 3) Jamb depths, trim, profile and backbends shall be as scheduled by the Architect and as shown on approved shop drawings.
- 4) Corner joints shall have all contact edges closed tight, with trim faces mitered and stops butted. The use of gussets will not be permitted. Joints shall be patched with a manufacture approved compound and
- 5) Minimum depth of stops shall be 5/8". Cut-off (sanitary or hospital type) stops, where scheduled, shall be capped at 90 degrees at heights shown on approved shop drawings, and all jamb joints below cut-off stops shall be ground and filled smooth, making them imperceptible. Do not cut off stops on frames for sound-proof, light-proof or lead-lined doors.
- 6) When shipping limitations so dictate, fabricate frames for large openings in sections designed for splicing in the field by others.
- 7) Frames for multiple or special openings shall have mullion and/or rail members fabricated from closed tubular shapes having no visible seams or joints.
All joints between faces of abutting members shall be securely welded and finished smooth.

8) Hardware Reinforcements:

- a) Frames shall be mortised, reinforced, drilled and tapped at the factory for fully templated mortised hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier. Where surface-mounted hardware is to be applied, frames shall have reinforcing plates only; all drilling and tapping shall be done by General Contractor.

b) Minimum thickness of hardware reinforcing plates shall be as follows:

- | | | |
|---------------|---|------------------------|
| Hinge & pivot | - | 7 gauge, 1-1/4" x 10". |
| Strike | - | 12 gauge. |
| Flush bolt | - | 12 gauge. |

Closer	-	12 gauge.
Surface-mounted	-	12 gauge.
Hold-open arms	-	12 gauge.
Surface panic	-	12 gauge.

9) Floor Anchors:

- a) Securely weld floor anchors inside each jamb for anchorage to floor.
- b) Where scheduled or specified, provide adjustable floor anchors capable of not less than 2" height adjustment.
- c) Minimum thickness of floor anchors shall be 14 gauge.

10) Jamb Anchors

- a) Frames to be installed in masonry walls shall be provided with adjustable jamb anchors of the T-Strap type, not less than 16 gauge.

The number of anchors provided on each jamb shall be as follows:

Frames up to 90" high	-	3 anchors.
Frames 90" to 96" high	-	4 anchors.
Frames over 96" high	-	1 anchor for each 24" or fraction thereof

- b) Frames to be installed in stud partitions shall be provided with steel anchors of suitable design, not less than 18 gauge thickness, securely welded inside

each jamb as follows:

Frames up to 90" high	-	4 anchors.
Frames 90" to 96" high	-	5 anchors.
Frames over 96" high	-	5 anchors + 1 additional for each 24" or fraction thereof over 96".

c) **Frames to be anchored** to previously placed concrete, masonry or structural steel shall be provided with anchors of suitable design and quantity as shown on approved shop drawings. Fasteners for such anchors shall be provided by General Contractor.

11) Frames to be installed in masonry wall openings more than 48" in width shall have any angle or channel stiffener welded into the head. Such stiffeners shall not be less than 12 gauge steel and not longer than the opening width, and shall not be used as lintels or load-bearing members.

12) Dust cover boxes for mortar guards of not thinner than 26 gauge steel shall be provided at all hardware mortises on frames to be set in masonry or plaster partitions.

13) Provide all frames with a steel spreader temporarily attached to the feet of both jambs to serve as a brace during shipping and handling.

14) Loose glazing stops of cold-rolled steel, not less than 20 gauge thickness, shall be butted at corner joints and secured to the frame with countersunk cadmium or zinc-plated screws. Secure glazing stops to interior side of frame or the locked room side for interior frames.

d) **Finish:** After fabrication, remove all tool marks and surface imperfections, and dress smooth exposed faces of all welded joints. Chemically treat frames to insure maximum paint adhesion and coat all accessible surfaces with a rust-inhibitive primer, which should be fully cured before shipment.

2-02: Hollow Metal Doors

a) **Materials:** Doors shall be made of commercial quality, level, cold-rolled steel conforming to ASTM A366-68, free of scale, pitting or other surface defects. Face sheets for interior shall be not less than 16 gauge; face sheets for exterior doors shall be not less than 14 gauge and shall have a zinc coating of not less than 0.60 ounces per square foot.

b) **Design and Construction:**

1) All doors shall be custom made, of the sizes and types shown on approved shop drawings, and shall be fully welded seamless construction with no visible seams or joints on their faces of vertical edges. Minimum door thickness shall be 1-3/4".

2) All doors shall be rigid and neat in appearance, free from warpage and buckle. Corner bends shall be true and straight, bent to the minimum radius for the gauge metal being used.

3) Face sheets shall be stiffened by continuous vertical formed sections of steel spanning the interior space between door faces. These stiffeners shall be not less than 22 gauge, spaced not more than 6" apart and be securely fastened to face sheets by spot welds not more than 5" o.c. Spaces between stiffeners shall be sound-deadened and insulated the full height of the door with an inorganic noncombustible material.

4) Door faces shall be joined at their vertical edges by a continuous weld extended the full height of the door. All such welds shall be ground, filled and dressed smooth to make them invisible and provide a smooth flush surface.

5) Top and bottom edges of doors shall be closed with a continuous recessed steel channel not less than 16 gauge, extending the full width of the door and spot welded to both faces. Exterior doors shall have an additional flush closing channel at their top edges and, where required for attaching weatherstripping, a flush closure also at their bottom edges. Openings shall be provided in the bottom closure of exterior doors to permit the escape of any entrapped moisture.

6) Edge profiles shall be provided on both vertical edges of doors as follows:

- Single-acting swing doors - beveled 1/8" in 2".
- Double-acting swing doors - rounded on 2-1/8" radius.

7) All hardware supplied for single-acting doors shall be designed for beveled edges as specified.

8) Hardware Reinforcement

a) Doors shall be mortised, reinforced, drilled and tapped at the factory for fully templated and approved hardware only. Where surface-mounted hardware (or hardware requiring adjustment in the field such as top and bottom pivots, floor closers, etc.) is to be applied, doors shall have reinforcing plates only; all drilling and tapping shall be done by General Contractor.

b) Minimum gauges for hardware reinforcing plates shall be as follows:

- Hinge & Pivot reinforcements - 7 gauge.
- Reinforcements for lock face, flush bolts, concealed holders, concealed or surface-mounted closers - 12 gauge.
- Reinforcement for all other surface-mounted hardware - 16 gauge.

9) Glass Mouldings & Stops

a) Where specified or scheduled, doors shall be provided with hollow metal mouldings to secure glazing by others in accordance with glass opening sizes shown on approved shop drawings.

b) Fixed mouldings shall be securely welded to the door on the security side.

c) Loose stops shall be not less than 20 gauge steel with butt corner joints, secured to the framed opening by cadmium or zinc-coated countersunk fasteners. Snap-on attachments will not be permitted.

c) **Finish:** After fabrication all tool marks and surface imperfections shall be dressed, filled and sanded as required to make all faces and vertical edges smooth, level and free in irregularities. Doors shall then be chemically treated to insure maximum plant adhesion and shall be coated on all exposed surfaces with a rust inhibitive primer, which is fully cured before shipment.

2-03: Hollow Metal Panels Hollow metal panels shall be made of the same materials, constructed and finished in the same way as specified for hollow metal doors.

2-04: Labeled Doors and Frames

a) Labeled doors and frames shall be provided for those openings requiring fire protection ratings as determined and scheduled by the Architect. Such doors and frames shall be constructed as tested and approved by Underwriters' Laboratories using the most current standards.

- b) If any door or frame specified to be fire-rated cannot qualify for appropriate labeling because of its design, size, hardware or other reason, the Architect shall be notified before fabrication of that item begins.
- c) Fire doors or frames that do not qualify for labeling will be furnished non-labeled. However, if material specified as fire-rated and labeled can be obtained from any source, no consideration will be given to those manufacturers who are not authorized to fabricate and label such items.

PART 3: EXECUTION

3-01: Site Storage and Protection

- a) The General Contractor shall be responsible for seeing that any scratches or disfigurement caused by shipping or handling are promptly cleaned and touched up with a rust-inhibitive primer, and that materials are properly stored above ground on timbers or pallets in a dry location, and covered to protect them from damage.
- b) Doors shall have their wrappings or coverings removed upon delivery at the building site and shall be stored, preferably inside, in a vertical position, spaced by blocking to permit air circulation around them.

3-02: Prior to installing frames, the General Contractor shall check frames and correct for rack, twist and out-of-square. Set frames plumb and level, in alignment until permanently built into the wall.

3-03: Frames shall be secured to structure as indicated or noted. Floor knees shall be attached to concrete with two powder-actuated fasteners at each jamb. Masonry anchors shall be built-in, and frames filled with mortar as wall is laid up. Frames in dry wall areas shall be filled with grout. Frames shall be installed plumb, square, and in proper alignment with adjacent wall surfaces. Protection shall be provided against physical damage and surface contamination, which might prevent acceptable application of field applied finish.

3-04: Hardware Installation: The manufacturer's representative for the locking devices and closing devices must inspect and approve, in writing, the installation of their products. Hardware installed incorrectly must be reported to the architect prior to the architect's final punch list.

END OF SECTION

SECTION 081400: WOOD DOORS

PART 1: GENERAL

1-01: Reference to Other Documents: The General Conditions, Special Conditions and Division 1 contain requirements relevant to work covered by this section.

1-02: Work Included: This section includes labor, materials, equipment, and related services necessary to furnish and install wood doors as called for by drawings (Door Schedule) and as specified herein. See the following sections for related work:

- Section 081100 Metal Doors & Frames
- Section 087000 Finish Hardware
- Section 088000 Glass & Glazing
- Section 099000 Painting

1-03: Submittals : Submit one (1) Digital set shop drawings scheduled to show door elevations, construction, swing, label, undercut and applicable hardware locations. Show dimensions and detail openings for glass lites, louvers and grilles. Submit actual veneer samples of doors to be factory finished with the standard finishes available, or a color sample will be furnished by the Architect to manufacturer for duplication.

1-04: Substitutions: For purposes of establishing type and quality of materials required for work included in this section, manufacturer's names, types, patterns, etc., are used. Equal products of other manufacturers will be acceptable, provided that requests for substitutions are accompanied by supporting technical literature, samples, and performance data for comparative evaluation 10 days prior to receipt of bids. Products approved for use include:

- ALGOMA HARDWOOD, INC., Algoma WI (800.558.8032)
- WEYERHAEUSER, INC., Jackson MS (601.981.9611)
- MOHAWK DOORS, North Umberland, PA (570.473.3557)

*See note about matching existing doors in section 2-05: Pre-Finishing

1-05: Delivery, Storage and Handling: No doors shall be delivered to the building until weatherproof storage space is available. Store doors in an area having controlled temperature and humidity range 30-60%. Stack doors flat and off the floor, supported to prevent warpage. Protect doors from damage and direct exposure to sunlight. Wrap factory finished doors individually in polybags to protect finish from damage. Damaged doors shall be repaired or replaced at no cost to Owner.

1-06: Quality Standards

- 1) Production of wood doors shall conform with requirements of:
 - AWI, Sections 1300 & 1500.
 - NWWDA, IS-1 Series.
 - NEMA
 - NFPA

All doors shall be the product of the same manufacturer to insure uniformity of quality and appearance throughout the project.

- 2) Labeled wood doors for this project shall be "B" Label 1-1/2 hour (90 minute), 1 hour 60 minutes, or 1/3 hour (20 minutes as listed on drawings. Underwriters Laboratories or Warnock Hersey Rating for Fire Doors. All doors in one hour rated corridors shall be labeled. Closure hardware is required in rated corridors. Discrepancies between architectural drawings and procedures and limitations set forth by testing agencies shall be brought to the Architect's attention at the submission of shop drawings. Provide each fire-rated door with a label permanently attached to either the hinge stile or top rail, showing testing agency approval for classification scheduled.

3) Non-labeled wood doors shall meet construction requirements for 1/3 hour (20 minute) UL or Warnock Hersey Rating for Fire Doors.

4) One door may be randomly selected by the Architect for destruction testing to ascertain if the manufacturer has complied with specifications, if quantities warrant.

1-07: Moisture Content: Wood used in door construction shall be thoroughly seasoned, kiln-dried, with moisture content not less than 5% and not greater than 8%.

1-08: Warranty: All work in this section shall be warranted from the date of Certificate of Compliance against defects in material and workmanship, including the following:

- Delamination in any degree.
 - Warp or twist of 1/4" or more in any 3.5'x7.0' section of door.
 - Telegraphing of any part of core assembly through face to cause surface variation of 0.01" or more in a 3" span.
 - Any defect which may in any way impair or affect performance of door for the intended purpose.
- Replacement under this warranty shall include hanging, installation of hardware and finishing.

Periods of warranty after date of installation:

- | | | |
|----------------------------------|---|----------------------|
| - Interior solid or mineral core | - | Life of installation |
| - Exterior solid core | - | 5 year |
| - Interior hollow core | - | 5 year. |

Doors must be stored, finished, hung and maintained per manufacturer's recommendations set forth in their limited warranty.

1-09: Certification: Veneer faced wood doors to have Smart Wood Certificate approved by the Rain Forest Alliance and/or be approved and certified by the FSC (Forest Steward Council).

PART 2: PRODUCTS

2-01: General: Doors shall be of sizes, thickness, and types listed in Door Schedule and shown on drawings. Door manufacturer shall coordinate hardware, door, louver and glazing schedules with door and frame shop drawings. Door manufacturer shall supply to General Contractor printed instructions and recommendations for installation; 2 copies shall be submitted to Architect before installation is begun. Verify proper clearance for door swing and threshold height installation at floor finish transitions (refer to Finish Schedule and Door sill Details).

2-02: Wood Doors:

A. Doors shall be Premium Grade Natural Plain Sliced Red Oak veneer faced architectural units equal to Masonite Architectural ASPI3-0 Series, color to be Toast. Doors shall be composed of particleboard core with stiles and rails bonded to core under side pressure with high frequency method of cure and veneered with hardwood plies.

2-03: Physical Requirements

- 1) Thickness - 1-3/4"
- 2) Maximum Size – pre-fit or stock sizes up to 4'-0" x 8'-0", labeled (90 min.) up to 4'-0" x 8'-0" max. for singles.
- 3) Core Construction - solid particleboard core shall conform to Type I density (28-30 pcf), Class 1, Commercial Standard #236-66. Provide core reinforcement material for surface mounted closers and exit devices as required.
- 4) Stiles (dimensions given are min. sizes allowed after factory trimming to book size or pre-fitting) - 1-3/8" min. 2-ply edge strips glued to core; outer 5/8" ply species compatible with face veneer. Lamination to core on 4 sides shall conform with AWI 1300 - G-3, Spec. Symbol PC-5, PC-7 or PC-HPL.
- 5) Rails (dimensions given or min. sizes allowed after factory trimming to book size or pre-fitting) - 1-3/8" min. 2-ply mill-option hardwoods.

6) Cross Bands - thoroughly oven-dried hardwoods, 1/16" minimum thickness extending full width of door and laid with grain at right angles to face veneers.

7) Adhesives - cross bands and faces shall be laminated to cores with Type I, Melamine Fortified Urea Glue using hot plate process; edge bands shall be laminated to cores with Type II water-resistant glue using high frequency method.

2-04: Cutouts for Lights and Louvers: Edge of any opening shall be no closer than 5" to edge or top of door and no closer than 8" to bottom of door. Where kick plates occur, edge of cutout shall be 2" above kick plate. There shall be not less than 5" between any light/louver cutout and any hardware or lock cutout. See Door Schedule Drawings for cutout dimensions.

2-05: Pre-finishing: Door shall have factory-finished faces, details and stiles; rails shall be sealed. Finish shall be equal to catalyzed conversion varnish equal to A.W.I. Section 1500 System #3, Premium Grade.

*Door finishes to match existing doors. Existing doors are Masonite Architectural ASPI3-0 Series, Red Oak Plain Sliced Veneer, Toast Color

2-06: Pre-machining: Doors shall be sized and machined at the factory to receive all required hardware other than surface mounted items. After hanging, maximum clearance shall be 1/8" each side and top; bottom clearance for labeled (90 min.) door shall be 1/4" over non-combustible sill, if any, or 1/2" over non-combustible floor.

PART 3: EXECUTION

3-01: General: Installation of doors shall be coordinated with application of finish hardware. Manufacturer's recommendations shall be followed in hanging doors. Surfaces shall be protected against physical damage, stain, discoloration or other injury, until project is accepted by Owner and Architect.

3-02: Machining and Fitting: All wood doors shall be machined by the manufacturer for cutouts, hinges, locks and other hardware requiring routing or mortising. Any required rabbeting to properly hang doors shall be performed by the manufacturer prior to finishing. Size doors to allow 1/8" clearance at top and each side, and 3/4" at bottom (unless specified otherwise). Do not pre-drill for surface-applied hardware.

3-03: Installation of Hardware: General Contractor shall install hardware according to approved hardware schedule. Install hardware with full-threaded wood screws furnished by hardware manufacturer. Drill proper size pilot hole for all screws. Securely anchor hardware in correct position and alignment. Adjust hardware and door for proper function and smooth operation, proper latching, without force or excessive clearance.

3-04: Installation of Fire Doors: Fire-rated doors shall be installed according to the requirements of the labeling agency and NFPA #80 and #101.

3-05: Factory Finishing: Manufacturer shall pre-finish wood doors according to AWI Quality Standards Section 1500 Specification for System #3. Satin and semi-gloss finish will be standard unless specified otherwise. Finish samples shall be approved by the Architect prior to manufacturing or finishing of wood doors in the factory.

3-06: Hardware Installation: The manufacturer's representative for the locking devices and closing devices must inspect and approve, in writing, the installation of their products. Hardware installed incorrectly must be reported to the architect prior to the architect's final punch list.

END OF SECTION

SECTION 087000: FINISH HARDWARE

PART 1: GENERAL

1-01: Reference to Other Documents: The General Conditions, Special Conditions and Division 1 contain requirements relevant to the work covered by this section.

1-02: Work Included: This section includes furnishing of finish hardware and items related to the new and existing doors as indicated on the drawings and specifications, except hardware specified under other sections as follows:

Section 083000 Access Doors

1-03: Allowance for Hardware:

Prime Contractor shall include in his Bid the following sum to cover costs of purchasing finish hardware in Section 2-03: Hardware Sets, other than that excluded in Paragraph 1-02 above. Installation of hardware shall be included in the Prime Contractor's Base Bid separate from this allowance. Allowance shall include material cost of the hardware, delivery to the site and sales tax.

Allowance for Purchasing All Base Bid Finish Hardware: **\$60,000**

Door Hardware Subcontractor will be required to provide an itemized breakdown of all the door hardware for reconciliation of the finish hardware allowance after the hardware is ordered and installed. Do not complain when this is requested.

1-04: Hardware Schedule: Prime Contractor shall submit one (1) Digital copy of complete hardware schedule for review before hardware is ordered. Upon receipt of approval from Contractor, Supplier shall box each item of hardware separately, with each box labeled to denote contents and position in building as scheduled. Additional schedules shall be furnished for use on site.

1-05: Keying: Supplier will coordinate master keying with Durham County Maintenance key shop, and keying groups with a representative of Maintenance Dept. Supplier to furnish Architect and Contractor with schedule of groups which are to be keyed alike and which are to be keyed differently; he will also determine number of keys per lock, of master keys per group, and of grand-master keys. For Bidding purpose all interior keyed locks shall be supplied with three (3) keys for specific lock. Cylinders for use on this project shall be by Best Lock Corp. (Indianapolis, Indiana) as required by Owner. Best Security Level for Key System shall be currently highest requiring written authorization for duplication and shall be duplicated only under Best Locks supervision. Verify core system standards with the Durham County representative.

Locks, magnetic releases, electronic latch releases and interconnection with fire alarm system shall be provided by General Contractor and manual disconnects or key releases shall be coordinated with hardware supplier, installer and Best keying system.

1-06: Substitutions: For purposes of establishing type and quality of material specified for use on this project, manufacturer's names and brand names are used. Equal products of other manufacturers will not be accepted as the owner has other facilities that use the same hardware and desires to standardize their systems. Manufacturer's approved for use: See Durham County Door Hardware Specification Guideline.

1-07: Rating Testing: All hardware for all rated doors must be UL rated for the rating required. Doors, frames and hardware will be required to be tested by a third-party door rating inspector, who shall be contracted and paid for by the general contractor. If you are a door supplier and you just read the previous sentence and have not brought it up with the GC who gave you this specification, shame on you. Any doors that do not pass inspection by the third-party inspector will be required to be adjusted and modified as needed at no cost to the owner.

PART 2: PRODUCTS

2-01: General: Hardware for doors and frames shall be made to templates and furnished with machine screws to metal and wood screws to wood. The Prime Contractor shall coordinate Hardware Supplier with Hollow Metal Manufacturer and Door Suppliers to exchange schedules and furnish templates promptly.

2-02: Products shall be the manufacturer's numbers and models as indicated on the Durham County Door Hardware Specification Guideline below.

Description	Manufacturer	Model / Series	Finish
<u>Hanging Devices</u>			
Mortise Hinge	Stanley	FBB199 Drs over 36" as required FBB191 Drs. Up to 36" FBB168 Interior Drs over 36" FBB179 Interior Drs. up to 36" • NRP (Non Removable Pin) at Reverse bevel locked Doors.	US32D US32D US26D US26D
Alternate	No Substitution		
Alternate	McKinney		
Alternate	Hager		
Continuous Hinge	Stanley	Geared: 661 (Standard Duty) / 661 HD (Heavy Duty) • Use full Mortise units for all new construction projects.	AL
Alternate	No Substitution		
<u>Securing Devices</u>			
Mortise Lock Set	Best	45H x 14H	626
	<u>Lock Function</u>	<u>Lock Type</u>	
	AB	Entrance Lock or Office	
	R	Classroom Function	
	INL, IND	Intruder Function	
	D	Storeroom Function	
	N	Passage	
	L	Privacy	
		• Provide lock functions as required for project as appropriate	
Alternate	No Substitution		
Mortise Deadbolt	Best	48H Series	626
Alternate	No Substitution		
Cylindrical Lock Set	Best	93K x 14D	626
	<u>Lock Function</u>	<u>Lock Type</u>	
	AB	Entrance Lock or Office	
	R	Classroom Function	
	D	Storeroom Function	
	IN	Intruder Function	
	N	Passage	

	L	Privacy	
		• Provide lock functions as required for project as appropriate	
Alternate	No Substitution		
Description	Manufacturer	Model / Series	Finish
Wired			
Electrified			
Mortise Lock	Best	45HW x 14H	626
		93KW x 14D	626
	<u>Lock Function</u>	<u>Lock Type</u>	
	DEU	Electrically unlocked (Fail Secure)	
Alternate	No Substitution		
Wireless	ASSA Abloy	IN120	626
Electrified		- Aperio Technology	
Mortise Lock		- Integrate with existing security system	
Cylinders/Cores	Best	Mortise 1E74 x RP3 x cam required	626
		Rim 1E72 x RP	626
		• Provide as necessary to operate locking hardware	
Alternate	No Substitution		
Key System	Best	Removable/Interchangeable Core	626
		7-pin Best "Patented CorMax" Existing key system.	
		2 keys per lockset.	
		• Provide "Serialization" of keys	
		All Cylinder and cores must be manufactured by BEST.	
Alternate	No Substitution		
Exit Device	Precision	2100 Rim Series	630
(Electric and Non-Electric)		• Mullion KR822	
		2700 Concealed Vertical Rod Series (wood doors)	630
		2800 Concealed Vertical Rod Series (metal doors)	630
		• "CD" Cylinder dogging at all non rated devices	
		• Use Escut. with Round Pull 1700 C Series where applicable	
		• Use Escut. with Lever 4900 Series where applicable	
		• Lever handle shall match lockset design	
		• "SNB" Sex Nuts and Bolts at label doors as required	
		• Provide "FL" Fire rated devices at label openings	
		• Provide "LBR" Less Bottom Rod devices as required	
		• Provide "ELR" Electric Latch Retraction as required	
		• Provide "RQE" Request to Exit feature as required	
		• Use rim devices wherever possible. Where not possible, use Concealed Vertical Rod devices x LBR on metal leaves.	
Alternate	Sargent		
Alternate	Von Duprin		

Description	Manufacturer	Model / Series	Finish
Flush Bolts	Trimco	3917 (Manual (metal doors)	626
		3915 (Manual (wood doors)	626
		3810 (Automatic) (metal doors)	626
		3815 (Automatic (wood doors)	626
		• Use automatic flush bolts where required by fire code or IBC • Provide coordinator and brackets as required to meet fire door requirements • Dust Proof strike as required	
Alternate	ABH		
Alternate	Baldwin		
Alternate	Burns		
<u>Coordinator</u>	Trimco	3094 Series	600
		Mounting brackets as required	
Alternate	ABH		
Alternate	Baldwin		
Alternate	Burns		
<u>Closing Device</u>			
Closer	Stanley	D-4550/D-4551 Series	689
		• Provide standard duty Parallel arms interior/low traffic • Provide heavy-duty EDA.CS Parallel arms on all PA applications • All door frames to be reinforced • “SN” Sex Nuts and Bolts at label doors as required	
Alternate	Norton		
Alternate	LCN		
<u>Automatic Operators</u>			
Electro-Mechanical			
Automatic Operator	Stanley	D-4990 Low Energy Heavy-Duty	689
		• Provide at ADA required locations	
Actuation	Stanley	Push Plate CL4163 Push Plate Type	630
Alternate	Norton		
Alternate	LCN		
<u>Stops & Holders</u>			
Door Stop	Trimco	1211 Floor stop	626
		1270WV (Concave)/1270WX (Convex Wall Stop	630
		• Allow for maximum swing of doors	
Alternate	ABH		
Alternate	Baldwin		
Alternate	Burns		
Description	Manufacturer	Model / Series	Finish

Overhead Stops	ABH	9000 Series	630
Alternate	Rockwood		
<u>Accessories</u>			
Offset Pull	Trimco	1191-3 10" CTC	630
		• All Exterior doors	
Alternate	ABH		
Alternate	Baldwin		
Alternate	Burns		
Straight Pull	Trimco	1195-2 10" CTC	630
Alternate	ABH		
Alternate	Baldwin		
Alternate	Burns		
Push Plate	Trimco	1001-3 4" x 16"	630
Alternate	ABH		
Alternate	Baldwin		
Alternate	Burns		
Kick Plate	Trimco	KO050 10" x 2" LDW x B4E (Single doors)	630
Alternate	ABH		
Alternate	Baldwin		
Alternate	Burns		
Mop Plates	Trimco	KM050 4" high x 1" LDW x B4E	630
Alternate	ABH		
Alternate	Baldwin		
Alternate	Burns		
Threshold	National Guard	425 (1/2" x 5" Saddle threshold	
		• Furnished as detailed on drawings, if shown	
Alternate	Zero		
Alternate	Reese		
Door Sweep	National Guard	601 A (brush) (interior)	
		C627 A (brush) (exterior)	
Alternate	Zero		
Alternate	Reese		
Smoke/Fire Seal	National Guard	9750 B (verify color)	
		• Coordinate use of Intumescent Seals with wood door mfr.	
Alternate	Zero		
Alternate	Reese		
Description	Manufacturer	Model / Series	Finish
Sound Seal	National Guard	• Use double row of 9750 for Sound Seal as required	

		• Coordinate use for sound seal with sound rated doors
Alternate Alternate	Zero Reese	
Light Seal	National Guard	107 NA (at head and jambs) Door bottom and threshold as required • Used at Dark Rooms
Alternate Alternate	Zero Reese	
Weather Seal	National Guard	9002 A (silicone) (at head and jambs) 9600 A (brush) (at head and jambs)
Alternate Alternate	Zero Reese	
<u>Miscellaneous</u>		
Key Control Software	Best	Keystone 600N (if existing, upgrade may be required)
Door Position Switch	SDC	MC-4M • Provide at all electrified openings
Alternate	Rutherford	
Power Transfer Alternate	ABH SDE	PT1000
Power Supply Alternate	Precision SDC	ELR 150 Series
<u>Access Control</u>		
Access Control		Coordinate electro-mechanical hardware requirements such as Locks and electrified Exits with Access Control Supplier.

NOTE 1: All new hardware shall match existing brass finish of the existing hardware throughout the building.

NOTE2 : This project requires coordination with another project to add security access control to the doors in this project. Budget money to deal with coordination and don't whine about it when it is required to keep the project running smoothly.

2-03: Hardware Sets: Required Hardware for this project shall be as follows:

HW SET 1:

Each to Receive:

Door B01C

- 1 continuous electrical hinge
- 1 electric exit device
 - electric latch retraction
 - ADA lever on exterior with key lock
 - request to exit
- 1 core and cylinder
- 1 closer
- 1 threshold
- 1 set gasketing
- 1 full door height strike guard
- 1 kick plate
- 1 door sweep

*Door to be prepped for security access control system, provide all wiring required for proper operation of door

HW SET 2:

Each to Receive:

Existing Doors

147B

- 1 wireless electric mortise lock
- Integrate with existing security system
- 1 core and cylinder

HW SET 3:

Each to Receive:

Existing Door

E248

- 2 narrow style panic devices
- W/ keyed lock and ADA levers
- Surface mounted top rod locking
 - Prepare frame for locking

HW SET 4:

Not Used

HW SET 5:

Each to Receive:

Doors 302, 402

M402, 501, 502

212, 226

- 1 electric exit device w/retractable latch
- mortise or rim as required, verify in field
- delayed egress, open on fire alarm or 30 seconds after push
- request to Exit (integrate with security system)
- open on security access control signal
- 1 core and cylinder
- 3 standard hinges
- 1 electrical hinge (new doors and frames)
- 1 armored loop (existing doors and frames)
- 1 overhead stop
- 1 closer

*Door to be prepped for coordination with security entrance system and fire alarm system, provide all wiring required for proper operation of door

HW SET 6:
Each to Receive:
Doors 156A, 156B
247B, E247A

3 hinges
1 wireless electric mortise lock
1 core and cylinder
1 closer w/ overhead stop
1 wall stop
1 strike guard
1 set of mutes

*Door to be prepped for security entrance system, provide all wiring required for proper operation of door

HW SET 7A:
This hardware set is
for the exterior gate
on the lower level at
the lower level entry

1 electric exit device with w/ retractable latch
- mortise or rim as required, verify in field
- request to Exit (integrate with security system)
- open on security access control signal
1 armored door loop
1 strike guard

PART 3: EXECUTION

Installation of hardware is specified in Section 081000 and Section 081400.

END OF SECTION

SECTION 088000: GLAZING

PART 1: GENERAL

1-01: Reference to Other Documents: The General Conditions, Special Conditions and Division 1 contain requirements relevant to work covered by this section.

1-02: Work Included: This section includes labor, materials, equipment and related services necessary to furnish and install glass in partitions, existing exterior curtain walls, interior hollow metal windows, door vision panels and sidelights, with related accessories and specialties as called for by drawings and specified herein. Related products specified elsewhere include the following: Framed Mirrors - Section 102800.

1-03: Substitutions: For purposes of establishing type and quality of materials required for work included in this section, manufacturer's names, types, patterns, etc., are used. Equal products of other manufacturers will be acceptable, provided that requests for substitutions are accompanied by supporting technical literature, samples, and performance data for comparative evaluation 10 days prior to receipt of Bids. Manufacturers approved for use include:

Libbey-Owen-Ford Company
PPG Industries
Hordis Company

Spandrel Glass Manufacturers include:
Viracon Glass, Owatonna, MN. (800.533.2080)
Precision Glass Bending, Greenwood, AR. (800.543.8796)
AFGD, Inc., Atlanta, GA (800.766.2343)

"Break-in Type" Safety Glass Manufacturers include:
Viracon Glass, Owatonna, MN. (800.533.2080)
AFGD, Inc., Atlanta, GA (800.766.2343)
Old Castle Glass, Rockhill Specialty Manufacturing, Rockhill, SC (866-653-2278)
USA Security, Carrollton Texas, (800-237-8899)

1-04: Reference Standards

- 1) ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.
- 2) ASTM E84 - Surface Burning Characteristics of Building Materials.
ASTM C1036- Standard Specifications for Flat Glass
- 3) SIGMA No. 64-7-2 - Specification for Sealed Insulating Glass Units.

1-05: Quality Assurance: Conform to Flat Glass Marketing Association (FGMA) Glazing Sealing Systems Manual for glazing installation methods.

1-06: Submittals: Submit one (1) copy of product data of each type of glass being furnished under this section. Include data on glazing sealant, gaskets, or compounds being used in various locations. Submit color chart for selection by Architect of color of proposed glazing sealants. Submit sealed glass unit manufacturer's certificate indicating units meet or exceed specified requirements.

1-07: Warranty: Provide 5-year manufacturer's warranty for sealed glass units covering seal failure, interpane misting or dusting, and replacement of same.

PART 2: PRODUCTS

2-01: General: Glass shall be furnished with labels showing strength and quality shall be attached to each piece of glass; or, if glass is not cut to size by Supplier but furnished unlabeled from local stock, Contractor shall submit an affidavit stating quality, thickness, type and manufacturer of glass furnished.

2-02: Types of Glass:

- 1) 1/4" thick clear tempered glass, equal to L.O.F., at all interior hollow metal frames, at all interior wood lights. Note: Use Sagano 3M Fasara Interior Design Film as shown on Sheet A28.
- 2) 1/4" thick tempered glass mirror, silver backed.
- 3) 1/2" clear tempered glass equal to LOF sidelites at Doors 104, 105.
- 4) 1/4" thick clear tempered glass at new aluminum frames – Alternate G-5. Note: Use Sagano 3M Fasara Interior Design Film as shown on Sheet A28A.

2-03: Glazing Compound, Tapes, and Gaskets: Glazing compound shall be an approved polysulfide or silicone compound. Tapes and gaskets shall be butyl or polybutylene. Compounds for Fire Rated Glazing System shall be as approved for specific product and rated in accord with assembly.

PART 3: EXECUTION

3-01: Installation of Glass: Glazing procedures shall conform to manufacturer's recommendations. Glazing operations shall be carried on only when temperature is 40 degrees F., or above. Surfaces of glass and metal members, which retain glass shall be clean and dry. Glass shall be cut to provide adequate bite, with room for expansion and contraction and perimeter clearance sufficient to avoid point loading. Glass shall have edges clean cut and cushioned to prevent contact with hard materials during and after installation. At completion of work, glass shall be free of cracks, scratches, and other defects not permitted by specifications. Defective glass shall be removed and replaced with new glass at not cost to the Owner.

END OF SECTION

DIVISION 9

FINISHES

SECTION 092116: GYPSUM WALLBOARD

PART 1: GENERAL

1-01: Reference to Other Documents: The General Conditions, Special Conditions and Division 1 contain requirements relevant to work covered by this section.

1-02: Work Included: This section includes labor, materials, equipment, and related services necessary to furnish and install gypsum wallboard for interior finish and backerboard substrate related accessories and specialties called for on drawings and specified herein. Metal studs are specified in Section 054000.

1-03: Examination of Adjacent Work: Areas in which drywall systems are to be installed shall be examined by Drywall Subcontractor; defects which should be corrected before installation of drywall materials shall be reported to General Contractor and Architect. Drywall materials shall not be installed until work of other trades is in compliance with applicable requirements of Appendix A of ANSI Standard A97.1. Installation of drywall components shall constitute acceptance of substrate material by Subcontractor.

1-04: Delivery and Storage of Materials: Materials shall be delivered in original packages, containers, or bundles bearing name of manufacturer and fire rating. All materials shall be kept dry by storing inside building under roof. Wallboard shall be neatly stacked flat, with care taken to prevent undue sagging, or damage to edges, ends or surfaces. Damaged materials will not be accepted.

1-05: Humidity and Temperature Control: Application of wallboard shall not begin until building has approached as closely as possible the moisture content it will reach in service. Ventilation shall be provided, if necessary, to maintain a uniform temperature range of 55 to 70 degrees F.

1-06: Substitutions: For purposes of establishing type and quality of materials required for work included in this section, manufacturer's names, types, patterns, etc., are used. Unless otherwise noted, all product numbers/names in this section refer to United States Gypsum products. Equal products of other manufacturers will be acceptable, provided that requests for substitutions are accompanied by supporting technical literature, samples, and performance data for comparative evaluation 10 days prior to receipt of Bids. Manufacturers approved for use include:

United States Gypsum Co.
National Gypsum Co.
Georgia Pacific
CertainTeed

PART 2: PRODUCTS

2-01: Cold Rolled Channels and Hanger Wire: Carrying channels shall be painted cold-rolled steel 1-1/2"x9/16"x0.0653" (16 gauge) thickness tied back-to-back with 18 SWG galvanized steel wire 48" o.c. and suspended with 12 SWG galvanized steel wire to joist lower chords or around beams at 48" o.c. max. at each end. Furring channels for lath attachment shall be 3/4"x1/2"x0.0635 (16 gauge) thickness spaced 16" o.c. and tied to carrying channels with 18 SWG wire at 48" o.c. max. and at each end. Extend carrying channels to within 6" of wall surface and furring channels to approximately 1" from wall surface. Splice furring channels with minimum 24"1. Channel back-to-back with 18 SWG wire wrapped at ends and each side of splice. Where light fixtures or other openings occur, box out opening with carrying channels and suspend corners and midpoints of opening with 12 SWG wire to structure at distance not to exceed 48" o.c.

2-02: Metal Trim Molding: Minimum 0.0336" thick (22 gauge) galvanized steel molding equal to USG no. 402 (5/8" & 1 1/8" legs) around openings and secured to carrying channels with 1" Type S drywall fasteners. Spacing of fasteners approximately 8" o.c. along dimension and 10" o.c. along short dimension of opening.

2-03: Wall Angle: Minimum 0.0217" thick (26 gauge) galvanized steel angle with 1-1/4" legs, secured to walls along perimeter of ceiling to support steel framing member ends and for attachment of lath or drywall.

2-04: Gypsum Wallboard: All wallboard shall comply with requirements of ASTM C36 and bear UL Classification Marking and shall be 48" wide and of greatest practicable lengths for reduced number of joints; thickness shall be 5/8" throughout, unless otherwise listed on drawings

a) Wallboard for interior partitions, ceilings soffits and furred walls shall be equal to U.S. Gypsum Co., SHEETROCK® Brand Mold Tough® ULTRACODE® Gypsum Panels, or equal to Gold Bond® BRAND XP® Gypsum Board with Sporgard™* and meeting UL Classification, where indicated

b) Wallboard for interior use at areas of high humidity noted shall be U.S. Gypsum's Firecode "C" Exterior Gypsum Ceiling Board, moisture and mold-resistant drywall, as indicated on drawings.

c) Wallboard for use in Toilets, Janitor Space, Mechanical Rooms or other high humidity areas shall be equal to USG 5/8" Th. "Humitek" gypsum panels with UL Classification.

d) USG Vinyl-faced Gypsum panels 5/8" thick, Firecode core shall be used as indicated on drawings.

2-05: Cement Board: Ceramic tile backup on all wall surfaces shall be equal to USG Durock Interior Tile Backer Board, 1/2" thick x 36" w. x longest practicable lengths. Board is composed of aggregated Portland cement with woven glass-fiber mesh embedded in back and front surfaces.

2-06: Trim Accessories:

a) Corner reinforcement: USG "Dur-A-Bead" heavy gauge No. 103.

b) Metal Trim: Interior - USG No. 200-A; Exterior - USG No. 402 metal.

c) Control Joints: USG No. 093, interior and exterior, where applicable.

2-07: Fasteners:

a) Wallboard to Steel Framing - 1", and 1 5/8" Type S Buglehead

b) Wood Trim over Wallboard to Steel Framing - 1-5/8" Type S or S-12 Trim Head.

c) Cement Board to Steel Framing - 1-5/8" Durock steel screws.

d) Wallboard to Wood Framing - 1 1/4" Type W Buglehead

e) Gypsum sheathing to steel studs - 1" and 1 5/8" Type S-12

2-08: Joint Treatment – Interior:

a) Wallboard: USG Perf-A-Tape. & as req. by manufacturer for areas requiring Humitek or equal moisture and mold resistant gypsum panels

b) Cement Board: Durock Type P Tape.

c) Joint Compounds: First Coat (embedding tape, over beads, spotting fasteners) - USG Compound Taping. At cement board, use basecoat for thin-set application - see Section 093000, Ceramic Tile.

Second Coat (filling over tape, beads, and fasteners) - USG Ready-Mixed Compound

Topping for use with fire rated and mold resistant wallboard.

Third Coat (finishing over tape, beads, and fasteners) - USG Ready-Mixed Compound

Topping for use with fire rated and mold resistant wall board.

PART 3: EXECUTION

3-01: General: Work specified in this section shall be performed by personnel experienced and skilled in erection and finishing of drywall components.

3-02: Installation of Drywall Ceiling: Install wallboard with long dimension perpendicular to metal framing with side joints centered along runner. Fasten wallboard to framing channels with 1" long drywall fasteners at 12" o.c. along end joints, 8" o.c. along side joints, and 12" o.c. at intermediate framing. End joints of adjacent wallboard sheets shall be staggered not less than 48" o.c. with adjacent panels. Secure wallboard sheets to leg of wall angle with fasteners spaced 8" o.c.

3-03: Installation of Interior Gypsum Board: Panels shall be installed face out with long dimension perpendicular to furring channels or, if vertical, with edges over furring channels or studs. Edges and ends shall be fitted closely, but not forced together. Maximum practical lengths of wallboard shall be used; units shall not be "placed" at door frames. Joints shall be staggered on opposite sides of partitions. Cutouts shall be neatly made at outlets, switch boxes, etc. Screws shall be 1" long, spaced a maximum of 8" o.c. along abutting edges and 12" o.c. at ends, and 12" O.C. at intermediate framing. Distances of screws from edges or ends of panels shall be not less than 3/8". Dimples shall be not over 1/32" deep; face paper shall not be broken. Screws shall be installed with electric screw gun.

3-04: Cement Board Installation: Follow similar methods as wallboard except that fastening of boards to metal framing shall be with screws spaced 6" o.c.

3-05: Taping and Finishing: Apply a thin uniform layer of compound to joints and angles to be reinforced. Immediately apply tape, center over joints and seat into compound. Provide sufficient compound under tape approximately 1/64" to 1/32" for proper bond. Apply skim coat immediately following tape embedment. Fold tape and embed in angles to provide true angle. Allow to harden prior to application of fill coat. Apply compound over taping skim coat. Fill board, taper flush with surface. On non-tapered joints, apply compound over tape and feather out at least 4" on either side of joint. Do not apply filling coat to interior angles. Apply compound evenly over and extending slightly beyond fill coat on all joints. Feather to a smooth, uniform finish. Over tapered edges, finished joint shall not protrude beyond plane of surface. Apply compound at taped angles to provide a true angle. Fastener depressions shall have a minimum of three coats of compound; each coat shall be allowed to dry or harden before succeeding coat is applied. Each coat shall be feathered out from ground to plane of adjacent surface, each slightly beyond preceding coat. Sanding of compound, to provide flat, smooth surface acceptable for application of finish specified.

END OF SECTION

SECTION 099000: PAINTING

PART 1: GENERAL

1-01: Reference to Other Documents: The General Conditions of the Contract and Division 1 contain requirements relevant to work covered by this section.

1-02: Work Included: This section includes labor, materials, equipment, and related services necessary to provide and apply paints, sealers, and related materials called for by drawings and finish schedule and specified herein. In general, all exposed surfaces of factory and/or shop primed work that is delivered to job site without final finish, shall be painted under this section by the General Contractor. Exposed electrical, plumbing, and HVAC equipment in public spaces, excluding mechanical spaces to be painted by the respective trade, shall be painted by the General Contractor. Work covered by this section shall be coordinated with work of other trades; surfaces which are left unfinished by requirements of other sections of specifications shall be painted or otherwise finished as required in this section. Altered existing work or damaged surfaces that have been repaired shall be painted under this section. Finishes shall match existing adjacent surfaces.

1-03: Samples and Colors: Maximum number of different colors which will be used for interior painting will be eleven; not more than three different paint colors will be used in any one space. General Contractor shall obtain color selections from Architect for all types of work and shall prepare samples of each type and color for approval. Samples shall be applied to surfaces which represent surface to be painted; they shall have required number of coats and be treated and finished in same manner as completed work. In lieu of preparing sample panels to show finish and color, Contractor shall have option to prepare a room (complete or in part) to establish standard for workmanship and appearance of finish. See 1-05 below for additional information.

1-04: Storage and Protection: Materials to be used on project shall be stored in an area approved by Paint Suppliers and Architect. Storage spaces shall be protected against damage from spilled or carelessly handled materials and shall be safeguarded against fires. Used rags shall be kept in closed metal containers; paints and other liquids shall be kept covered. All stored materials shall be stored outside building in storage facility equipped to maintain temperatures above manufacturer's low temperature storage requirements or off site.

1-05: Environmental Conditions: Materials specified are assumed to be low or no VOC type coatings. Should manufacturer's specifications change, Architect shall be notified and appropriate coatings submitted for review and approval prior to acceptance for use at this facility. Surfaces to be painted shall be thoroughly dry and clean of any oils or material which will prohibit proper bonding of paint. Painting shall be done at temperatures recommended by manufacturer for air, humidity and surface to receive paint. Failure to comply with these recommendations shall be cause for rejection of work or repainting.

For interior work, temperature of spaces in which painting is being done, or where paint and finish are drying, shall be maintained above 60 degrees F.

1-06: Inspection of Surfaces: Surfaces to be finished under this section shall be examined before work is begun by Painting Subcontractor to determine if they are in condition to receive finish specified. Report improper conditions to General Contractor and to Architect in writing; work shall not proceed until proper substrate conditions have been obtained. Coatings scheduled to be applied to existing "painted surfaces" shall be tested for primer and finish coat compatibility and bond strength prior to application. No work shall be done to surfaces that fail the coating/bonding test prior to remedy of surface bonding as required by the coating manufacturer. Application of paint or other coating to any surface shall constitute acceptance of substrate conditions for that surface and responsibility for finished product. Note General Contractor will be responsible for getting existing walls ready for repainting.

1-07: Approval of Coating Applications: General Contractor shall report to Architect application of each coat on each surface painted or otherwise finished. After coat has been applied, it shall be inspected and approved by

Architect before application of succeeding coat; failure to comply with this provision may result in Contractor's being required to recoat any areas not so reported and approved; no additional compensation will be allowed for such recoating work.

PART 2: PRODUCTS

2-01: General: In order to establish type and quality of materials required for work covered by this section, manufacturer's names and brands are listed in Subsection 2-03, Approved Materials. Products of other manufacturers equal in quality and in suitability for the usage intended, will be acceptable provided that requests for substitutions shall be accompanied by supporting technical literature, samples, and performance data for comparative evaluation 10 days prior to receipt of Bids. Materials for which no brand names are listed, such as thinners, shellac, linseed oil, wood filler, and turpentine, shall be of highest quality and shall have identifying labels on containers. Materials shall be delivered to site in their original containers, seals intact, with labels to include manufacturer's name, product name and number, color code and batch number, undamaged. All finish coats shall constitute a system; i.e., primer shall be compatible with top coat as recommended by paint manufacturer. Wet mil and dry mil thickness range is only a guide for film thickness required; actual film thickness shall be as stated by approved manufacturer for type of paint used.

2-02: All paint products to be low V.O.C. Approved Manufacturers include:

Sherwin Williams
PPG
Coronado

2-03: Approved Materials (Note: (3) coats of paint will be required on all existing walls)

TYPE	NO. OF COATS	WET MIL RANGE	DRY MIL RANGE
------	--------------	---------------	---------------

Finish No. 1: Ferrous Metal - Interior

Prime Coat:	1	4.0 - 5.0 W.M.	1.5 - 2.0 D.M.
Sherwin Williams Kem Kromik Universal Metal Primer B50 Series			
PPG Pitt-Tech Plus – 4020-PF / Devflex-4020-PF			
Coronado Rust Scat White Metal Primer 35-111			

Top Coats:	2	4.0 W.M. ea.	2.0-4.0 D.M. ea.
Sherwin Williams ProMar 200 Semi-gloss Enamel			
PPG Pitt-Tech Plus EP –90-1610 DTM Semi-gloss			
Coronado DTM Acrylic Semi-gloss 180 Series			

Finish No. 2: Galvanized Metal - Interior

Prime Coat:	1	3.0 - 4.0 W.M.	1.4 - 2.0 D.M.
Sherwin Williams Galvite High Solids B50W230			
PPG Pitt-Tech Plus – 4020-PF			
Coronado Perma-Bond Primer 100-10			

TYPE	NO. OF COATS	WET MIL RANGE	DRY MIL RANGE
Top Coats:	2	4.0 W.M. ea.	2.0-4.0 D.M. ea.
Sherwin Williams ProMar 200 Latex Semi-gloss Enamel			
PPG Pitt-Tech Plus – 90-1610 DTM Semi-gloss			
Coronado Acrylic Latex Semi-gloss Enamel 12 Series			

Finish No. 3: Concrete Block - Interior

Prime Coat:	1	6.0 - 20.0 W.M.	4.0 - 10.0 D.M.
Sherwin Williams Prep-Rite Interior/Exterior Block Filler B25W25			
PPG Speedhide Interior / Exterior Masonry Latex Block Filler 6-15XI			

Coronado Superkote Latex Masonry Filler 946-11

Top Coats:	2	4.0 W.M. ea.	1.5 D.M. ea.
Sherwin Williams ProMar 200 Latex Semi-gloss Enamel			
PPG Speedhide Zero Interior Latex 6-5510 Semi-Gloss Enamel			
Coronado Acrylic Latex Semi-gloss Enamel 90 Series			

Finish No. 4: Interior Concrete Block - Glazed Coating

Prime Coat:	1	6.0 - 20.0 W.M.	4.0 - 10.0 D.M.
Sherwin Williams Prep-Rite Interior/Exterior Block Filler B25W25			
PPG Speedhide Interior / Exterior Masonry Latex Block Filler 6-15XI			
Coronado Superkote Latex Masonry Filler 946-11			

Top Coats:	2	3.6 - 9.0 W.M. ea.	2.0 - 6.0 D.M. ea.
Sherwin Williams Water Based Catalyzed Epoxy			
PPG Aquapon WB EP Epoxy 98E Series			
Coronado Acrylic Epoxy 138 Line Series ,Semi-Gloss			

Finish No. 5: Gypsum Board/Plaster - Glazed Coating

Prime Coat:	1	4.0 W.M.	1.5 D.M.
Sherwin Williams Prep-Rite 200 Latex Primer B23W200			
PPG Speedhide Zero Interior Latex Sealer 6-4900XI			
Coronado Superkote Latex Masonry Filler 946-11			

Top Coats:	2	3.6 - 9.0 W.M. ea.	2.0 - 6.0 D.M. ea.
Sherwin Williams Water Based Catalyzed Epoxy			
PPG Aquapon WB EP Epoxy 98E Series			
Coronado Acrylic Epoxy 138 Series			

Finish No. 6: Gypsum Board/Plaster - Wall partitions

Prime Coat:	1	4.3 W.M.	1.1 D.M.
Sherwin Williams Prep-Rite 200 Latex Primer B23W200			
PPG Speedhide Zero Interior Latex Sealer 6-4900XI			
Coronado Super Coat Latex Primer-sealer 40-11			

Top Coats:	2	4.0 W.M. ea.	1.5 D.M. ea.
Sherwin Williams ProMar 200 Latex Semi-gloss Enamel			
PPG Speedhide Zero Interior Latex Semi-Gloss Paint 6-5510			
Coronado Latex Semi-gloss Enamel 90 Series			

Finish No. 7: Gypsum Board/Plaster - Interior Ceilings, Furred Soffits & Fascia Areas

Prime Coat:	1	4.3 W.M.	1.1 D.M.
Sherwin Williams Prep-Rite 200 Latex Primer B23W200			
PPG Speedhide Zero Interior Latex Sealer 6-4900XI			
Coronado Super Coat Latex Primer-sealer 40-11			

Top Coats:	2	3.0 W.M. ea.	1.2 D.M. ea.
Sherwin Williams ProMar 200 Latex Flat Wall Paint			
PPG Speedhide Zero Interior Latex Flat Paint 6-4110			
Coronado Flatwalls Flat Latex 24 Series			

Finish No. 8: Moisture Resistant Gypsum Board

Prime Coat:	1	3.2 - 4.0 W.M.	1.7 D.M.
Sherwin Williams Prep-Rite 200 Latex Primer B23W200			
PPG Speedhide Zero Interior Latex Sealer 6-4900XI			
Coronado Super Coat Latex Primer-sealer 40-11			
Top Coats:	2	9.5 W.M. ea.	6.0 D.M. ea. Sherwin
Williams Tile-Clad II High Solids Epoxy			
PPG Aquapon WB EP Epoxy Semi-Gloss 98E Series			
Coronado Acrylic Epoxy Enamel			

Finish No. 9: Interior Wood - Painted

Prime Coat:	1	3.1 W.M.	1.5 D.M.
Sherwin Williams Prep-Rite VOC-Complying Wall and Wood Primer B49WZ2			
PPG Seal Grip Interior / Exterior Universal Primer Sealer 17-921XI			
Coronado Alkyd Enamel Undercoat 37-11			
Top Coats:	2	4.0 W.M. ea.	1.5 D.M. ea.
Sherwin Williams ProMar 200 Latex Semi-gloss Enamel			
PPG Speedhide Zero Interior Latex Semi-Gloss Paint 6-5510			
Coronado Acrylic Semi-gloss Enamel 90 Series			

Finish No. 10: Interior Wood - Natural Finish

Prime Coat: Tint , as selected, with oil stain; fill voids with wood filler paste			
Sherwin Williams Natural Wood Filler D7051			
PPG Deft Interior Water-Based Sanding Sealer			
Coronado Sanding Sealer 67-11			
Top Coats:	2	3.3 W.M. ea.	
Sherwin Williams Waterborne Polyurethane Varnish A68 Series			
PPG Deft Interior Water-Based Polyurethane Acrylic / Satin Finish			
Coronado Polyurethane 67-100			

Finish No. 11: Interior Concrete Floors

Prime Coat: (Thin 20%)	1	W.M.	1.5 D.M.
Sherwin Williams Armour Tread-Flex WB Acrylic Floor Coating Primer B90W100			
PPG Aquapon WB EP Epoxy 98E Series			
Coronado Polyurethane Floor Finish 1231 Series			
Top Coats:	1 or 2 (as required)	10.0 W.M.	1.5 D.M.
Sherwin Williams Armour Tread-Flex WB Acrylic Floor Coating B90W100			
PPG Aquapon WB EP Epoxy 98E Series			

Finish No. 11b: Interior Concrete Floors, Mechanical / Storage other Utility Areas-Transparent Sealer

Prime Coat: (Thin 20%)	1	W.M.	1.5 D.M.
1. PPG Aquapon WB EP Epoxy 98 E Series			
2. Coronado Polyurethane Floor Finish 63 series			
3. Sherwin Williams Concrete and Terrazzo Sealer			
Top Coats:	2	W.M.	1.5 D.M. ea.
1. PPG Aquapon WB EP Epoxy 98E Series			

2. Coronado Polyurethane Floor Finish 63 series
3. Sherwin Williams Industrial Enamel

Finish No. 12: Ferrous Metal - Exterior

Prime Coat	1	4.0-5.0 W.M.	1.5-2.0 D.M
1. Sherwin Williams Kem Kromik Metal Primer 2. Coronado Rust Scat White Metal Primer 35-111 3. PPG Multi-Prime 4160 / Devguard 4160			
Top Coats:	2	4.5 - 5.5 W.M. ea.	2.0 - 2.5 D.M. ea.
1. Sherwin Williams Industrial Enamel Gloss B54 2. Coronado Urethane Alkyd Enamel Series M 31 3. PPG HPC Industrial Alkyd 4308 / Devguard 4308			

Finish No. 13: Galvanized Metal - Exterior

Prime Coat:	1	3.0 - 4.0 W.M.	1.5 - 2.0 D.M.
1. Sherwin Williams Galvite Primer 2. Coronado Perma-Bond Primer 100-10 3. PPG Multi-Prime 4160 / Devguard 4160			
Top Coats:	2	4.5 - 5.5 W.M. ea.	2.0 - 2.5 D.M. ea.
1. Coronado Urethane Alkyd Enamel Series M31 2. Sherwin Williams Industrial Enamel Gloss B54 3. PPG HPC Industrial Alkyd 4308 / Devguard 4308			

Finish No. 14: Painted Wood - Exterior

Prime Coat:	1	3.6 - 4.6 W.M.	2.2 D.M.
1. Sherwin Williams a-100 Exterior Oil Wood Primer 2. Coronado Oil House Paint Primer 9-11 3. PPG Seal Grip Interior / Exterior Universal Alkyd Primer Sealer 17-941NF			
TYPE	NO. OF COATS	WET MIL RANGE	DRY MIL RANGE
Top Coats:	2	4.5 W.M. ea.	2.5 D.M. ea.
1. Sherwin Williams Pro Mar Alkyd Flat Exterior B38W 2. Coronado Flat Oil House Paint 7 series 3. PPG Speedhide Interior / Exterior WB Alkyd			

Finish No. 15: Existing Exterior Masonry and Concrete Panel System

Preparation: Scrape, sand and power wash (min 2100 psi) and allow to dry, Repair cracks, voids and other penetrations with coating product manufacturer's patching material and / or sealants. Remove existing mildew with approved method prior to application of primer.

Prime Coat:	1	8.0 W.M.,	3.2 D.M.
1. PPG Perma-Crete Concrete and Stucco Primer 4-503 2. Coronado Masonry Sealer 48-11 3. Sherwin Williams Loxon Masonry Coatings			
Masonry Filler as Required:	1 Coat	5.0 W.M.	8.2-16.4 D.M
1. Sherwin Williams Prep-Rite Interior/Exterior Block Filler B25W25 2. PPG Speedhide Interior / Exterior Masonry Latex Block Filler 4-100XI 3. Coronado Superkote Latex Masonry Filler 946-11			
Top Coats:	1 or 2	10.0 W.M.	1.6 D.M. ea
1. PPG Speedhide Exterior Latex Semi-Gloss 56-410XI			

2. Coronado 138 series Epoxy Enamel
3. Sherwin Williams A-100 Exterior Paint Coating

2-03: Mechanical and Electrical Equipment: Items in Division 23 and 26 that require painting are to be executed under those contracts. Prime and finish coats applied to those items are specified in Paragraph 2-02. Painting including but not limited to following items are covered by this Section and shall be the responsibility of respective trades of those Divisions to provide required paint finish:

- Exposed steel piping
- Copper piping
- Cast iron piping
- Insulated piping
- Electrical conduit
- Fittings
- Ducts
- Hangers
- Supports

These items shall be primed as specified for their material and shall be painted to color of particular surfaces against which they occur unless directed otherwise by Architect or specified in Color Schedule.

PART 3: EXECUTION

3-01: Preparation of Surfaces:

- 1) Surfaces to be finished shall be free of imperfections or contamination which would interfere with uniform appearance, adhesion and quality of coating. Contractor shall clean all existing walls of tape, stickers or other items that have been adhered to existing walls before beginning painting operations.
- 2) Ferrous metal surfaces, excluding stainless steel surfaces, that will be exposed in complete work shall be prepared in accordance with SSCP-SP3, Power Tool Cleaning, for normal requirements, or SSCP-SP6, Commercial Blast Cleaning, for when prolonged job site exposure occurs, prior to placement of primer coat.
- 3) Galvanized steel surfaces shall be prepared in accordance with SSCP-SP1, Solvent Cleaning, prior to placement of primer coat.
- 4) Wood surfaces shall be sanded smooth and dust removed before application of any coating. Knots or sap spots shall be sealed with 2-pound cut shellac prior to application of prime coat. Nail holes shall be puttied or filled with plastic wood after priming or undercoating is applied, then sanded smooth; wood filler shall match color of finish where clear coats of finish are specified.
- 5) Abraded areas of shop coats shall be primed.
- 6) Concrete Floors
 - a) Unpainted floors - Acid etch or detergent removal of contaminants as per manufacture's recommendations
 - b) Previously painted floors - Sand blast or Detergent/power wash removal of existing paint/contaminants as recommended by the manufacturer

3-02: Application:

- 1) Methods

Materials may be applied to surfaces of large area by brush, roller or spray, provided that final coating has solid hiding and uniform appearance. Brush applied coatings shall be brushed out uniformly, to eliminate laps, skips, and excess brush marks. Cutting in with brush on surfaces adjoining roller or spray coated areas shall be done carefully so that finish will be of the same texture, color, and hiding as adjacent areas. Roller coated areas shall show no signs of lapping or excess paint lines from edges of roller. Spray painting shall be done prior to installation of fixtures, hardware, flooring, and other finish items, unless all such items are thoroughly protected. Spraying equipment shall be suitable in type and of adequate capacity for experienced painters, to assure a uniform finish of acceptable quality. Methods of application, including adherence to spreading rate listed by the

approved paint manufacturer to obtain recommended dry mil thickness, time lapse between successive coats, etc., shall be in accordance with manufacturer's recommendations.

2) Mixing and Tinting

Job site tinting of finish coats shall be done only with the approval of the Architect. Primer, undercoating, and intermediate coats shall each be visibly different in color from preceding coats. Tinted colors are to be of the type recommended by the manufacturer of the coatings approved for use on the project.

Thinning shall be done only when specifically permitted by the manufacturer; if permitted, it shall be done with the materials and to the extent recommended by the manufacturer; wet mil thickness shall be increased to provide manufacturer's recommended dry mil thickness.

3) Final Coatings

Finished work shall show no runs, sags, curtains, excessive brush marks, holidays, or other evidence of poor applications. Spot painting to correct soiled or damaged paint surfaces shall be blended into surrounding finish so that it will not be visible to normal viewing; if it is not, entire sections shall be re-coated between corners or other approved stopping points. Edges of paint adjoining other materials or colors shall be sharp and clean, without overlapping. Sanding between coats, with fine sandpaper, shall be done as required to achieve even, smooth finish on wood and metal surfaces. Should the number of coats specified to be applied to surfaces herein listed not cover, additional coats shall be applied until a satisfactory finish is produced.

3-03: Protection and Cleaning:

Adjacent work and materials shall be protected with suitable covers during painting and finishing operations. Splatters or spills of paint or other coatings on floors, adjacent coatings, glass, and other finished surfaces shall be carefully removed.

END OF SECTION

DIVISION 26
ELECTRICAL

SECTION 260500 - BASIC ELECTRICAL MATERIALS AND METHODS

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. Electrical identification.
 - 3. Cutting and patching for electrical construction.
 - 4. Sleeves for raceways and cables.
 - 5. Sleeve Seals.
 - 6. Grout.
 - 7. Common electrical installation requirements.
 - 8. Product Substitutions.

1.3 ASBESTOS

- A. There is asbestos in the building.

1.4 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. FMC: Flexible metal conduit.
- C. LFMC: Liquidtight flexible metal conduit.
- D. RNC: Rigid nonmetallic conduit.
- E. RMC Rigid metal conduit
- F. AHJ: Authority Having Jurisdiction
- G. EPDM: Ethylene-propylene-diene terpolymer rubber.
- H. NBR: Acrylonitrile-butadiene rubber.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a third party testing agency accredited by the NCBCC (North Carolina Building Code Council) to Label Electrical & Mechanical Equipment and marked for the intended use.
- B. Comply with NFPA 70.

1.6 AUTHORITY HAVING JURISDICTION (AHJ)

- A. The Durham City-County Inspections Department is the AHJ.

1.7 INSPECTIONS

- A. It is the responsibility of the contractor to notify the AHJ to schedule all required inspections including rough-in, above ceiling and final inspections.

1.8 SUBMITTALS

- A. Product Data: For dielectric fittings, flexible connectors, mechanical sleeve seals, and identification materials and devices.
- B. Shop Drawings: Detail fabrication and installation for metal and wood supports and anchorage for mechanical materials and equipment.
- C. Samples: Of color, lettering style, and other graphic representation required for each identification material and device.

1.9 Product Substitutions

- A. Product Substitutions: Only products and product manufacturers detailed in the electrical specifications and plans shall be provided. Bidder proposed substitutions shall be submitted in writing at least 10 days prior to bid date for designer evaluation and inclusion in the last addenda that may be issued no later than 7 days prior to bid date.
- B. All pertinent information shall be provided with each product substitution requests to allow a thorough evaluation to be performed. Substitution requests without full supporting documentation will not be considered.

1.10 Coordination:

- A. Comply with requirements of authorities having jurisdiction.

- B. Check, verify and coordinate work with other trades. Include modifications, relocations or adjustments necessary to complete work or to avoid interference with the building structure or other trades.
- C. Drawings and specifications are necessarily schematic in nature and cannot describe completely all situations that might be encountered in the field. It is the responsibility of the contractor to familiarize himself with the scope of work required and include all work indicated or reasonably implied by the contract documents.
- D. Layout the work to prevent conflict with, and to co-ordinate with work of other trades. Systems shall generally be run in a rectilinear fashion.
- E. Coordinate arrangement, mounting, and support of electrical equipment:
 - 1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 - 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 - 3. To allow right of way for piping and conduit installed at required slope.
 - 4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
 - 5. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed. Access doors and panels are specified in Division 08 Section "Access Doors and Frames."
 - 6. Coordinate sleeve selection and application with selection and application of firestopping details shown on drawings.
- F. Each trade is responsible for the coordination of their work with all other work at the site prior to beginning work in each area.

1.11 DIVISION OF WORK (Division 23/26)

- A. This section delineates the division of work between Division 23 and Division 26.
- B. Specific work to be done under Division 26 is hereinafter listed or described. All other work necessary for the operation of Division 23 equipment shall be performed under Division 23.
- C. All individual motor starters for mechanical equipment (fans, pumps, etc.) shall be furnished and installed under Division 23 unless indicated as a part of a motor control center. Motor starters for mechanical equipment provided in motor control centers shall be furnished under Division 26.
- D. Under Division 26, power wiring shall be provided up to a termination point consisting of a junction box, trough, starter, VFD or disconnect switch. Under Division 26 line side terminations shall be provided. Wiring from the termination point to the mechanical equipment, including final connections, shall be provided under Division 23.
- E. All relays, actuators, pressure, flow, pneumatic-electric, and electric-pneumatic switches, aquastats, line and low voltage thermostats, remote selector switches, interlocking, disconnect

switches beyond termination point, and other appurtenances associated with equipment under Division 23 shall be furnished, installed and wired under Division 23.

- F. All wiring required for controls and instrumentation not indicated on the drawings shall be furnished and installed by Division 23.
- G. Exhaust fans with built-in disconnects provided under Division 23 shall be wired under Division 26 to the line side of the disconnect switch. A disconnect switch shall be provided under Division 26 if the fan is not provided with a built-in disconnect switch. In this case wiring from the switch to the fan shall be under Division 23.
- H. The sequence of control for all equipment shall be as indicated on the Division 23 Drawings and specified in Section, HVAC Control System.
- I. Duct smoke detectors, shall be furnished and wired by Division 28, installed by Division 23. Fire alarm AHU shut down circuits shall be wired from the fire alarm control panel to a termination point, adjacent to the AHU control, under Division 28. AHU control wiring from the termination point to the equipment shall be under Division 23.
- J. Where electrical wiring is required by trades other than covered by Division 26, specifications for that section shall refer to same wiring materials and methods as specified under Division 26. No Exceptions. Electrical inspections as detailed above shall be requested by the contractor performing the work.

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.
- 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. Expansion Anchors: Carbon-steel wedge or sleeve type.
- F. Toggle Bolts: All-steel springhead type.

2.2 ELECTRICAL IDENTIFICATION

- A. Identification Devices: A single type of identification product for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, and these Specifications.
- B. Raceway and Cable Labels: Comply with ANSI A13.1, Table 3, for minimum size of letters for legend and minimum length of color field for each raceway and cable size.
 - 1. Type: Pretensioned, wraparound plastic sleeves. Flexible, preprinted, color-coded, acrylic band sized to suit the diameter of the item it identifies.
 - 2. Color: Black letters on orange background.
 - 3. Legend: Indicates voltage.
- C. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tape, not less than 1 inch wide by 3 mils thick.
- D. Tape Markers for Wire: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.
- E. Color-Coding Cable Ties: Type 6/6 nylon, self-locking type. Colors to suit coding scheme.
- F. NAMEPLATES AND SIGNS
 - 1. Engraved Plastic Nameplates and Signs: Furnish and install engraved laminated phenolic nameplates for all safety switches, panelboards, transformers, switchboards, motor control centers and other electrical equipment supplied for the project for identification. Letters shall be approximately 1/2" high minimum. Embossed self-adhesive plastic tape is not acceptable for marking equipment. The nameplate material colors shall be as follows:
 - a. Blue surface with white core for 120/208 volt equipment.
 - b. Black surface with white core for 277/480 volt equipment.
 - c. Bright red surface with white core for all equipment related to fire alarm system.
 - d. Dark red (burgundy) surface with white core for all equipment related to security.
 - e. Green surface with white core for all equipment related to "emergency" systems.
 - f. Orange surface with white core for all equipment related to telephone systems.
 - g. Brown surface with white core for all equipment related to data systems.
 - h. White surface with black core for all equipment related to paging systems.
 - i. Purple surface with white core for all equipment related to TV systems.
 - 2. Nameplates shall be securely attached to equipment with self-tapping stainless steel screws; if the screw sharp end is protected; otherwise rivets shall be used.
- G. All empty conduit runs and conduit with conductors for future use shall be identified for use and shall indicate where they terminate. Identification shall be by tags with string or wire attached to conduit or outlet.
- H. All outlets boxes, junction boxes and pull boxes shall have their covers and exterior visible surfaces painted with colors to match the surface color scheme outlined above. This includes covers on boxes above lift-out and other type accessible ceilings.

2.3 SLEEVES FOR RACEWAYS AND CABLES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

- B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- C. Sleeves for Rectangular Openings: Galvanized sheet steel.
 - 1. Minimum Metal Thickness:
 - a. For sleeve cross-section rectangle perimeter less than 50 inches (1270 mm) and no side more than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).
 - b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches (1270 mm) and 1 or more sides equal to, or more than, 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

2.4 SLEEVE SEALS

- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
 - 1. Manufacturers: Subject to compliance with requirements, products by one of the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Advance Products & Systems, Inc.
 - b. Calpico, Inc.
 - c. Metraflex Co.
 - d. Pipeline Seal and Insulator, Inc.
 - 2. Sealing Elements: EPDM or NBR interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
 - 3. Pressure Plates: Include two for each sealing element.
 - 4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.5 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.6 FIRESTOPPING

- A. All penetrations of fire-rated floor and wall assemblies for electrical installations shall be sealed to restore original fire-resistance rating of assembly. See drawings for fire stop details.

PART 3 - EXECUTION

3.1 ELECTRICAL EQUIPMENT INSTALLATION

- A. Comply with NECA 1.
- 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 of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.
- D. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.
- E. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.
- F. Right of Way: Give to 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. Support Clamps for PVC Raceways: Click-type clamp system.
- C. Selection of Supports: Comply with manufacturer's written instructions.

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 hangers.
 - 1. Securely fasten electrical items and their supports to the building structure, unless otherwise indicated.
- D. Conduit shall be supported in a method and at a spacing approved by the NEC, except as described herein.
- E. Conduit shall be supported by approved pipe straps or clamps.
 - 1. Conduits installed on the interior of exterior building walls shall be spaced off the wall surface a minimum of 1/4 inch using "clamp-backs" or strut.
- F. Pipe straps or clamps shall be secured by means of:
 - 1. Toggle bolts on hollow masonry.

2. Metal expansion shields and machine screws, or standard pre-set inserts, on concrete or solid masonry.
3. Machine screws or bolts on metal surfaces.
4. Wood screws on wood construction.

3.4 IDENTIFICATION MATERIALS AND DEVICES

- A. Install at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Contract Documents or required by codes and standards. Use consistent designations throughout Project.
- C. Identify raceways and cables with color banding to match the existing systems.
- D. Tag and label circuits designated to be extended in the future. Identify source and circuit numbers in each cabinet, pull and junction box, and outlet box. Color-coding may be used for voltage and phase identification.
- E. Secondary Service, Feeder, and Branch-Circuit Conductors: Color-code throughout the secondary electrical system.
 1. Color-code 208/120-V system as follows:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 - d. Neutral: White.
 - e. Ground: Green.
 2. Color-code 480/277-V system as follows:
 - a. Phase A: Brown
 - b. Phase B: Orange.
 - c. Phase C: Yellow.
 - d. Neutral: Natural gray.
 - e. Ground: Green.
 3. 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, except for ground and neutral conductors which must be factory colored #6 AWG and smaller:
 - a. Colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches 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-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 from the terminal and spaced 3 inches apart. Apply with a special tool or pliers, tighten to a snug fit, and cut off excess length.
- F. Install warning, caution, and instruction signs where required to comply with 29 CFR, Chapter XVII, Part 1910.145, and where needed 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.
- G. Install engraved-laminated emergency-operating signs with white letters on red background with minimum 3/8-inch- high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.

3.5 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 firestopping has been disturbed. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

3.6 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.
- B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used.
- C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
- D. Cut sleeves to length for mounting flush with both surfaces of walls.
- E. Extend sleeves installed in floors 2 inches (50 mm) above finished floor level.
- F. Size pipe sleeves to provide 1/4-inch (6.4-mm) annular clear space between sleeve and raceway or cable, unless indicated otherwise.
- G. Seal space outside of sleeves with grout for penetrations of concrete and masonry
 - 1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.
- H. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "Joint Sealants".

- I. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.

3.7 SLEEVE-SEAL INSTALLATION

- A. Install to seal exterior wall penetrations.
- B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.8 FIRESTOPPING

- A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are detailed on the construction drawings.

3.9 CLEANING AND PROTECTION

- A. On completion of installation, including outlets, fittings, and devices, inspect exposed finish. Remove burrs, dirt, paint spots, and construction debris.
- B. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

END OF SECTION 260500

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Building wires and cables rated 600 V and less.
 - 2. Connectors, splices, and terminations rated 600 V and less.
 - 3. Sleeves and sleeve seals for cables.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a third party testing agency accredited by the NCBCC (North Carolina Building Code Council) to Label Electrical & Mechanical Equipment and marked for the intended use.
- B. Comply with NFPA 70 (2017).

PART 2 - PRODUCTS

2.1 BUILDING WIRES AND CABLES

- A. UL-listed building wires and cables shall be 600 V, unless otherwise noted, color code conductors for low voltage (secondary feeders and branch circuits) as required by code.
- B. Insulation for all interior conductors shall be dual rated THHN/THWN, or XHHW single conductor.
- C. Conductor Material: Copper.
- D. Stranding: Solid conductor for No. 10 AWG and smaller; Class B stranded conductor for No. 8 AWG and larger.
- E. Power and lighting circuits minimum conductor size allowed is No. 12 AWG.
- F. Largest conductor size allowed is 500 kcmil.

2.2 CONNECTORS AND SPLICES

- A. UL-listed, factory-fabricated wiring connectors of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine raceways and building finishes to receive wires and cables for compliance with requirements for installation tolerances and other conditions affecting performance of wires and cables. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install wires and cables as indicated, according to manufacturer's written instructions and NECA's "Standard of Installation."
- B. All power wiring and cable shall be installed in raceway.
- C. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- D. Pull Conductors: 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.
- E. No more than one of each phase conductor A, B and C with the associated neutral(s) and ground conductor(s) shall be pulled in any common raceway. A dedicated neutral shall be installed with each branch circuit.
- F. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- G. Install exposed cables, parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- H. Seal around cables penetrating fire-rated elements.
- I. Identify wires and cables according to Division 26 Section "Basic Electrical Materials and Methods."
- J. Secondary Service, Feeder, and Branch-Circuit Conductors: Color-code throughout the secondary electrical system.

3.3 VOLTAGE DROP

- A. Where the conductor length from the panel to the first outlet on a 277 volt system exceeds 125 feet, the minimum branch circuit conductor size shall not be smaller than No. 10 AWG.
- B. Where the conductor length from the panel to the first outlet on a 120 volt system exceeds 50 feet, the minimum branch circuit conductor size shall not be smaller than No. 10 AWG
- C. Pull Conductors: 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.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

3.4 CONNECTIONS

- A. Conductor Splices: Keep to minimum. All conductors shall be continuous from outlet to outlet. No splices shall be made except within junction boxes, troughs and gutters.
- B. Install splices and tapes that possess equivalent or better mechanical strength and insulation ratings than conductors being spliced.
- C. Use splice and tap connectors compatible with conductor material.
- D. Joints in solid conductors shall be spliced using "Ideal" wirenuts or 3M Company "Scotchlock" or T&B connectors in junction boxes, outlet boxes or lighting fixtures.
- E. Joints in stranded conductors shall be spliced by approved mechanical connectors and gum rubber tape or friction tape. Solderless mechanical connectors for splices and taps, provided with UL approved insulating covers may be used instead of mechanical connectors plus tape.
- F. Sta-kon or other permanent type crimped connectors shall not be used for branch circuit connections.

3.5 FIELD QUALITY CONTROL

- A. Testing: On installation of wires and cables and before electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
- B. Feeder Resistance Testing
 - 1. All current carrying phase conductors and neutrals shall be tested as installed, and before connections are made, for insulation resistance and accidental grounds. This shall be done with a 500-volt megger. The procedures listed below shall be followed:
 - a. Minimum readings shall be one million (1,000,000) or more ohms for #6 AWG wire and smaller, 250,000 ohms or more for #4 AWG wire or larger, between conductors and between conductor and the grounding conductor.

- b. After all fixtures, devices, and equipment are installed and all connections completed to each panel, the contractor shall disconnect the neutral feeder conductor from the neutral bar and take a megger reading between the neutral bar and the grounded enclosure. If this reading is less than 250,000 ohms, the contractor shall disconnect the branch circuit neutral wires from this neutral bar. He shall then test each one separately to the panel until source of the low reading is found. The contractor shall correct troubles, reconnect, and retest until at least 250,000 ohms from the neutral bar to the grounded panel can be achieved with only the neutral feeder disconnected.
- c. Contractor shall furnish a report of megger test results demonstrating that the panels comply with the above requirements.

C. GROUND SYSTEM TESTING

- 1. Upon completion of installation of the electrical grounding and bonding systems, the ground resistance shall be tested with a ground resistance tester. Where tests show resistance-to-ground is over 25 ohms, appropriate action should be taken to reduce the resistance to 25 ohms, or less, by driving additional ground rods. (The compliance should be demonstrated by retesting.)

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes methods and materials for grounding systems and equipment. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections
- B. This project replaces and reworks the existing electrical service. The new service ground shall be bonded to the existing grounding electrode system which includes existing building steel, cold water and fire sprinkler entrance pipe(s), and new driven ground rods.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Other Informational Submittals: Plans showing dimensioned as-built locations of grounding features specified in Part 3 "Field Quality Control" Article, including the following:
 - 1. Test wells.
 - 2. Ground rods.
 - 3. Grounding arrangements and connections for separately derived systems.
 - 4. Grounding for sensitive electronic equipment.
- C. Qualification Data: For testing agency and testing agency's field supervisor.
- D. Field quality-control test reports.
- E. Operation and Maintenance Data: For grounding to include the following in emergency, operation, and maintenance manuals:
 - 1. Instructions for periodic testing and inspection of grounding features at test wells and grounding connections for separately derived systems based on NETA MTS and NFPA 70B.
 - a. Tests shall be to determine if ground resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if they do not.
 - b. Include recommended testing intervals.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.
 - 1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association to supervise on-site testing specified in Part 3.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70 (2017), Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 GROUNDING CONDUCTORS

- A. For insulated conductors, comply with Division 26 Section "Conductors and Cables."
- B. Equipment Grounding Conductors: Insulated with green-colored insulation.
- C. Underground Conductors: Bare, tinned, stranded, unless otherwise indicated.
- D. Grounding Bus: Rectangular bars of annealed copper, 1/4 by 2 inches (6 by 50 mm) in cross section, unless otherwise indicated; with insulators.
- 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.

2.2 CONNECTOR PRODUCTS

- A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.
 - 1. Pipe Connectors: Clamp type, sized for pipe.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel 3/4 inch by 10 feet (19 mm by 3 m) in diameter. Minimum of three driven ground rods.
- B. Building Steel
- C. All metallic cold water pipes entering the building including those for domestic cold water and fire sprinkler service.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.
 - 1. Bury at least 24 inches (600 mm) below grade.
 - 2. Duct-Bank Grounding Conductor: Bury 12 inches (300 mm) above duct bank when indicated as part of duct-bank installation.
- C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.
- D. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated. Bond to grounding electrode system at cold water pipe entrance or electrical service entrance.
 - 1. Install bus on insulated spacers 1 inch (25 mm), minimum, from wall 6 inches (150 mm) above finished floor, unless otherwise indicated.
 - 2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, down to specified height above floor, and connect to horizontal bus.
- E. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Welded connectors, except at test wells and as otherwise indicated.
 - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
 - 4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

- A. Comply with IEEE C2 grounding requirements.

- B. Pad-Mounted Transformers and Switches: Install two ground rods and ground ring around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for ground ring and for taps to equipment grounding terminals. Bury ground ring not less than 6 inches (150 mm) from the foundation.

3.3 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits. No circuit shall be without an equipment grounding conductor. The conduit shall not serve as the equipment grounding conductor.
- B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.
- C. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
- D. Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
 - 1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch (6-by-50-by-300-mm) grounding bus unless otherwise noted on drawings.
 - 2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

3.4 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 2 inches (50 mm) below finished floor or final grade, unless otherwise indicated.
 - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating, if any.
 - 2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

- C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Division 26 Section "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches (300 mm) deep, with cover.
 - 1. Test Wells: Install at least one test well for each service, unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.
- D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.
 - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
 - 3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.
- E. Grounding and Bonding for Piping:
 - 1. All Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building including but not limited to domestic cold water and fire sprinkler service pipe. Connect grounding conductors to main metal water service pipes, using a bolted clamp connector or by bolting a lug-type connector to a pipe flange, using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
 - 2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
 - 3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
- F. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.
- G. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet (18 m) apart.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing and inspecting agency to perform the following field tests and inspections and prepare test reports:
- B. Perform the following tests and inspections and prepare test reports:
 - 1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.

2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal at individual ground rods. Make tests at ground rods before any conductors are connected.
 - a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Perform tests by fall-of-potential method according to IEEE 81.
 3. Prepare dimensioned drawings locating each test well, ground rod and ground rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.
- C. Report measured ground resistances that exceed the following values:
1. 25 ohms.
- D. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Hangers and supports for electrical equipment and systems.
 - 2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design supports for multiple raceways, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- C. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- D. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.3 SUBMITTALS

- A. Product Data: For steel slotted support systems.
- B. Shop Drawings: Show fabrication and installation details and include calculations for the following:
 - 1. Trapeze hangers. Include Product Data for components.
 - 2. Steel slotted channel systems. Include Product Data for components.
 - 3. Equipment supports.
- C. Welding certificates.

1.4 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Comply with NFPA 70 (2017).

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
 - 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 following:
 - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries.
 - c. ERICO International Corporation.
 - d. GS Metals Corp.
 - e. Thomas & Betts Corporation.
 - f. Unistrut; Tyco International, Ltd.
 - g. Wesanco, Inc.
 - 3. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
 - 4. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
 - 5. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
 - 6. Channel Dimensions: Selected for applicable load criteria.
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Powder actuated fasteners are not allowed and shall not be used.
- D. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- E. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- F. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- G. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

- a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti Inc.
 - 4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 5) MKT Fastening, LLC.
- 2. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
- 3. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
- 4. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
- 5. Toggle Bolts: All-steel springhead type.
- 6. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Division 05 Section "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 - 1. Secure raceways and cables to these supports with two-bolt conduit clamps.
- D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners.
 - 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
 - 6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
 - 7. To Light Steel: Sheet metal screws.
 - 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements in Division 05 Section "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete.
- C. Anchor equipment to concrete base.
 - 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
 - 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
- B. Touchup: Comply with requirements in Division 09 painting Sections, Section "High-Performance Coatings" for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

SECTION 260533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

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.
 - 1. Raceways include the following:
 - a. EMT: Electrical metallic tubing.
 - b. FMC: Flexible metal conduit.
 - c. LFMC: Liquidtight flexible metal conduit.
 - d. RMC: Galvanized rigid steel conduit.
 - e. RNC: Rigid nonmetallic conduit.
 - f. Surface Mounted Metal Raceways
 - 2. Boxes, enclosures, and cabinets include the following:
 - a. Device boxes.
 - b. Outlet boxes.
 - c. Pull and junction boxes.
 - d. Cabinets and hinged-cover enclosures.

1.3 SUBMITTALS

- A. Product Data: For wireways and fittings, outlet boxes, hinged-cover enclosures, and cabinets.

1.4 QUALITY ASSURANCE

- A. Listing and Labeling: Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a third party testing agency accredited by the NCBCC (North Carolina Building Code Council) to Label Electrical & Mechanical Equipment and marked for the intended use.
- B. Comply with NECA's "Standard of Installation."
- C. ASTM International (AST M): ASTM E 814 - Standard Test Method for Fire Tests of Penetration Firestop
- D. Comply with National Fire Protection Association (NFPA): NFPA 70 (2017) – National Electrical Code.

- E. Underwriters Laboratories Inc. (UL):
 - 1. UL 5 - Surface Metal Raceways and Fittings.
 - 2. UL 514A - Metallic Outlet Boxes.

1.5 COORDINATION

- A. Coordinate layout and installation of raceways and boxes with other construction elements to ensure adequate headroom, working clearance, and access.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

- A. Galvanized Rigid Steel Conduit: ANSI C80.1.
- B. EMT and Fittings: ANSI C80.3. with plated steel hexagonal compression type fittings with insulated throats. Fittings installed in concrete or masonry shall be "concrete tight". Fittings installed in damp locations shall be "rain tight".
- C. FMC: Zinc-coated steel.
- D. LFMC: Liquidtight Flexible steel conduit with PVC jacket.
- E. Fittings: NEMA FB 1; compatible with conduit/tubing materials.

2.2 NONMETALLIC CONDUIT AND TUBING

- A. RNC: NEMA TC 2, Schedule 40 or 80 PVC.
- B. RNC Fittings: NEMA TC 3; match to conduit or conduit/tubing type and material.

2.3 METAL WIREWAYS

- A. Material: Sheet metal sized and shaped as indicated.
- B. 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.
- C. Wireway Covers: Hinged type.
- D. Finish: Manufacturer's standard enamel finish.

2.4 OUTLET AND DEVICE BOXES

- A. Sheet Metal Boxes: NEMA OS 1.
- B. Cast-Metal Boxes: NEMA FB 1, Type FD, cast box with gasketed cover.
- C. Stamped steel boxes with knockouts shall not be used for surface mounting in general use areas.

2.5 SURFACE MOUNTED RACEWAYS

- A. Underwriters Laboratories Inc. (UL):
 - 1. UL 5 - Surface Metal Raceways and Fittings.
 - 2. UL 514A - Metallic Outlet Boxes.
- B. Provide surface metal raceway for branch circuit or low voltage wiring as noted on plans.
 - 1. Components: Raceway bases, covers, fittings, device boxes and device mounting plates.
- C. Raceways: One-piece, single channel system of galvanized steel with base and cover preassembled with scratch resistant finish. 3/4" wide by 17/32" deep.
- D. Device Boxes: Metal device box fully compatible with and Listed for use with metal raceways. Provide for receptacles, switches, or communications devices as indicated on drawings.
- E. Fittings:
 - 1. Flat, internal and external elbows.
 - 2. Couplings for joining sections.
 - 3. Wire clips.
 - 4. Device mounting brackets and plates.
 - 5. Bushings ends of raceways where entering fittings to protect wire from abrasion.
 - 6. Device Box and conduit connectors.
 - 7. Mounting straps.
 - 8. Provide all accessories required for a complete installation

2.6 PULL AND JUNCTION BOXES

- A. Small Sheet Metal Boxes: NEMA OS 1.
- B. Cast-Metal Boxes: NEMA FB 1, with gasketed cover.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to receive raceways, boxes, enclosures, and cabinets for compliance with installation tolerances and other conditions affecting performance of raceway installation. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 WIRING METHODS

- A. Outdoors: Use the following wiring methods:
 - 1. Galvanized Rigid Steel.
 - 2. Underground, RNC.
 - 3. Connection to Vibrating Equipment LFMC.
 - 4. Boxes and Enclosures: NEMA 250, Type 3R or Type 4.
- B. Indoors: Use the following wiring methods:
 - 1. Exposed (only in unfinished spaces): Below 8 feet above the floor: Galvanized Rigid Steel.
 - 2. Exposed (only in unfinished spaces): Above 8 feet above the floor: EMT with compression fittings.
 - 3. Concealed: EMT with compression fittings.
 - 4. Surface mounted metal raceway: Shall only be used where indicated on plans.
 - 5. Connection to Vibrating Equipment: FMC; except in wet or damp locations, use LFMC.
 - 6. Damp or Wet Locations: Galvanized Rigid Steel conduit.
 - 7. Lighting fixture whips: FMC
 - 8. Boxes and Enclosures: NEMA 250, Type 1.

3.3 INSTALLATION

- A. Install raceways, boxes, enclosures, and cabinets as indicated, according to manufacturer's written instructions.
- B. Minimum Raceway Size: 3/4-inch trade size, except 1" minimum for telecom/data outlets.
- C. In finished areas of the Building, conceal conduit unless otherwise indicated, within finished walls, ceilings, and floors. This includes all areas except for mechanical and electrical rooms.
- D. In unfinished areas of the building, conduit shall be neatly routed tight to roof structure, walls and other structural elements.
- E. 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.
- F. Install raceways level and square and at proper elevations. Provide adequate headroom.
- G. Install raceways parallel to or at right angles to nearby surfaces or structural members, and follow the surface contours as much as practical.
- H. Install pull wires in empty raceways. Use No. 14 AWG zinc-coated steel or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of the pull wire.
- I. Telephone and Signal System Raceways, 2-Inch Trade Size and Smaller: In addition to the above requirements, install raceways in maximum lengths of 100 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.

- J. Flexible Connections: Use maximum of 6 feet of flexible conduit for recessed and semi recessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use liquidtight flexible conduit in wet or damp locations. Install separate ground conductor across flexible connections.
- K. Raceways passing through areas subjected to different temperatures where condensation could be a problem, such as in cold storage areas, or where passing from the interior to the exterior of a building, the raceway shall be sealed to prevent the circulation of warm air to a colder section of the raceway.
- L. Install raceways to be mechanically and electrically continuous.
- M. Where underground raceways turn up into cabinets, equipment, etc. and on to poles, the elbow required and the stub-up out of the slab or earth shall be of rigid galvanized steel.

3.4 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure coatings, finishes, and cabinets are without damage or deterioration at the 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.

3.5 CLEANING

- A. On completion of installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasions.

3.6 IDENTIFICATION

- A. All outlet boxes, junction boxes and pull boxes shall have their covers and exterior visible surfaces painted with colors to match the surface color scheme outlined in Specification Section 260553 "Identification for Electrical Systems". This includes covers on boxes above lift-out and other type accessible ceilings. This does not apply to exposed box covers installed in spaces visible to the general public.

3.7 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are indicated on plans.

END OF SECTION 260533

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Identification for raceways.
 - 2. Identification of power and control cables.
 - 3. Identification for conductors.
 - 4. Underground-line warning tape.
 - 5. Warning labels and signs.
 - 6. Instruction signs.
 - 7. Equipment identification labels.
 - 8. Miscellaneous identification products.

1.2 SUBMITTALS

- A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

- A. Comply with ANSI C2.
- B. Comply with NFPA 70 (2017).
- C. Comply with ANSI A13.1 and NFPA 70 for color-coding.

PART 2 - PRODUCTS

2.1 RACEWAY AND CABLE LABELS

- A. 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.
 - 1. Color: Black letters on orange field.
 - 2. Legend: Indicates voltage and service.
- B. 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.
- C. Underground-Line Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape.

1. Not less than 6 inches wide by 4 mils thick.
 2. Compounded for permanent direct-burial service.
 3. Embedded continuous metallic strip or core.
 4. Printed legend indicating type of underground line.
- D. Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.
- E. Aluminum, Wraparound Marker Bands: Bands cut from 0.014-inch- 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.
- F. Plasticized Card-Stock Tags: Vinyl cloth with preprinted and field-printed legends. Orange background, unless otherwise indicated, with eyelet for fastener.
- G. Aluminum-Faced, Card-Stock Tags: Weather-resistant, 18-point minimum card stock faced on both sides with embossable aluminum sheet, 0.002 inch thick, laminated with moisture-resistant acrylic adhesive, punched for fasteners, and preprinted with legends to suit each application.
- H. Brass or Aluminum Tags: 2 by 2 by 0.05-inch metal tags with stamped legend, punched for fastener.

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 thick for signs up to 20 sq. in. and 1/8 inch thick for larger sizes. Letters shall be 1/2" high minimum and the nameplate material colors shall be as follows:
1. Blue surface with white core for 120/208 volt equipment.
 2. Black surface with white core for 277/480 volt equipment.
 3. Bright Red surface with white core for all equipment related to fire alarm system.
 4. Dark red (burgundy) surface with white core for all equipment related to security.
 5. Green surface with white core for all equipment related to "emergency" systems.
 6. Orange surface with white core for all equipment related to telephone systems.
 7. Brown surface with white core for all equipment related to data systems.
 8. White surface with black core for all equipment related to paging systems.
 9. Purple surface with white core for all equipment related to TV systems.
- C. All outlet boxes, junction boxes and pull boxes shall have their covers and exterior visible surfaces painted with colors to match the color scheme outlined above. This includes covers on boxes above lift-out and other type accessible ceilings. This does not apply to exposed box covers installed in spaces visible to the general public.
- D. 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 grommets in corners for mounting.

- E. Exterior, Metal-Backed, Butyrate Signs: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for the application. 1/4-inch grommets in corners for mounting.
- F. 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.
 - 2. Tensile Strength: 50 lb minimum.
 - 3. Temperature Range: Minus 40 to plus 185 deg F.
 - 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.
 - 1. Circuits with More Than 600 V: Identify raceway and cable with "DANGER--HIGH VOLTAGE" in black letters 2 inches high, stenciled with paint at 10-foot intervals over a continuous, painted orange background.
- C. 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.
- D. 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 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 maximum intervals in straight runs, and at 25-foot 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.
- E. 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.
- F. Circuit Identification Labels on Boxes: Install labels externally.
1. Exposed Boxes: Pressure-sensitive, self-adhesive plastic label on cover and in box.
 2. Concealed Boxes: Plasticized card-stock tags.
 3. Labeling Legend: Permanent, waterproof listing of panel and circuit number or equivalent.
- G. Paths of Underground Electrical Lines: During trench backfilling, for exterior underground power, control, signal, and communication lines, install continuous underground plastic line marker located directly above line at 6 to 8 inches below finished grade. Where width of multiple lines installed in a common trench or concrete envelope does not exceed 16 inches overall, use a single line marker.
- H. Secondary Service, Feeder, and Branch-Circuit Conductors: Color-code throughout the secondary electrical system.
1. Color-code 208/120-V system as follows:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 - d. Neutral: White.
 - e. Ground: Green.
 2. Color-code 480/277-V system as follows:
 - a. Phase A: Brown
 - b. Phase B: Orange.
 - c. Phase C: Yellow.
 - d. Neutral: Natural gray.
 - e. Ground: Green.

3. 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, except for ground and neutral conductors which must be factory colored #6 AWG and smaller:
 - a. Colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches 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-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 from the terminal and spaced 3 inches apart. Apply with a special tool or pliers, tighten to a snug fit, and cut off excess length.
- I. 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- steel letter and number stamping or embossing with legend corresponding to indicated circuit designations.
 2. Tag Fasteners: Nylon cable ties.
 3. Band Fasteners: Integral ears.
- J. 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.
 2. Emergency Operation: Install engraved laminated signs with white legend on red background with minimum 3/8-inch- high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.
- K. 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- high lettering on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high. Use nameplate colors specified in paragraph 2.2B. 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. Electrical switchgear and switchboards.
 4. Emergency system boxes and enclosures.
 5. Disconnect switches.
 6. Enclosed circuit breakers.
 7. Motor starters.
 8. Push-button stations.
 9. Power transfer equipment.

10. Contactors.
11. Control devices.
12. Transformers.
13. Power-generating units.
14. Telephone switching equipment.
15. Fire alarm master station or control panel.

END OF SECTION 260553