

MILLSBORO PUBLIC LIBRARY
BOARD OF TRUSTEES

PROJECT MANUAL FOR

ADDITION TO THE
MILLSBORO PUBLIC LIBRARY

217 WEST STATE STREET
MILLSBORO, DE 19966

PREPARED BY:

R. CALVIN CLENDANIEL ASSOCIATES, ARCHITECTS

18865 BUTLER AVE.
P.O. BOX 125
LINCOLN, DE 19960

ISSUED FOR BIDDING
AUGUST 27, 2019

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

TABLE OF CONTENTS

A. Specifications for this project are arranged in accordance with the Construction Specification Institute numbering system and format. Section numbering is discontinuous and all numbers not appearing in the Table of Contents are not used for this Project.

B. DOCUMENTS BOUND HEREWITH

DIVISION 00 – PROCUREMENT AND CONTRACT REQUIREMENTS

00 01 10 – TABLE OF CONTENTS	2 pages
00 01 15 – LIST OF DRAWING SHEETS	1 page
00 11 16 – NOTICE TO BIDDERS	1 page
00 21 13 – INSTRUCTIONS TO BIDDERS	10 pages
00 41 13 – BID FORM	4 pages
00 43 13 – BID BOND	1 page
00 52 13 – STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR	1 page
00 54 13 – SUPPLEMENT TO AGREEMENT BETWEEN OWNER & CONTRACTOR A101-2007	1 page
00 61 13.13 – PERFORMANCE BOND	2 pages
00 61 13.16 – PAYMENT BOND	2 pages
00 72 13 – GENERAL CONDITIONS TO THE CONTRACT	1 page
00 73 13 – SUPPLEMENTARY GENERAL CONDITIONS	5 pages

DIVISION 01 – GENERAL REQUIREMENTS

01 10 00 – SUMMARY	3 pages
01 50 00 – TEMPORARY FACILITIES & CONTROLS	2 pages
01 77 00 – CLOSEOUT PROCEDURES	7 pages

DIVISION 02 – EXISTING CONDITIONS

02 10 00 – UNDERPINNING	3 pages
02 41 19 – SELECTIVE BUILDING DEMOLITION	2 pages

DIVISION 03 – CONCRETE

03 30 53 – CONCRETE WORK	7 pages
--------------------------	---------

DIVISION 04 – MASONRY

04 20 00 – UNIT MASONRY	7 pages
-------------------------	---------

DIVISION 06 – WOODS, PLASTICS & COMPOSITES

06 10 53 – CARPENTRY & MILLWORK	3 pages
06 17 53 – SHOP FABRICATED WOOD TRUSSES	2 pages

DIVISION 07 – THERMAL & MOISTURE PROTECTION

07 21 16 – BLANKET INSULATION	3 pages
07 46 43 – COMPOSITION SIDING	4 pages
07 60 00 – FLASHING & SHEET METAL	1 page
07 92 00 – JOINT SEALANTS	2 pages

DIVISION 08 – OPENINGS

08 14 33 – STILE & RAIL WOOD DOORS	4 pages
08 52 13 – ALUMINUM CLAD WOOD WINDOWS	3 pages

DIVISION 09 – FINISHES

09 21 16 – GYPSUM WALLBOARD ASSEMBLIES	7 pages
09 51 23 – ACOUSTICAL TILE CEILINGS	5 pages
09 65 00 – RESILIENT FLOORING	1 pages

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

09 91 23 – INTERIOR PAINTING	10 pages
DIVISION 10 -- SPECIALTIES	
10 40 00 – SAFETY SPECIALTIES	1 page
DIVISION 12 – FURNISHINGS	
12 32 16 – IMAUFACURED PLASTIC LAMINATE CASEWORK	2 pages
DIVISION 31 – EARTHWORK	
31 23 00 – EXCAVATION & BACKFILL	6 pages
31 40 00 – UNDERPINNING & SHORING	3 pages
DIVISION 32 – EXTERIOR IMPROVEMENTS	
32 00 00 – SITE IMPROVEMENT	2 pages
32 92 19 – SEEDING	1 page

END OF SECTION 00 01 10

LIST OF DRAWING SHEETS

Sheet	S-1	GENERAL INFORMATION, SITE PLAN, & LIFE SAFETY INFORMATION
Sheet	A-1	FLOOR PLAN AND SCHEDULES & DETAILS
Sheet	A-2	FOUNDATION PLAN & ROOF FRAMING PLAN
Sheet	A-3	BUILDING SECTION
Sheet	A-4	WOOD TRUSS INFORMATION, DETAILS, MOLDING TYPES
Sheet	A-5	EXTERIOR ELEVATIONS
Sheet	A-6	EXTERIOR DETAILS & CASEWORK DETAILS
Sheet	A-7	MPE, & ALARM PLAN, REFLECTED CEILING PLAN
Sheet	ALT-1	ALTERNATE NO. 1 DRAWING

NOTICE TO BIDDERS

Sealed bids for “**Addition to the Millsboro Public Library**” will be received by the Millsboro Public Library Board of Trustees (Owner), at the Millsboro Public Library, 217 West State Street, Millsboro Delaware, 19966 until **3:00 p.m. local time on Tuesday, May 28, 2019**, at which time they will be publicly opened and read aloud. Bidder bears the risk of late delivery. Any bids received after the stated time will be returned unopened.

The project involves the construction of an approximately 1,495 square-foot one-storey addition to the existing library to contain storage space and a staff break room. The existing exterior exit steps and platform will be re-configured and the rear fire lane and parking will be extended.

Bids are by invitation only. A **MANDATORY Pre-Bid Meeting** will be held at **10:00 p.m. on Wednesday, May 14, 2019**, at the Millsboro Public Library for the purpose of establishing the listing of subcontractors and to answer questions. **ATTENDANCE OF THIS MEETING BY A REPRESENTATIVE OF EACH PROSPECTIVE GENERAL CONTRACTOR IS A PREREQUISITE FOR BIDDING ON THIS CONTRACT.**

Sealed bids shall be addressed to the Millsboro Public Library Board of Trustees. The outer envelope should clearly indicate: **"Addition to the Millsboro Public Library, SEALED BID - DO NOT OPEN! ATTN: Virginia Frazier, President"**.

Contract documents may be reviewed &/or obtained at the office of R. Calvin Clendaniel Associates, Architects, 18865 Butler Ave., Lincoln, DE, 19960 upon receipt of \$50 per set, non-refundable. Checks are to be made payable to “R. Calvin Clendaniel Associates.”

Each bid must be accompanied by a bid security, payable to the Millsboro Public Library Board of Trustees, equivalent to five (5) percent of the bid amount and all additive alternates. No Bidder may withdraw his bid within ninety (90) days after the date of the opening thereof without forfeiture of the full amount of the Bid Bond to the Owner. The successful bidder must post a performance bond and payment bond in a sum equal to one hundred (100) percent of the contract price upon execution of the contract. The Owner reserves the right to reject any or all bids and to waive any informalities therein. The Owner may extend the time and place for the opening of the bids from that described in the advertisement, with not less than two calendar days notice by certified delivery, facsimile machine or other electronic means to those bidders receiving plans.

By: Millsboro Public Library Board of Trustees
Virginia Frazier, President

INSTRUCTIONS TO BIDDERS

TABLE OF ARTICLES

1. DEFINITIONS
2. BIDDER'S REPRESENTATION
3. BIDDING DOCUMENTS
4. BIDDING PROCEDURES
5. CONSIDERATION OF BIDS
6. POST-BID INFORMATION
7. PERFORMANCE BOND AND PAYMENT BOND
8. FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

ARTICLE 1: GENERAL

1.1 DEFINITIONS

1.1.1 Whenever the following terms are used, their intent and meaning shall be interpreted as follows:

1.2 OWNER: The Millsboro Public Library Board of Trustees

1.3 DESIGNATED OFFICIAL: The agent authorized to act for the Agency.

1.4 BIDDING DOCUMENTS: Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement for Bid, Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the Bid Form (including the Non-collusion Statement), and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, as well as the Drawings, Specifications (Project Manual) and all Addenda issued prior to execution of the Contract.

1.5 CONTRACT DOCUMENTS: The Contract Documents consist of the, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the form of agreement between the Owner and the Contractor, Drawings (if any), Specifications (Project Manual), and all addenda.

1.6 AGREEMENT: The form of the Agreement shall be AIA Document A101, Standard Form of Agreement between Owner and Contractor where the basis of payment is a STIPULATED SUM. In the case of conflict between the instructions contained therein and the General Requirements herein, these General Requirements shall prevail.

1.7 GENERAL REQUIREMENTS (or CONDITIONS): General Requirements (or conditions) are instructions pertaining to the Bidding Documents and to contracts in general. They contain, in summary, requirements of laws of the State; policies of the Agency and instructions to bidders.

1.8 SPECIAL PROVISIONS: Special Provisions are specific conditions or requirements peculiar to the bidding documents and to the contract under consideration and are supplemental to the General Requirements. Should the Special Provisions conflict with the General Requirements, the Special Provisions shall prevail.

1.9 ADDENDA: Written or graphic instruments issued by the Owner/Architect prior to the execution of the contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

1.10 BIDDER OR VENDOR: A person or entity who formally submits a Bid for the material or Work contemplated, acting directly or through a duly authorized representative who meets the requirements set forth in the Bidding Documents.

1.11 SUB-BIDDER: A person or entity who submits a Bid to a Bidder for materials or labor, or both for a portion of the Work.

1.12 BID: A complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

- 1.13 **BASE BID:** The sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids (if any are required to be stated in the bid).
- 1.14 **ALTERNATE BID (or ALTERNATE):** An amount stated in the Bid, where applicable, to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents is accepted.
- 1.15 **UNIT PRICE:** An amount stated in the Bid, where applicable, as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.
- 1.16 **SURETY:** The corporate body which is bound with and for the Contract, or which is liable, and which engages to be responsible for the Contractor's payments of all debts pertaining to and for his acceptable performance of the Work for which he has contracted.
- 1.17 **BIDDER'S DEPOSIT:** The security designated in the Bid to be furnished by the Bidder as a guaranty of good faith to enter into a contract with the Agency if the Work to be performed or the material or equipment to be furnished is awarded to him.
- 1.18 **CONTRACT:** The written agreement covering the furnishing and delivery of material or work to be performed.
- 1.19 **CONTRACTOR:** Any individual, firm or corporation with whom a contract is made by the Agency.
- 1.20 **SUBCONTRACTOR:** An individual, partnership or corporation which has a direct contract with a contractor to furnish labor and materials at the job site, or to perform construction labor and furnish material in connection with such labor at the job site.
- 1.21 **CONTRACT BOND:** The approved form of security furnished by the contractor and his surety as a guaranty of good faith on the part of the contractor to execute the work in accordance with the terms of the contract.

ARTICLE 2: BIDDER'S REPRESENTATIONS

- 2.1 **PRE-BID MEETING**
- 2.1.1 A pre-bid meeting for this project will be held at the time and place designated. Attendance at this meeting is a pre-requisite for submitting a Bid, unless this requirement is specifically waived elsewhere in the Bid Documents.
- 2.2 By submitting a Bid, the Bidder represents that:
- 2.2.1 The Bidder has read and understands the Bidding Documents and that the Bid is made in accordance therewith.
- 2.2.2 The Bidder has visited the site, become familiar with existing conditions under which the Work is to be performed, and has correlated the Bidder's his personal observations with the requirements of the proposed Contract Documents.
- 2.2.3 The Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception.
- 2.3 **ASSIGNMENT OF ANTITRUST CLAIMS**

- 2.3.1 As consideration for the award and execution by the Owner of this contract, the Contractor hereby grants, conveys, sells, assigns and transfers to the State of Delaware all of its right, title and interests in and to all known or unknown causes of action it presently has or may now or hereafter acquire under the antitrust laws of the United States and the State of Delaware, relating to the particular goods or services purchased or acquired by the Owner pursuant to this contract.

ARTICLE 3: BIDDING DOCUMENTS

3.1 COPIES OF BID DOCUMENTS

- 3.1.1 Bidders may obtain complete sets of the Bidding Documents from the Architectural/Engineering firm designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein.
- 3.1.2 Bidders shall use complete sets of Bidding Documents for preparation of Bids. The issuing Agency nor the Architect assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 3.1.3 Any errors, inconsistencies or omissions discovered shall be reported to the Architect immediately.
- 3.1.4 The Owner and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

- 3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall report any errors, inconsistencies, or ambiguities discovered to the Architect.
- 3.2.2 Bidders or Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Architect at least seven days prior to the date for receipt of Bids. Interpretations, corrections and changes to the Bidding Documents will be made by written Addendum. Interpretations, corrections, or changes to the Bidding Documents made in any other manner shall not be binding.
- 3.2.3 The apparent silence of the specifications as to any detail, or the apparent omission from it of detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and only material and workmanship of the first quality are to be used. Proof of specification compliance will be the responsibility of the Bidder.
- 3.2.4 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all permits, labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work.
- 3.2.5 The Owner will bear the costs for all impact and user fees associated with the project.

3.3 SUBSTITUTIONS

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

- 3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of quality, required function, dimension, and appearance to be met by any proposed substitution. The specification of a particular manufacturer or model number is not intended to be proprietary in any way. Substitutions of products for those named will be considered, providing that the Vendor certifies that the function, quality, and performance characteristics of the material offered is equal or superior to that specified. It shall be the Bidder's responsibility to assure that the proposed substitution will not affect the intent of the design, and to make any installation modifications required to accommodate the substitution.
- 3.3.2 Requests for substitutions shall be made in writing to the Architect at least ten days prior to the date of the Bid Opening. Such requests shall include a complete description of the proposed substitution, drawings, performance and test data, explanation of required installation modifications due the substitution, and any other information necessary for an evaluation. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval shall be final. The Architect is to notify Owner prior to any approvals.
- 3.3.3 If the Architect approves a substitution prior to the receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding.
- 3.3.4 The Architect shall have no obligation to consider any substitutions after the Contract award.
- 3.4 ADDENDA
- 3.4.1 Addenda will be mailed or delivered to all who are known by the Architect to have received a complete set of the Bidding Documents.
- 3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.
- 3.4.3 No Addenda will be issued later than 4 days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which extends the time or changes the location for the opening of bids.
- 3.4.4 Each bidder shall ascertain prior to submitting his Bid that they have received all Addenda issued, and shall acknowledge their receipt in their Bid in the appropriate space. Not acknowledging an issued Addenda could be grounds for determining a bid to be non-responsive.

ARTICLE 4: BIDDING PROCEDURES

- 4.1 PREPARATION OF BIDS
- 4.1.1 Submit the bids on the Bid Forms included with the Bidding Documents.
- 4.1.2 Submit the original Bid Form for each bid. Bid Forms may be removed from the project manual for this purpose.
- 4.1.3 Execute all blanks on the Bid Form in a non-erasable medium (typewriter or manually in ink).
- 4.1.4 Where so indicated by the makeup on the Bid Form, express sums in both words and figures, in case of discrepancy between the two, the written amount shall govern.
- 4.1.5 Interlineations, alterations or erasures must be initialed by the signer of the Bid.

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

- 4.1.6 BID ALL REQUESTED ALTERNATES AND UNIT PRICES, IF ANY. If there is no change in the Base Bid for an Alternate, enter "No Change". The Contractor is responsible for verifying that they have received all addenda issued during the bidding period. Work required by Addenda shall automatically become part of the Contract.
- 4.1.7 Make no additional stipulations on the Bid Form and do not qualify the Bid in any other manner.
- 4.1.8 Each copy of the Bid shall include the legal name of the Bidder and a statement whether the Bidder is a sole proprietor, a partnership, a corporation, or any legal entity, and each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current Power of Attorney attached, certifying agent's authority to bind the Bidder.
- 4.1.9 Bidder shall complete the Non-Collusion Statement form included with the Bid Forms and include it with their Bid.
- 4.1.10 In the construction of all Public Works projects for the State of Delaware or any agency thereof, preference in employment of laborers, workers or mechanics shall be given to bona fide legal citizens of the State who have established citizenship by residence of at least 90 days in the State.
- 4.2 BID SECURITY
- 4.2.1 All bids shall be accompanied by a deposit of either a good and sufficient bond to the agency for the benefit of the agency, with corporate surety authorized to do business in this State, the form of the bond and the surety to be approved by the agency, or a security of the bidder assigned to the agency, for a sum equal to at least five (5) percent of the bid plus all add alternates, or in lieu of the bid bond a security deposit in the form of a certified check, bank treasurer's check, cashier's check, money order, or other prior approved secured deposit assigned to the State. The bid bond need not be for a specific sum, but may be stated to be for a sum equal to 10% of the bid plus all add alternates to which it relates and not to exceed a certain stated sum, if said sum is equal to at least 10% of the bid. The Bid Bond form used shall be in the form included in this manual.
- 4.2.2 The Owner has the right to retain the bid security of Bidders to whom an award is being considered until either a formal contract has been executed and bonds have been furnished or the specified time has elapsed so the Bids may be withdrawn or all Bids have been rejected.
- 4.2.3 In the event of any successful Bidder refusing or neglecting to execute a formal contract and bond within seven (7) days of the awarding of the contract, the bid bond or security deposited by the successful bidder shall be forfeited.
- 4.3 SUBCONTRACTOR LIST
- 4.3.1 As required by Delaware Code, Title 29, section 6962(d)(10)b, each Bidder shall submit with their Bid a completed List of Sub-Contractors included with the Bid Form. **NAME ONLY ONE SUBCONTRACTOR FOR EACH TRADE.** A Bid will be considered non-responsive unless the completed list is included.
- 4.3.2 Provide the Name and Address for each listed subcontractor. Addresses by City, Town or Locality, plus State, will be acceptable.

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

- 4.3.3 It is the responsibility of the Contractor to ensure that their Subcontractors are in compliance with the provisions of this law. Also, if a Contractor elects to list themselves as a Subcontractor for any category, they must specifically name themselves on the Bid Form and be able to document their capability to act as Subcontractor in that category in accordance with this law.
- 4.4 EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS
- 4.4.1 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, creed, sex, color, sexual orientation, gender identity or national origin. The Contractor will take affirmative action to ensure the applicants are employed, and that employees are treated during employment, without regard to their race, creed, sex, color, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this 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, creed, sex, color, sexual orientation, gender identity or national origin."
- 4.6 SUBMISSION OF BIDS
- 4.6.1 Enclose the Bid, the Bid Security, and any other documents required to be submitted with the Bid in a sealed opaque envelope. Address the envelope to the party receiving the Bids. Identify with the project name, and the Bidder's name and address. If the Bid is sent by mail, enclose the sealed envelope in a separate mailing envelope with the notation "BID ENCLOSED – DO NOT OPEN!" on the face thereof. The Owner is not responsible for the opening of bids prior to bid opening date and time that are not properly marked.
- 4.6.2 Deposit Bids at the designated location prior to the time and date for receipt of bids indicated in the Advertisement for Bids. Bids received after the time and date for receipt of bids will be marked "LATE BID" and returned.
- 4.6.3 Bidder assumes full responsibility for timely delivery at location designated for receipt of bids.
- 4.6.4 Oral, telephonic or telegraphic bids are invalid and will not receive consideration.
- 4.6.5 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids, provided that they are then fully in compliance with these Instructions to Bidders.
- 4.7 MODIFICATION OR WITHDRAWAL OF BIDS
- 4.7.1 Prior to the closing date for receipt of Bids, a Bidder may withdraw a Bid by personal request and by showing proper identification to the Architect. A request for withdraw by letter or fax, if the Architect is notified in writing prior to receipt of fax, is acceptable. A fax directing a modification in the bid price will render the Bid informal, causing it to be ineligible for consideration of award. Telephone directives for modification of the bid price shall not be permitted and will have no bearing on the submitted proposal in any manner.

4.7.2 Bidders submitting Bids that are late shall be notified as soon as practicable and the bid shall be returned.

4.7.3 A Bid may not be modified, withdrawn or canceled by the Bidder during a ninety (90) day period following the time and date designated for the receipt and opening of Bids, and Bidder so agrees in submitting their Bid. Bids shall be binding for ninety (90) days after the date of the Bid opening.

ARTICLE 5: CONSIDERATION OF BIDS

5.1 OPENING/REJECTION OF BIDS

5.1.1 Unless otherwise stated, Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids will be made available to Bidders.

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

5.1.3 If the Bids are rejected, it will be done within ninety (90) calendar day of the Bid opening.

5.2 COMPARISON OF BIDS

5.2.1 After the Bids have been opened and read, the bid prices will be compared and the result of such comparisons will be made available to the public. Comparisons of the Bids may be based on the Base Bid plus desired Alternates. The Owner shall have the right to accept Alternates in any order or combination.

5.2.2 The Owner reserves the right to waive technicalities, to reject any or all Bids, or any portion thereof, to advertise for new Bids, to proceed to do the Work otherwise, or to abandon the Work, if in the judgment of the Owner or its agent(s), it is in the best interest of the City.

5.2.3 An increase or decrease in the quantity for any item is not sufficient grounds for an increase or decrease in the Unit Price.

5.2.4 The prices quoted are to be those for which the material will be furnished F.O.B. Job Site and include all charges that may be imposed during the period of the Contract.

5.2.5 No qualifying letter or statements in or attached to the Bid, or separate discounts will be considered in determining the low Bid except as may be otherwise herein noted. Cash or separate discounts should be computed and incorporated into Unit Bid Price(s).

5.3 DISQUALIFICATION OF BIDDERS

5.3.1 The Owner may determine that each Bidder on any Public Works Contract is responsible before awarding the Contract. Factors to be considered in determining the responsibility of a Bidder include:

- A. The Bidder's financial, physical, personnel or other resources including Subcontracts;
- B. The Bidder's record of performance on past public or private construction projects, including, but not limited to, defaults and/or final adjudication in Delaware or any other state;
- C. The Bidder's written safety plan;

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

- D. Whether the Bidder is qualified legally to contract with the State;
 - E. Whether the Bidder supplied all necessary information concerning its responsibility; and,
 - F. Any other specific criteria for a particular procurement, which an agency may establish; provided however, that, the criteria be set forth in the Invitation to Bid and is otherwise in conformity with State and/or Federal law.
- 5.3.2 If an agency determines that a Bidder is nonresponsive and/or nonresponsible, the determination shall be in writing and set forth the basis for the determination. A copy of the determination shall be sent to the affected Bidder within five (5) working days of said determination.
- 5.3.3 In addition, any one or more of the following causes may be considered as sufficient for the disqualification of a Bidder and the rejection of their Bid or Bids.
- 5.3.3.1 More than one Bid for the same Contract from an individual, firm or corporation under the same or different names.
 - 5.3.3.2 Evidence of collusion among Bidders.
 - 5.3.3.3 Unsatisfactory performance record as evidenced by past experience.
 - 5.3.3.4 If the Unit Prices are obviously unbalanced either in excess or below reasonable cost analysis values.
 - 5.3.3.5 If there are any unauthorized additions, interlineation, conditional or alternate bids or irregularities of any kind which may tend to make the Bid incomplete, indefinite or ambiguous as to its meaning.
 - 5.3.3.6 If the Bid is not accompanied by the required Bid Security and other data required by the Bidding Documents.
 - 5.3.3.7 If any exceptions or qualifications of the Bid are noted on the Bid Form.
- 5.4 ACCEPTANCE OF BID AND AWARD OF CONTRACT
- 5.4.1 A formal Contract shall be executed with the successful Bidder within seven (7) calendar days after the award of the Contract.
 - 5.4.2 The Agency shall have the right to accept Alternates in any order or combination, and to determine the low Bidder on the basis of the sum of the Base Bid, plus accepted Alternates.
 - 5.4.5 The successful Bidder shall execute a formal contract, submit the required Insurance Certificate, and furnish good and sufficient bonds, unless specifically waived in the General Requirements, in accordance with the General Requirement, within seven (7) days of official notice of contract award. Bonds shall be for the benefit of the Agency with surety in the amount of 100% of the total contract award. Said Bonds shall be conditioned upon the faithful performance of the contract. Bonds shall remain in affect for period of one year after the date of substantial completion.
 - 5.4.6 If the successful Bidder fails to execute the required Contract and Bond, as aforesaid, within seven (7) calendar days after the date of official Notice of the Award of the Contract, their Bid guaranty shall immediately be taken and become the property of the Owner as

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

liquidated damages, and not as a forfeiture or as a penalty. Award will then be made to the next lowest qualified Bidder of the Work or re-advertised, as the Owner may decide.

- 5.4.7 Each bidder shall supply with its bid its taxpayer identification number (i.e., federal employer identification number or social security number) or a Delaware business license number, and should the vendor be awarded a contract, such vendor shall provide to the agency the taxpayer identification or Delaware business license numbers of such subcontractors. Such numbers shall be provided on the later of the date on which such subcontractor is required to be identified or the time the contract is executed. Prior to execution of the resulting contract, the successful Bidder shall be required to produce proof of its Delaware business license if not provided in its bid.
- 5.4.8 The Bid Security shall be returned to the successful Bidder upon the execution of the formal contract. The Bid Securities of unsuccessful bidders shall be returned within thirty (30) calendar days after the opening of the Bids.

ARTICLE 6: POST-BID INFORMATION

6.1 CONTRACTOR'S QUALIFICATION STATEMENT

- 6.1.1 Bidders to whom award of a Contract is under consideration shall, if requested by the Agency, submit a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a statement has been previously required and submitted.

ARTICLE 7: PERFORMANCE BOND AND PAYMENT BOND

7.1 BOND REQUIREMENTS

- 7.1.1 The cost of furnishing the required Bonds that are stipulated in the Bidding Documents shall be included in the Bid.
- 7.1.2 If the Bidder is required by the Owner to secure a bond from other than the Bidder's usual sources, changes in cost will be adjusted as provide in the Contract Documents.
- 7.1.3 The Performance and Payment Bond forms used shall be the standard forms (attached).

7.2 TIME OF DELIVERY AND FORM OF BONDS

- 7.2.1 The bonds shall be dated on or after the date of the Contract.
- 7.2.2 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix a certified and current copy of the power of attorney.

ARTICLE 8: FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

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

END OF INSTRUCTIONS TO BIDDERS

ADDITION TO THE MILLSBORO PUBLIC LIBRARY
MILLSBORO, DELAWARE

ADDITION TO THE MILLSBORO PUBLIC LIBRARY
MILLSBORO, DELAWARE

BID FORM

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days from the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid.

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

Should I/We be awarded this contract, I/We pledge to achieve substantial completion of all the work within _____calendar days of the Notice to Proceed.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

(State of Corporation)

Business Address: _____

Witness: _____ By: _____
(SEAL) (Authorized Signature)

(Title)

Date: _____

ATTACHMENTS

- Sub-Contractor List
- Non-Collusion Statement
- Bid Security
- (Others as Required by Project Manuals)

ADDITION TO THE MILLSBORO PUBLIC LIBRARY
MILLSBORO, DELAWARE

BID FORM

SUBCONTRACTOR LIST

The following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor **must be listed for each category** where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the *Owner*, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

<u>Subcontractor Category</u>	<u>Subcontractor</u>	<u>Address (City & State)</u>	<u>Subcontractors tax payer ID # or Delaware Business license #</u>
1. SITEWORK	_____	_____	_____
2. CONCRETE WORK	_____	_____	_____
3. MASONRY	_____	_____	_____
4. CARPENTRY	_____	_____	_____
5. GYPSUM WALLBOARD	_____	_____	_____
6. ACOUSTICAL CEILINGS	_____	_____	_____
7. FLOORING	_____	_____	_____
8. PAINTING	_____	_____	_____
9. HVAC	_____	_____	_____
10. ELECTRICAL	_____	_____	_____

BID FORM
NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date.

All the terms and conditions of *the project* "LEWES POLICE DEPT. OFFICE EXPANSION" have been thoroughly examined and are understood.

NAME OF BIDDER: _____

**AUTHORIZED REPRESENTATIVE
(TYPED):** _____

**AUTHORIZED REPRESENTATIVE
(SIGNATURE):** _____

TITLE: _____

ADDRESS OF BIDDER: _____

E-MAIL: _____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

ADDITION TO THE MILLSBORO PUBLIC LIBRARY
MILLSBORO, DELAWARE

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____
_____ of _____ in the County of _____
_____ and State of _____ as **Principal**, and _____
_____ of _____ in the County of _____
and State of _____ as **Surety**, legally authorized to do business in the State of Delaware, are
held and firmly unto the City of Lewes ("City") in the sum of _____
_____ Dollars (\$ _____), or **five (5) percent** not to exceed _____
_____ Dollars (\$ _____)
of amount of bid on "**Addition to the Millsboro Public Library**", to be paid to the Millsboro Public
Library Board of Trustees (Owner) for their use and benefit, for which payment well and truly to be made,
we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and
severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bonded **Principal**
who has submitted to the a certain proposal to enter into this contract for the furnishing of certain material
and/or services to the Owner, shall be awarded this Contract, and if said **Principal** shall well and truly enter
into and execute this Contract as may be required by the terms of this Contract and approved by the Owner
this Contract to be entered into within seven days after the date of official notice of the award thereof in
accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full
force and virtue.

Sealed with _____ seal and dated this _____ day of _____ in the year of our Lord two
thousand and nineteen (2019).

SEALED, AND DELIVERED IN THE
Presence of

Name of Bidder (Organization)

Corporate
Seal

By:

Authorized Signature

Attest _____

Title

Name of Surety

Witness: _____

By:

Title

STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR A101-2017

The contract to be utilized on this project shall be the "Standard Form of Agreement Between Owner and Contractor" AIA Document A101-2017.

SUPPLEMENT TO AGREEMENT BETWEEN OWNER AND CONTRACTOR A101-2017

The following supplements modify the "Standard Form of Agreement Between Owner and Contractor," AIA Document A101-2007. Where a portion of the Standard Form of Agreement is modified or deleted by the following, the unaltered portions of the Standard Form of Agreement shall remain in effect.

ARTICLE 5: PAYMENTS

5.1 PROGRESS PAYMENTS

5.1.3 Delete paragraph 5.1.3 in its entirety and replace with the following:

"Provided that a valid Application for Payment is received by the Architect that meets all requirements of the Contract, payment shall be made by the Owner not later than 30 days after the Owner receives the valid Application for Payment."

ARTICLE 6: DISPUTE RESOLUTION

6.2 BINDING DISPUTE RESOLUTION

Check Other – and add the following sentence:

"Any remedies available in law or in equity."

ARTICLE 8: MISCELLANEOUS PROVISIONS

8.2 Insert the following:

"Payments are due 30 days after receipt of a valid Application for Payment. After that 30 day period, interest may be charged at the rate of 1% per month not to exceed 12% per annum."

8.5 Delete paragraph 8.5 in its entirety and replace with the following:

"The Contractor's representative shall not be changed without ten days written notice to the Owner."

END OF SUPPLEMENT TO AGREEMENT BETWEEN OWNER AND CONTRACTOR

**ADDITION TO THE MILLSBORO PUBLIC LIBRARY
MILLSBORO, DELAWARE**

PERFORMANCE BOND

Bond Number: _____

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as principal (“**Principal**”), and _____, a _____ corporation, legally authorized to do business in the State of Delaware, as surety (“**Surety**”), are held and firmly bound unto the Millsboro Public Library Board of Trustees (“**Owner**”), in the amount of _____ (\$_____), to be paid to **Owner**, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole, firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 20__.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if **Principal**, who has been awarded by **Owner** that certain contract known as Contract No. _____ dated the _____ day of _____, 20__ (the “Contract”), which Contract is incorporated herein by reference, shall well and truly provide and furnish all materials, appliances and tools and perform all the work required under and pursuant to the terms and conditions of the Contract and the Contract Documents (as defined in the Contract) or any changes or modifications thereto made as therein provided, shall make good and reimburse **Owner** sufficient funds to pay the costs of completing the Contract that **Owner** may sustain by reason of any failure or default on the part of **Principal**, and shall also indemnify and save harmless **Owner** from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

Surety, for value received, hereby stipulates and agrees, if requested to do so by **Owner**, to fully perform and complete the work to be performed under the Contract pursuant to the terms, conditions and covenants thereof, if for any cause **Principal** fails or neglects to so fully perform and complete such work.

Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of **Surety** and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and **Surety** hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to **Surety** as though done or omitted to be done by or in relation to **Principal**.

**ADDITION TO THE MILLSBORO PUBLIC LIBRARY
MILSBORO, DELAWARE**

Surety hereby stipulates and agrees that no modifications, omissions or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of **Surety** and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to **Surety** or Contractor may be mailed or delivered to them at their respective addresses shown below.

IN WITNESS WHEREOF, **Principal** and **Surety** have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their duly authorized officers, the day and year first above written.

PRINCIPAL

Name: _____

Witness or Attest: Address: _____

Name:

(Corporate Seal)

By: _____ (SEAL)

Name:
Title:

SURETY

Name: _____

Witness or Attest: Address: _____

Name:

(Corporate Seal)

By: _____ (SEAL)

Name:
Title:

ADDITION TO THE MILLSBORO PUBLIC LIBRARY
MILLSBORO, DELAWARE

PAYMENT BOND

Bond Number: _____

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as principal (“**Principal**”), and _____, a _____ corporation, legally authorized to do business in the State of Delaware, as surety (“**Surety**”), are held and firmly bound unto the Millsboro Public Library Board of Trustees (“**Owner**”) in the amount of _____ (\$_____), to be paid to **Owner**, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 20__.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if **Principal**, who has been awarded by **Owner** that certain contract known as Contract No. _____ dated the _____ day of _____, 20__ (the “Contract”), which Contract is incorporated herein by reference, shall well and truly pay all and every person furnishing materials or performing labor or service in and about the performance of the work under the Contract, all and every sums of money due him, her, them or any of them, for all such materials, labor and service for which **Principal** is liable, shall make good and reimburse **Owner** sufficient funds to pay such costs in the completion of the Contract as **Owner** may sustain by reason of any failure or default on the part of **Principal**, and shall also indemnify and save harmless **Owner** from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of **Surety** and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and **Surety** hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to **Surety** as though done or omitted to be done by or in relation to **Principal**.

Surety hereby stipulates and agrees that no modifications, omission or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of **Surety** and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to **Surety** or Contractor may be mailed or delivered to them at their respective addresses shown below.

IN WITNESS WHEREOF, **Principal** and **Surety** have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their duly authorized officers, the day and year first above written.

PRINCIPAL

Name: _____

Witness or Attest: Address: _____

Name:

(Corporate Seal)

By: _____(SEAL)
Name:
Title:

SURETY

Name: _____

Witness or Attest: Address: _____

Name:

(Corporate Seal)

By: _____(SEAL)
Name:
Title:

GENERAL CONDITIONS
TO THE
CONTRACT

The General Conditions of this Contract are as stated in the American Institute of Architects Document AIA A201 (2007 Edition) entitled General Conditions of the Contract for Construction and is part of this project manual as if herein written in full.

SUPPLEMENTARY GENERAL CONDITIONS A201-2017

The following supplements modify the "General Conditions of the Contract for Construction," AIA Document A201-2007. Where a portion of the General Conditions is modified or deleted by the Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

TABLE OF SUPPLEMENTED ARTICLES

1. GENERAL PROVISIONS
2. OWNER
3. CONTRACTOR
4. ADMINISTRATION OF THE CONTRACT
6. CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7. CHANGES IN THE WORK
9. PAYMENTS AND COMPLETION
12. UNCOVERING AND CORRECTION OF WORK
13. MISCELLANEOUS PROVISIONS
14. TERMINATION OR SUSPENSION OF THE CONTRACT

ARTICLE 1: GENERAL PROVISIONS

- 1.1 BASIC DEFINITIONS
- 1.1.1 THE CONTRACT DOCUMENTS

Delete the last sentence in its entirety and replace with the following:

"The Contract Documents also include, Instructions to Bidder, sample forms, the Bid Form, the Contractor's completed Bid and the Award Letter."

Add the following Paragraph:

- 1.1.1.1 In the event of conflict or discrepancies among the Contract Documents, the Documents prepared by the Owner shall take precedence over all other documents.

- 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

Add the following Paragraphs:

- 1.2.4 In the case of an inconsistency between the Drawings and the Specifications, or within either document not clarified by addendum, the better quality or greater quantity of work shall be provided in accordance with the Architect's interpretation.

- 1.2.5 The word "PROVIDE" as used in the Contract Documents shall mean "FURNISH AND INSTALL" and shall include, without limitation, all labor, materials, equipment, transportation, services and other items required to complete the Work.
- 1.2.6 The word "PRODUCT" as used in the Contract Documents means all materials, systems and equipment.

ARTICLE 2: OWNER

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

To Subparagraph 2.2.3 – Add the following sentence:

"The Contractor, at their expense shall bear the costs to accurately identify the location of all underground utilities in the area of their excavation and shall bear all cost for any repairs required, out of failure to accurately identify said utilities."

Delete Subparagraph 2.2.5 in its entirety and substitute the following:

- 2.2.5 The Contractor shall be furnished free of charge up to five (5) sets of the Drawings and Project Manuals. Additional sets will be furnished at the cost of reproduction, postage and handling.

ARTICLE 3: CONTRACTOR

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

Amend Paragraph 3.2.2 to state that any errors, inconsistencies or omissions discovered shall be reported to the Architect and Owner immediately.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

Add the following Paragraphs:

- 3.3.2.1 The Contractor shall immediately remove from the Work, whenever requested to do so by the Owner, any person who is considered by the Owner or Architect to be incompetent or disposed to be so disorderly, or who for any reason is not satisfactory to the Owner, and that person shall not again be employed on the Work without the consent of the Owner or the Architect.
- 3.3.4 The Contractor must provide suitable storage facilities for the proper protection and safe storage of their materials. Consult the Owner and the Architect before storing any materials.
- 3.3.5 When any room is used as a shop, storeroom, office, etc., by the Contractor or Subcontractor(s) during the construction of the Work, the Contractor making use of these areas will be held responsible for any repairs, patching or cleaning arising from such use.

3.4 LABOR AND MATERIALS

Add the Following Paragraphs:

- 3.4.4 Before starting the Work, each Contractor shall carefully examine all preparatory Work that has been executed to receive their Work. Check carefully, by whatever means are required, to insure that its Work and adjacent,

related Work, will finish to proper contours, planes and levels. Promptly notify the General Contractor of any defects or imperfections in preparatory Work which will in any way affect satisfactory completion of its Work. Absence of such notification will be construed as an acceptance of preparatory Work and later claims of defects will not be recognized.

3.4.5 Under no circumstances shall the Contractor's Work proceed prior to preparatory Work proceed prior to preparatory Work having been completely cured, dried and/or otherwise made satisfactory to receive this Work. Responsibility for timely installation of all materials rests solely with the Contractor responsible for that Work, who shall maintain coordination at all times.

3.5 WARRANTY

Add the following Paragraphs:

3.5.1 The Contractor will guarantee all materials and workmanship against original defects, except injury from proper and usual wear when used for the purpose intended, for two years after Acceptance by the Owner, and will maintain all items in perfect condition during the period of guarantee.

3.5.2 Defects appearing during the period of guarantee will be made good by the Contractor at his expense upon demand of the Owner, it being required that all work will be in perfect condition when the period of guarantee will have elapsed.

3.5.3 In addition to the General Guarantee there are other guarantees required for certain items for different periods of time than the two years as above, and are particularly so stated in that part of the specifications referring to same. The said guarantees will commence at the same time as the General Guarantee.

3.5.4 If the Contractor fails to remedy any failure, defect or damage within a reasonable time after receipt of notice, the Owner will have the right to replace, repair, or otherwise remedy the failure, defect or damage at the Contractor's expense.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

Add the following Paragraphs:

3.11.1 During the course of the Work, the Contractor shall maintain a record set of drawings on which the Contractor shall mark the actual physical location of all piping, valves, equipment, conduit, outlets, access panels, controls, actuators, including all appurtenances that will be concealed once construction is complete, etc., including all invert elevations.

3.11.2 At the completion of the project, the Contractor shall obtain a set of reproducible drawings from the Architect, and neatly transfer all information outlined in 3.11.1 to provide a complete record of the as-built conditions.

3.11.3 The Contractor shall provide two (2) prints of the as-built conditions, along with the reproducible drawings themselves, to the Owner and one (1) set to the Architect. In addition, attach one complete set to each of the Operating and Maintenance Instructions/Manuals.

ARTICLE 4: ADMINISTRATION OF THE CONTRACT

4.2 ADMINISTRATION OF THE CONTRACT

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

4.2.10.1 There will be no full-time project representative provided by the Owner or Architect on this project.

Add to Paragraph 4.2.13 "and in compliance with all local requirements." to the end of the sentence

ARTICLE 6: CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

ARTICLE 7: CHANGES IN THE WORK

(SEE ARTICLE 7: CHANGES IN WORK IN THE GENERAL REQUIREMENTS)

ARTICLE 9: PAYMENTS AND COMPLETION

9.2 SCHEDULE OF VALUES

Add the following Paragraphs:

9.2.1 The Schedule of Values shall be submitted using AIA Document G702, Continuation Sheet to G703.

9.2.2 The Schedule of Values is to include a line item for Project Closeout Document Submittal. The value of this item is to be no less than 1% of the initial contract amount.

9.3 APPLICATIONS FOR PAYMENT

Add the following Paragraph:

9.3.1.3 Application for Payment shall be submitted on AIA Document G702 "Application and Certificate for Payment", supported by AIA Document G703 "Continuation Sheet". Said Applications shall be fully executed and notarized.

Add the following Paragraphs:

9.3.4 Until Closeout Documents have been received and outstanding items completed the Owner will pay 95% (ninety-five percent) of the amount due the Contractor on account of progress payments.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

Add the following to 9.5.1:

.8 a lien or attachment is filed;

.9 failure to comply with mandatory requirements for maintaining Record Documents.

9.6 PROGRESS PAYMENTS

Delete Paragraph 9.6.1 in its entirety and replace with the following:

9.6.1 After the Architect has approved and issued a Certificate for Payment, payment shall be made by the Owner within 30 days after Owner's receipt of the Certificate for Payment.

9.7 FAILURE OF PAYMENT

9.8 SUBSTANTIAL COMPLETION

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

12.2.2 AFTER SUBSTANTIAL COMPLETION

Add the following Paragraph:

12.2.2.1.1 At any time during the progress of the Work, or in any case where the nature of the defects will be such that it is not expedient to have corrected, the Owner, at its option, will have the right to deduct such sum, or sums, of money from the amount of the Contract as it considers justified to adjust the difference in value between the defective work and that required under contract including any damage to the structure.

ARTICLE 13: MISCELLANEOUS PROVISIONS

13.6 INTEREST

Strike "the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located." Insert "30 days of presentment of the authorized Certificate of Payment at the annual rate of 12% or 1% per month.

ARTICLE 14: TERMINATION OR SUSPENSION OF THE CONTRACT

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

Delete Paragraph 14.4.3 in its entirety and replace with the following:

14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and cost incurred by reason of such termination along with reasonable overhead.

END OF SUPPLEMENTARY GENERAL CONDITIONS

GENERAL REQUIREMENTS

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. INSURANCE AND BONDS
12. UNCOVERING AND CORRECTION OF WORK
13. MISCELLANEOUS PROVISIONS
14. TERMINATION OR SUSPENSION OF THE CONTRACT

ARTICLE 1: GENERAL

1.1 CONTRACT DOCUMENTS

1.1.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary and what is required by one shall be as binding as if required by all. Performance by the Contractor shall be required to an extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results.

1.1.2 Work including material purchases shall not begin until the Contractor is in receipt of a bonafide State of Delaware Purchase Order. Any work performed or material purchases prior to the issuance of the Purchase Order is done at the Contractor's own risk and cost.

1.2 EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS

1.2.1 For Public Works Projects financed in whole or in part by state appropriation the Contractor agrees that during the performance of this contract:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color, sexual orientation, gender identity or national origin. The Contractor will take positive steps to ensure that applicants are employed and that employees are treated during employment without regard to their race, creed, sex, color, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, sex, color, sexual orientation, gender identity or national origin."

ARTICLE 2: OWNER

(NO ADDITIONAL GENERAL REQUIREMENTS – SEE SUPPLEMENTARY GENERAL CONDITIONS)

ARTICLE 3: CONTRACTOR

3.1 Schedule of Values: The successful Bidder shall within twenty (20) days after receiving notice to proceed with the work, furnish to the Owner a complete schedule of values on the various items comprising the work.

3.2 Subcontracts: Upon approval of Subcontractors, the Contractor shall award their Subcontracts as soon as possible after the signing of their own contract and see that all material, their own and those of their Subcontractors, are promptly ordered so that the work will not be delayed by failure of materials to arrive on time.

3.3 Before commencing any work or construction, the General Contractor is to consult with the Owner as to matters in connection with access to the site and the allocation of Ground Areas for the various features of hauling, storage, etc.

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

- 3.4 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 the Contract Documents give other specific instructions.
- 3.5 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.
- 3.6 The Contractor warrants to the Owner that materials and equipment furnished will be new and of good quality, unless otherwise permitted, and that the work will be free from defects and in conformance with the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved, may be considered defective. If required by the Owner, the Contractor shall furnish evidence as to the kind and quality of materials and equipment provided.
- 3.7 Unless otherwise provided, the Contractor shall pay all sales, consumer, use and other similar taxes, and shall secure and pay for required permits, fees, licenses, and inspections necessary for proper execution of the Work.
- 3.8 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. The Contractor shall promptly notify the Owner if the Drawings and Specifications are observed to be at variance therewith.
- 3.9 The Contractor shall be responsible to the Owner for the acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under contract with the Contractor.
- 3.10 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 all waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials. The Contractor shall be responsible for returning all damaged areas to their original conditions.
- 3.11 STATE LICENSE AND TAX REQUIREMENTS
- 3.11.1 Each Contractor and Subcontractor shall be licensed to do business in the State of Delaware and shall pay all fees and taxes due under State laws. In conformance with Section 2503, Chapter 25, Title 30, Delaware Code, "the Contractor shall furnish the Delaware Department of Finance within ten (10) days after entering into any contract with a contractor or subcontractor not a resident of this State, a statement of total value of such contract or contracts together with the names and addresses of the contracting parties."
- 3.12. The Contractor shall comply with all requirements set forth in Section 6962, Chapter 69, Title 29 of the Delaware Code.

ARTICLE 4: ADMINISTRATION OF THE CONTRACT

- 4.1 CONTRACT SURETY
- 4.1.1 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

- 4.1.2 All bonds will be required as follows unless specifically waived elsewhere in the Bidding Documents.
- 4.1.3 Contents of Performance Bonds – The bond shall be in the form approved by the Office of Management and Budget. The bond shall be conditioned upon the faithful compliance and performance by the successful bidder of each and every term and condition of the contract and the proposal, plans, specifications, and bid documents thereof. Each term and condition shall be met at the time and in the manner prescribed by the Contract, Bid documents and the specifications, including the payment in full to every person furnishing material or performing labor in the performance of the Contract, of all sums of money due the person for such labor and material. (The bond shall also contain the successful bidder's guarantee to indemnify and save harmless the State and the agency from all costs, damages and expenses growing out of or by reason of the Contract in accordance with the Contract.)
- 4.1.4 Invoking a Performance Bond – The agency may, when it considers that the interest of the State so require, cause judgement to be confessed upon the bond.
- 4.1.5 Within twenty (20) days after the date of notice of award of contract, the Bidder to whom the award is made shall furnish a Performance Bond and Labor and Material Payment Bond, each equal to the full amount of the Contract price to guarantee the faithful performance of all terms, covenants and conditions of the same. The bonds are to be issued by an acceptable Bonding Company licensed to do business in the State of Delaware and shall be issued in duplicate.
- 4.1.6 Performance and Payment Bonds shall be maintained in full force (warranty bond) for a period of two (2) years after the date of the Certificate for Final Payment. The Performance Bond shall guarantee the satisfactory completion of the Project and that the Contractor will make good any faults or defects in his work which may develop during the period of said guarantees as a result of improper or defective workmanship, material or apparatus, whether furnished by themselves or their Sub-Contractors. The Payment Bond shall guarantee that the Contractor shall pay in full all persons, firms or corporations who furnish labor or material or both labor and material for, or on account of, the work included herein. The bonds shall be paid for by this Contractor. The Owner shall have the right to demand that the proof parties signing the bonds are duly authorized to do so.
- 4.2 FAILURE TO COMPLY WITH CONTRACT
- 4.2.1 If any firm entering into a contract with the State, or Agency that neglects or refuses to perform or fails to comply with the terms thereof, the Agency which signed the Contract may terminate the Contract and proceed to award a new contract in accordance with this Chapter 69, Title 29 of the Delaware Code or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond. Nothing herein shall preclude the Agency from pursuing additional remedies as otherwise provided by law.
- 4.3 CONTRACT INSURANCE AND CONTRACT LIABILITY
- 4.3.1 In addition to the bond requirements stated in the Bid Documents, each successful Bidder shall purchase adequate insurance for the performance of the Contract and, by submission of a Bid, agrees to indemnify and save harmless and to defend all legal or equitable actions brought against the State, any Agency, officer and/or employee of the State, for and from all claims of liability which is or may be the result of the successful Bidder's actions during the performance of the Contract.

4.3.2 The purchase or nonpurchase of such insurance or the involvement of the successful Bidder in any legal or equitable defense of any action brought against the successful Bidder based upon work performed pursuant to the Contract will not waive any defense which the State, its agencies and their respective officers, employees and agents might otherwise have against such claims, specifically including the defense of sovereign immunity, where applicable, and by the terms of this section, the State and all agencies, officers and employees thereof shall not be financially responsible for the consequences of work performed, pursuant to said contract.

4.4 RIGHT TO AUDIT RECORDS

4.4.1 The Owner shall have the right to audit the books and records of a Contractor or any Subcontractor under any Contract or Subcontract to the extent that the books and records relate to the performance of the Contract or Subcontract.

4.4.2 Said books and records shall be maintained by the Contractor for a period of seven (7) years from the date of final payment under the Prime Contract and by the Subcontractor for a period of seven (7) years from the date of final payment under the Subcontract.

ARTICLE 5: SUBCONTRACTORS

5.1 SUBCONTRACTING REQUIREMENTS

5.1.1 All contracts for the construction, reconstruction, alteration or repair of any public building (not a road, street or highway) shall be subject to the following provisions:

1. A contract shall be awarded only to a Bidder whose Bid is accompanied by a statement containing, for each Subcontractor category, the name and address (city or town and State only – street number and P.O. Box addresses not required) of the subcontractor whose services the Bidder intends to use in performing the Work and providing the material for such Subcontractor category.
2. A Bid will not be accepted nor will an award of any Contract be made to any Bidder which, as the Prime Contractor, has listed itself as the Subcontractor for any Subcontractor unless:
 - A. It has been established to the satisfaction of the awarding Agency that the Bidder has customarily performed the specialty work of such Subcontractor category by artisans regularly employed by the Bidder's firm;
 - B. That the Bidder is duly licensed by the State to engage in such specialty work, if the State requires licenses; and
 - C. That the Bidder is recognized in the industry as a bona fide Subcontractor or Contractor in such specialty work and Subcontractor category.

5.1.2 The decision of the awarding Agency as to whether a Bidder who list itself as the Subcontractor for a Subcontractor category shall be final and binding upon all Bidders, and no action of any nature shall lie against any awarding agency or its employees or officers because of its decision in this regard.

5.1.3 After such a Contract has been awarded, the successful Bidder shall not substitute another Subcontractor for any Subcontractor whose name was set forth in the statement which accompanied the Bid without the written consent of the awarding Agency.

- 5.1.4 No Agency shall consent to any substitution of Subcontractors unless the Agency is satisfied that the Subcontractor whose name is on the Bidders accompanying statement:
- A. Is unqualified to perform the work required;
 - B. Has failed to execute a timely reasonable Subcontract;
 - C. Has defaulted in the performance on the portion of the work covered by the Subcontract; or
 - D. Is no longer engaged in such business.

5.2 PENALTY FOR SUBSTITUTION OF SUBCONTRACTORS

- 5.2.1 Should the Contractor fail to utilize any or all of the Subcontractors in the Contractor's Bid statement in the performance of the Work on the public bidding, the Contractor shall be penalized in the amount of (project specific amount*). The Agency may determine to deduct payments of the penalty from the Contractor or have the amount paid directly to the Agency. Any penalty amount assessed against the Contractor may be remitted or refunded, in whole or in part, by the Agency awarding the Contract, only if it is established to the satisfaction of the Agency that the Subcontractor in question has defaulted or is no longer engaged in such business. No claim for the remission or refund of any penalty shall be granted unless an application is filed within one year after the liability of the successful Bidder accrues. All penalty amounts assessed and not refunded or remitted to the contractor shall be reverted to the State.

*one (1) percent of contract amount not to exceed \$10,000

5.3 STANDARDS OF CONSTRUCTION FOR THE PROTECTION OF THE PHYSICALLY HANDICAPPED

- 5.3.1 All Contracts shall conform with the standard established by the Delaware Architectural Accessibility Board unless otherwise exempted by the Board.

5.4 CONTRACT PERFORMANCE

- 5.4.1 Any firm entering into a Public Works Contract that neglects or refuses to perform or fails to comply with its terms, the City may terminate the Contract and proceed to award a new Contract or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond.

ARTICLE 6: CONSTRUCTION BY OWNER OR SEPARATE CONTRACTORS

- 6.1 The Owner reserves the right to simultaneously perform other 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 Projects at the same site.

- 6.2 The Contractor shall afford the Owner and other Contractors reasonable opportunity for access and storage of materials and equipment, and for the performance of their activities, and shall connect and coordinate their activities with other forces as required by the Contract Documents.

ARTICLE 7: CHANGES IN THE WORK

- 7.1 The Owner, without invalidating the Contract, may order changes in the Work consisting of Additions, Deletions, Modifications or Substitutions, with the Contract Sum and Contract completion date being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Professional, as the duly authorized agent, the Contractor and the Owner.
- 7.2 The Contract Sum and Contract Completion Date shall be adjusted only by a fully executed Change Order.
- 7.3 The additional cost, or credit to the Owner resulting from a change in the Work shall be by mutual agreement of the Owner, Contractor and the Architect. In all cases, this cost or credit shall be based on the 'DPE' wages required and the "invoice price" of the materials/equipment needed.
- 7.3.1 "DPE" shall be defined to mean "direct personnel expense". Direct payroll expense includes direct salary plus customary fringe benefits (prevailing wage rates) and documented statutory costs such as workman's compensation insurance, Social Security/Medicare, and unemployment insurance (a maximum multiplier of 1.35 times DPE).
- 7.3.2 "Invoice price" of materials/equipment shall be defined to mean the actual cost of materials and/or equipment that is paid by the Contractor, (or subcontractor), to a material distributor, direct factory vendor, store, material provider, or equipment leasing entity. Rates for equipment that is leased and/or owned by the Contractor or subcontractor(s) shall not exceed those listed in the latest version of the "Means Building Construction Cost Data" publication.
- 7.3.3 In addition to the above, the General Contractor is allowed a fifteen percent (15%) markup for overhead and profit for additional work performed by the General Contractor's own forces. For additional subcontractor work, the Subcontractor is allowed a fifteen (15) percent overhead and profit on change order work above and beyond the direct costs stated previously. To this amount, the General Contractor will be allowed a mark-up not exceeding seven and one half percent (7.5%) on the subcontractors work. These mark-ups shall include all costs including, but not limited to: overhead, profit, bonds, insurance, supervision, etc. No markup is permitted on the work of the subcontractors subcontractor. No additional costs shall be allowed for changes related to the Contractor's onsite superintendent/staff, or project manager, unless a change in the work changes the project duration and is identified by the CPM schedule. There will be no other costs associated with the change order.

ARTICLE 8: TIME

- 8.1 Time limits, if any, are as stated in the Project Manual. By executing the Agreement, the Contractor confirms that the stipulated limits are reasonable, and that the Work will be completed within the anticipated time frame.
- 8.2 If progress of the Work is delayed at any time by changes ordered by the Owner, by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions, unavoidable casualties or other causes beyond the Contractor's control, the Contract Time shall be extended for such reasonable time as the Owner may determine.

- 8.3 Any extension of time beyond the date fixed for completion of the construction and acceptance of any part of the Work called for by the Contract, or the occupancy of the building by the Owner, in whole or in part, previous to the completion shall not be deemed a waiver by the Owner of his right to annul or terminate the Contract for abandonment or delay in the matter provided for, nor relieve the Contractor of full responsibility.
- 8.4 SUSPENSION AND DEBARMENT
- 8.4.1 Per Section 6962(d)(14), Title 29, Delaware Code, "Any Contractor who fails to perform a public works contract or complete a public works project within the time schedule established by the Agency in the Invitation To Bid, may be subject to Suspension or Debarment for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the Project."
- 8.4.2 "Upon such failure for any of the above stated reasons, the Agency that contracted for the public works project may petition the Director of the Office of Management and Budget for Suspension or Debarment of the Contractor. The Agency shall send a copy of the petition to the Contractor within three (3) working days of filing with the Director. If the Director concludes that the petition has merit, the Director shall schedule and hold a hearing to determine whether to suspend the Contractor, debar the Contractor or deny the petition. The Agency shall have the burden of proving, by a preponderance of the evidence, that the Contractor failed to perform or complete the public works project within the time schedule established by the Agency and failed to do so for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the project. Upon a finding in favor of the Agency, the Director may suspend a Contractor from Bidding on any project funded, in whole or in part, with public funds for up to 1 year for a first offense, up to 3 years for a second offense and permanently debar the Contractor for a third offense. The Director shall issue a written decision and shall send a copy to the Contractor and the Agency. Such decision may be appealed to the Superior Court within thirty (30) days for a review on the record."
- 8.5 RETAINAGE
- 8.5.1 Per Section 6962(d)(5) a.3, Title 29, Delaware Code: The Agency may at the beginning of each public works project establish a time schedule for the completion of the project. If the project is delayed beyond the completion date due to the Contractor's failure to meet their responsibilities, the Agency may forfeit, at its discretion, all or part of the Contractor's retainage.
- 8.5.2 This forfeiture of retainage also applies to the timely completion of the punchlist. A punchlist will only be prepared upon the mutual agreement of the Owner, Architect and Contractor. Once the punchlist is prepared, all three parties will by mutual agreement, establish a schedule for its completion. Should completion of the punchlist be delayed beyond the established date due to the Contractor's failure to meet their responsibilities, the Agency may hold permanently, at its discretion, all or part of the Contractor's retainage.

ARTICLE 9: PAYMENTS AND COMPLETION

9.1 APPLICATION FOR PAYMENT

9.1.1 Applications for payment shall be made upon AIA Document G702. There will be a five percent (5%) retainage on all Contractor's monthly invoices until completion of the project. This retainage may become payable upon receipt of all required closeout documentation, provided all other requirements of the Contract Documents have been met.

9.1.2 A date will be fixed for the taking of the monthly account of work done. Upon receipt of Contractor's itemized application for payment, such application will be audited, modified, if found necessary, and approved for the amount. Statement shall be submitted to the Owner.

9.1.3 Section 6516, Title 29 of the Delaware Code annualized interest is not to exceed 12% per annum beginning thirty (30) days after the "presentment" (as opposed to the date) of the invoice.

9.2 PARTIAL PAYMENTS

9.2.1 Any public works Contract executed by any Agency may provide for partial payments at the option of the Owner with respect to materials placed along or upon the sites or stored at secured locations, which are suitable for use in the performance of the contract.

9.2.2 When approved by the agency, partial payment may include the values of tested and acceptable materials of a nonperishable or noncontaminative nature which have been produced or furnished for incorporation as a permanent part of the work yet to be completed, provided acceptable provisions have been made for storage.

9.2.2.1 Any allowance made for materials on hand will not exceed the delivered cost of the materials as verified by invoices furnished by the Contractor, nor will it exceed the contract bid price for the material complete in place.

9.2.3 If requested by the Agency, receipted bills from all Contractors, Subcontractors, and material, men, etc., for the previous payment must accompany each application for payment. Following such a request, no payment will be made until these receipted bills have been received by the Owner.

9.3 SUBSTANTIAL COMPLETION

9.3.1 When the building has been made suitable for occupancy, but still requires small items of miscellaneous work, the Owner will determine the date when the project has been substantially completed.

9.3.2 If, after the Work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and without terminating the Contract, the Owner may make payment of the balance due for the portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment that it shall not constitute a waiver of claims.

9.3.3 On projects where commissioning is included, the commissioning work as defined in the specifications must be complete prior to the issuance of substantial completion.

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

- 9.4 FINAL PAYMENT
- 9.4.1 Final payment, including the five percent (5%) retainage if determined appropriate, shall be made within thirty (30) days after the Work is fully completed and the Contract fully performed and provided that the Contractor has submitted the following closeout documentation (in addition to any other documentation required elsewhere in the Contract Documents):
- 9.4.1.1 Evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the work have been paid,
- 9.4.1.2 An acceptable RELEASE OF LIENS,
- 9.4.1.3 Copies of all applicable warranties,
- 9.4.1.4 As-built drawings,
- 9.4.1.5 Operations and Maintenance Manuals,
- 9.4.1.6 Instruction Manuals,
- 9.4.1.7 Consent of Surety to final payment.
- 9.4.1.8 The Owner reserves the right to retain payments, or parts thereof, for its protection until the foregoing conditions have been complied with, defective work corrected and all unsatisfactory conditions remedied.

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

- 10.1 The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take all reasonable precautions to prevent damage, injury or loss to: workers, persons nearby who may be affected, the Work, materials and equipment to be incorporated, and existing property at the site or adjacent thereto. The Contractor shall give notices and comply with applicable laws ordinances, rules regulations, and lawful orders of public authorities bearing on the safety of persons and property and their protection from injury, damage, or loss. The Contractor shall promptly remedy damage and loss to property at the site caused in whole or in part by the Contractor, a Subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.
- 10.2 The Contractor shall notify the Owner in the event any existing hazardous material such as lead, PCBs, asbestos, etc. is encountered on the project. The Owner will arrange with a qualified specialist for the identification, testing, removal, handling and protection against exposure or environmental pollution, to comply with applicable regulation laws and ordinances. The Contractor and Architect will not be required to participate in or to perform this operation. Upon completion of this work, the Owner will notify the Contractor and Architect in writing the area has been cleared and approved by the authorities in order for the work to proceed. The Contractor shall attach documentation from the authorities of said approval.
- 10.3 As required in the Hazardous Chemical Information Act of June 1984, all vendors supplying any materials that may be defined as hazardous, must provide Material Safety Data Sheets for those products. Any chemical product should be considered hazardous if it has a warning caution on the label relating to a potential physical or health hazard, if it is known to be present in the work place, and if employees may be exposed under normal conditions or in any foreseeable emergency situation. Material Safety Data Sheets must be provided directly to the Owner along with the shipping slips that include those products.

10.4 The Contractor shall certify to the Owner that materials incorporated into the Work are free of all asbestos. This certification may be in the form of Material Safety Data Sheet (MSDS) provided by the product manufacturer for the materials used in construction, as specified or as provided by the Contractor.

ARTICLE 11: INSURANCE AND BONDS

11.1 The Contractor shall carry all insurance required by law, such as Unemployment Insurance, etc. The Contractor shall carry such insurance coverage as they desire on their own property such as a field office, storage sheds or other structures erected upon the project site that belong to them and for their own use. The Subcontractors involved with this project shall carry whatever insurance protection they consider necessary to cover the loss of any of their personal property, etc.

11.2 Upon being awarded the Contract, the Contractor shall obtain a minimum of two (2) copies of all required insurance certificates called for herein, and submit one (1) copy of each certificate, to the Owner, within 20 days of contract award.

11.3 Bodily Injury Liability and Property Damage Liability Insurance shall, in addition to the coverage included herein, include coverage for injury to or destruction of any property arising out of the collapse of or structural injury to any building or structure due to demolition work and evidence of these coverages shall be filed with and approved by the Owner.

11.4 The Contractor's Property Damage Liability Insurance shall, in addition to the coverage noted herein, include coverage on all real and personal property in their care, custody and control damaged in any way by the Contractor or their Subcontractors during the entire construction period on this project.

11.5 Builders Risk (including Standard Extended Coverage Insurance) on the existing building during the entire construction period, shall not be provided by the Contractor under this contract. The Owner shall insure the existing building and all of its contents and all this new alteration work under this contract during entire construction period for the full insurable value of the entire work at the site. Note, however, that the Contractor and their Subcontractors shall be responsible for insuring building materials (installed and stored) and their tools and equipment whenever in use on the project, against fire damage, theft, vandalism, etc.

11.6 Certificates of the insurance company or companies stating the amount and type of coverage, terms of policies, etc., shall be furnished to the Owner, within 20 days of contract award.

11.7 The Contractor shall, at their own expense, (in addition to the above) carry the following forms of insurance:

11.7.1 Contractor's Contractual Liability Insurance

Minimum coverage to be:

Bodily Injury	\$500,000	for each person
	\$1,000,000	for each occurrence
	\$1,000,000	aggregate
Property Damage	\$500,000	for each occurrence
	\$1,000,000	aggregate

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

11.7.2 Contractor's Protective Liability Insurance

Minimum coverage to be:

Bodily Injury	\$500,000	for each person
	\$1,000,000	for each occurrence
	\$1,000,000	aggregate
Property Damage	\$500,000	for each occurrence
	\$500,000	aggregate

11.7.3 Automobile Liability Insurance

Minimum coverage to be:

Bodily Injury	\$1,000,000	for each person
	\$1,000,000	for each occurrence
Property Damage	\$500,000	per accident

11.7.4 Prime Contractor's and Subcontractors' policies shall include contingent and contractual liability coverage in the same minimum amounts as 11.7.1 above.

11.7.5 Workmen's Compensation (including Employer's Liability):

11.7.5.1 Minimum Limit on employer's liability to be as required by law.

11.7.5.2 Minimum Limit for all employees working at one site.

11.7.6 Certificates of Insurance must be filed with the Owner guaranteeing fifteen (15) days prior notice of cancellation, non-renewal, or any change in coverages and limits of liability shown as included on certificates.

11.7.7 Social Security Liability

11.7.7.1 With respect to all persons at any time employed by or on the payroll of the Contractor or performing any work for or on their behalf, or in connection with or arising out of the Contractor's business, the Contractor shall accept full and exclusive liability for the payment of any and all contributions or taxes or unemployment insurance, or old age retirement benefits, pensions or annuities now or hereafter imposed by the Government of the United States and the State or political subdivision thereof, whether the same be measured by wages, salaries or other remuneration paid to such persons or otherwise.

11.7.7.2 Upon request, the Contractor shall furnish Owner such information on payrolls or employment records as may be necessary to enable it to fully comply with the law imposing the aforesaid contributions or taxes.

11.7.7.3 If the Owner is required by law to and does pay any and/or all of the aforesaid contributions or taxes, the Contractor shall forthwith reimburse the Owner for the entire amount so paid by the Owner.

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

- 12.1 The Contractor shall promptly correct Work rejected by the Owner 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, and shall correct any Work found to be not in accordance with the requirements of the Contract Documents within a period of two years from the date of Substantial Completion, or by terms of an applicable special warranty required by the Contract Documents. The provisions of this Article apply to work done by Subcontractors as well as to Work done by direct employees of the Contractor.
- 12.2 At any time during the progress of the work, or in any case where the nature of the defects shall be such that it is not expedient to have them corrected, the Owner, at their option, shall have the right to deduct such sum, or sums, of money from the amount of the contract as they consider justified to adjust the difference in value between the defective work and that required under contract including any damage to the structure.

ARTICLE 13: MISCELLANEOUS PROVISIONS

- 13.1 CUTTING AND PATCHING
- 13.1.1 The Contractor shall be responsible for all cutting and patching. The Contractor shall coordinate the work of the various trades involved.
- 13.2 DIMENSIONS
- 13.2.1 All dimensions shown shall be verified by the Contractor by actual measurements at the project site. Any discrepancies between the drawings and specifications and the existing conditions shall be referred to the Owner for adjustment before any work affected thereby has been performed.
- 13.3 LABORATORY TESTS
- 13.3.1 Any specified laboratory tests of material and finished articles to be incorporated in the work shall be made by bureaus, laboratories or agencies approved by the Owner and reports of such tests shall be submitted to the Owner. The cost of the testing shall be paid for by the Contractor.
- 13.3.2 The Contractor shall furnish all sample materials required for these tests and shall deliver same without charge to the testing laboratory or other designated agency when and where directed by the Owner.
- 13.4 ARCHAEOLOGICAL EVIDENCE
- 13.4.1 Whenever, in the course of construction, any archaeological evidence is encountered on the surface or below the surface of the ground, the Contractor shall notify the authorities of the Delaware Archaeological Board and suspend work in the immediate area for a reasonable time to permit those authorities, or persons designated by them, to examine the area and ensure the proper removal of the archaeological evidence for suitable preservation in the State Museum.
- 13.5 GLASS REPLACEMENT AND CLEANING
- 13.5.1 The General Contractor shall replace without expense to the Owner all glass broken during the construction of the project. If job conditions warrant, at completion of the job the General Contractor shall have all glass cleaned and polished.

13.6 WARRANTY

- 13.6.1 For a period of two (2) years from the date of substantial completion, as evidenced by the date of final acceptance of the work, the contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect of equipment, material or workmanship performed by the contractor or any of his subcontractors or suppliers. However, manufacturer's warranties and guarantees, if for a period longer than two (2) years, shall take precedence over the above warranties. The contractor shall remedy, at his own expense, any such failure to conform or any such defect. The protection of this warranty shall be included in the Contractor's Performance Bond.

ARTICLE 14: TERMINATION OF CONTRACT

- 14.1 If the Contractor defaults or persistently fails or neglects to carry out the Work in accordance with the Contract Documents or fails to perform a provision of the Contract, the Owner, after seven days written notice to the Contractor, may make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor. Alternatively, at the Owner's option, and the Owner may terminate the Contract and take possession of the site and of all materials, equipment, tools, and machinery thereon owned by the Contractor and may finish the Work by whatever method the Owner may deem expedient. If the costs of finishing the Work exceed any unpaid compensation due the Contractor, the Contractor shall pay the difference to the Owner.
- 14.2 "If the continuation of this Agreement is contingent upon the appropriation of adequate state, or federal funds, this Agreement may be terminated on the date beginning on the first fiscal year for which funds are not appropriated or at the exhaustion of the appropriation. The Owner may terminate this Agreement by providing written notice to the parties of such non-appropriation. All payment obligations of the Owner will cease upon the date of termination. Notwithstanding the foregoing, the Owner agrees that it will use its best efforts to obtain approval of necessary funds to continue the Agreement by taking appropriate action to request adequate funds to continue the Agreement."

END OF GENERAL REQUIREMENTS

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work includes the addition of an approximately 1,495 square-foot one-storey addition to the on the northeast corner of the existing Millsboro Public Library building to contain storage space and a staff breakroom. The new construction generally matches the existing building and consists of concrete and C.M.U. foundations, concrete slab-on-grade, wood framed walls with brick veneer and wood truss roof with asphalt shingles.

The existing exterior rear exit platform and steps are to be reconfigured and a new roof canopy built above it. HVAC consists of a ductless split system with independent remote controls. A new sink in the breakroom is be tied to the existing water and sanitary lines. Electrical work consists of new lighting, power receptacles, emergency lighting, and relocating and/or providing new exterior lighting.

Sitework consists of extending the paved fire lane around the rear of the building, and new concrete walks and steps serving the rear exit.al

The General Contractor will also be responsible for coordinating related alterations of the data, security, telephone, fire suppression and alarm systems which will be done out-of-contract by the Owner's respective contractors

- 1. Project Location: Millsboro Public Library
217 West State St.
Millsboro DE 19966
- 2. Owner: Millsboro Public Library Board of Trustees
217 West State St.
Millsboro DE 19966
- 3. Architect: The Contract Documents were prepared for the Project by:
R. Calvin Clendaniel Associates
P.O. Box 125
18865 Butler Ave.
Lincoln, DE 19960

1.3 CONTRACT

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

1.4 WORK SEQUENCE & SCHEDULE

- A. Due to the need of the Library to maintain operations during construction, prior to commencement of the Work, the General Contractor will work together with the Owner and Architect to establish a schedule showing the proposed sequence of work, duration of closures of Areas of Work, and any other areas in the building that will be affected by the work that may disrupt normal operations.

1.5 USE OF PREMISES

- A. General: Contractor use of the premises shall be limited to those areas of work being worked on at the time, with reasonable access to occupied areas of the building as may be necessary for access to the work, items being connected or continued to the area of work, etc. Arrangements shall be made with the Owner's representative for any work that will be necessary to be done outside of the particular area of work.

Reasonable notice shall be given to the Owner to arrange for such work to be done so as to minimize disruption of the operations.

Use of the project site during construction will be limited to those areas being worked on at the time. The Contractor will be required to maintain vehicular and pedestrian access to the parking lots and building at all times. Areas for storage of materials and the Contractor's temporary office will be established prior to construction; however, due to the need to maintain parking and access on the site, storage for materials will be limited and the Contractor may find it necessary to store materials off-site.

- B. Because the police department will be operating and occupied during the entire construction project, certain restrictions will be necessary for the safety of the occupants. Areas of operations will be strictly monitored and secure construction barriers will be necessary. The Contractor will be required to coordinate with the Owner in establishing times when work in or near the occupied building is needed, as well as times when utilities, driveways, parking, or street access will be closed or limited.

1.6 WORK UNDER OTHER CONTRACTS

- A. Separate Contracts: Owner will award separate contracts for performance of certain construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract and it will be the responsibility of the General Contractor to coordinate the work of this Contract with that work being done under separate contracts. Other contracts will include the following:

1. Alterations to the fire alarm and security system;
2. Alterations to the telephone and data systems;

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

1.7 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 48-division 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 01 10 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Use Charges: Owner will pay use charges for temporary utilities.
- B. Use water and electric power from Owner's existing system without metering and without payment of use charges.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. Heating Equipment: Permanent heating is not available. Provide vented, self-contained temporary heaters with thermostatic control as necessary.

PART 3 - EXECUTION

3.1 TEMPORARY UTILITIES

- A. Heating and Cooling: Provide temporary heating and cooling required for curing materials and for protecting installed construction from adverse weather. Use equipment that will not have a harmful effect on completed installations or elements being installed.

3.2 TEMPORARY FACILITIES

- A. Provide field offices, storage trailers, and other support facilities as necessary for the Work.
- B. Collect waste **daily** and, when containers are full, legally dispose of waste off-site.
 - 1. Handle hazardous, dangerous, or unsanitary waste materials in separate closed waste containers. Dispose of material according to applicable laws and regulations.
- C. Install temporary signs in locations and of a size and type approved by Owner to inform the construction personnel and users of the Facility of locations of entrances, closures, emergency egress, etc. Signs to be provided will include, but not necessarily be limited to:
 - 1. Temporary traffic directional signs such as parking lot entry and closure signs;
 - 2. Temporary interior emergency egress signs;
 - 3. Temporary interior and exterior directional signs;

3.3 SUPERVISION

- A. The General Contractor must provide a full-time, on-site Project Superintendent for the duration of the Project. The Superintendent shall have the authority to make decisions on the General Contractor's behalf regarding scheduling and minor changes in the Work. He shall also work closely with the Owner's Project Manager to ensure that the work proceeds satisfactorily. He shall also oversee the scheduling and work of the Sub-contractors and see that any deficiencies in their work are corrected.

3.4 CONSTRUCTION MEETINGS

- A. There will be regular progress meetings every other week. The day and time will be established at the Pre-Construction Meeting. The General Contractor's on-site Superintendent shall attend all meetings, as well as the Architect, Owner's Project Manager, and representatives of all Sub-Contractors involved with the Work or schedule to do work prior to the next meeting. The Architect will conduct the meetings and record the minutes.

3.5 TEMPORARY CONTROLS

- A. It is very important that the occupants and operations of the areas of the complex not under construction are not disrupted due to excessive noise, dust, dirt, fumes, etc. Prior to Commencement of Work, provide a plan showing locations, sequences and types of all temporary environmental controls, barricades, partitions, fences, etc. to the Owner for approval. Coordinate all changes in the schedule and/or sequence of work with the Owner.
- B. Provide temporary environmental controls as required by the Owner and authorities having jurisdiction including, but not limited to, erosion and sediment control, **dust control, noise control**, and pollution control.
- C. Provide temporary barricades, warning signs, and lights, emergency lights, exit signs to protect the public and construction personnel from construction hazards.
- D. Provide temporary fire protection until permanent systems supply fire-protection needs. Comply with NFPA 241.

3.6 TERMINATION AND REMOVAL

- A. Remove temporary facilities and controls as Work Areas are completed and occupied. All remaining temporary facilities and controls shall be remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

END OF SECTION 01 50 00

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary 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. Divisions 2 through 16 Sections 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 for each Work Area, 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 any insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, and similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 8. Complete startup testing of systems.

9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Work Area and/or Project site, along with mockups, construction tools, and similar elements.
11. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
12. Complete final cleaning requirements, including touch-up painting.
13. Touch-up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

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

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.
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
6. General One-Year Guarantee for all materials and workmanship.
7. Special Guarantees. (See applicable specification sections.)
8. Contractor's Affidavit of Payment of Debts and Claims, AIAG706.
9. Contractor's Affidavit of Release of Liens, AIAG706A
10. Waiver of Liens from Sub-contractors.
11. Consent of Surety to Final Payment, AIAG707.
12. Certificate of Occupancy
13. Certification that specified operating instruction periods for mechanical and electrical systems were given to Owner's operating personnel.
14. Certification that any specified spare parts for mechanical and electrical systems were given to the Owner.
15. Two (2) copies of Operating and Maintenance Manuals for all components of the mechanical systems, or certification that they were given to Owner.
16. Copy of control diagram for mechanical systems or certification that it was given to the Owner.
17. Certification that all keys have been given to the Owner.

18. Two (2) copies of as-built drawings.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will 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 three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

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 Architect's reference during normal working hours.

B. Record Drawings: Maintain and submit one set 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 one copy of Project's Specifications, including addenda and contract modifications. Mark copy 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, **and Product Data**, where applicable.
- D. Miscellaneous Record Submittals: Assemble 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 a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
1. Operation Data:
 - a. Emergency instructions and procedures.
 - b. System, subsystem, and equipment descriptions, including operating standards.
 - c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
 - d. Description of controls and sequence of operations.
 - e. Piping diagrams.
 2. 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 Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within **15** days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. 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 ½" x 11" 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.
- D. 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, sub-systems, and equipment not part of a system.

1. Provide instructors experienced in operation and maintenance procedures.
2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
3. Schedule training with Owner, with at least seven days' advance notice.
4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.

3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and anti-pollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a 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.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

- 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Replace parts subject to unusual operating conditions.
 - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - s. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01 77 00

SECTION 2-1-00 - UNDERPINNING AND SHORING

PART 1 GENERAL

1.01 GENERAL PROVISIONS

- A. The General Conditions apply to work of this Section.

1.02 WORK INCLUDED

- A. Shore, brace, and otherwise stabilize existing structures and foundations.
- B. Excavate adjacent to and below existing foundations.
- C. Place and compact structural fill (required as underpinning material).
- D. Place cast-in-place concrete.
- E. Remove shoring, bracing, or other stabilization.
- F. Provide, maintain, and remove excavation support systems, including cribbing, sheeting, anchoring and other means of temporary and permanent support for excavations.

1.03 RELATED WORK

- A. Test structural fill in accordance with Section 2.21.
- B. Test cast in place concrete in accordance with Section 3.3.
- C. Inspect and test subsoil that will support new foundations to verify allowable bearing pressures and maximum anticipated settlements that served as basis for design. These values are noted in the drawings and specifications and are described in greater detail in the Geotechnical Report which is available for inspection at the office of the architect. Use qualified, registered geotechnical engineers for such verification.

1.04 SUBMITTALS

- A. Provide submittals for structural fill in accordance with Section 2.21.
- B. Provide submittals for concrete in accordance with Section 3.3.
- C. Provide submittals for inspection and testing of subsoils in accordance with Section 2.21.
- D. Submit plans, sections, and details of proposed shoring, bracing, and other stabilization of existing structures and foundations. Clearly show relation to existing construction. Drawings must be sealed by a qualified professional engineer registered in the state of Delaware.
- E. At Owner's request, submit plans, section, and details of proposed excavation support systems. Clearly show relation to existing construction. Drawings must be sealed by a qualified professional engineer registered in the state of Delaware.
- F. Submit complete photographic documentation if defects in existing construction that are present prior to underpinning or shoring operation. Document defects at any elevation that are within 25 horizontal feet of any portion of underpinning.

1.05 PROTECTION

- A. Protect existing construction that is not scheduled for demolition.

- B. Provide protection throughout excavation, placement of fill, and concreting in accordance with those sections noted under "RELATED WORK".
- C. Comply with applicable requirements of governing authorities having jurisdiction.

2.10 – 1 of 3

PART 2 PRODUCTS

2.01 SHORING AND BRACING OF EXISTING STRUCTURES AND FOUNDATIONS

- A. Use materials, products, and systems of suitable strength, stiffness, integrity, and durability for particular application and service.

2.02 FILL MATERIALS

- A. Comply with Section 2.21.

2.03 CONCRETE

- A. Comply with Section 3.3.

2.04 NON-SHRINK GROUT

- A. Non-shrink, non-metallic, high early strength grout. "Five Star Grout" as manufactured by U. S. Grout Corporation.

2.05 EXCAVATION SUPPORT SYSTEMS

- A. Use materials, products, and systems of suitable strength, stiffness, integrity, and durability for particular application and service.

PART 3 EXECUTION

3.01 SHORING, BRACING, AND STABILIZATION OF EXISTING CONSTRUCTION

- A. Shore, brace, and otherwise stabilize existing construction to maintain elevation, alignment, level, strength, integrity, and appearance.
- B. Design, install, and maintain shoring, bracing, and other stabilization to provide adequate strength, stiffness, integrity, anchorage, and durability throughout underpinning operation.

3.02 EXCAVATION

- A. Comply with Section 2.21, except as noted below.
- B. Do not use tools, machinery, or methods that will damage or disturb existing construction that is not scheduled for demolition or removal.
- C. Coordinate excavation and shoring to maintain elevation, alignment, level, strength, integrity, and appearance of existing construction at all times.

3.03 FILL PLACEMENT

- A. Comply with Section 2.21, except as noted below.
- B. Reduce lift thickness, if necessary, to achieve required density.

3.04 CONCRETE PLACEMENT

- A. Comply with Section 3.3, except as noted below.
- B. Clean, roughen, and blow-down vertical faces of existing concrete against which concrete will be cast.

- C. Clean bottom horizontal surfaces of existing concrete which will be underpinned.
 - D. Bring concrete to a uniform, level elevation no less than 1-1/2" and no more than 3" from the bottom surface of existing concrete.
 - E. Allow concrete to cure at least 24 hours.
 - F. Pack the void between horizontal concrete surfaces with a scarcely-moist mix of non-shrink grout, mixed according to manufacturer's recommendations. Thoroughly and completely compact the grout to fill all irregularities and voids.
 - G. Cure concrete and grout for at least 48 hours after grout placement.
- 3.05 REMOVAL OF SHORING FOR UNDERPINNING
- A. Do not remove shoring, bracing, or other stabilization until concrete and grout have cured for required period.
 - B. Coordinate removal with filling operations to maintain elevation, alignment, strength, integrity, and appearance of existing construction at all times.
 - C. Completely remove all materials, products, systems, and anchorages.
- 3.06 EXCAVATION SUPPORT SYSTEMS
- A. Provide cribbing, sheeting, anchoring and other means of temporary and permanent support for excavations.
 - B. Conform with applicable requirements of governing authorities having jurisdiction.
 - C. Use temporary support systems unless permanent support systems have been approved in advance by Owner.
 - D. Main support systems through course of construction.
 - E. Completely remove temporary support systems when they are no longer required.

END OF SECTION 02 10 00

SECTION 02 41 19 - SELECTIVE BUILDING DEMOLITION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Unless otherwise indicated, demolished materials become Contractor's property. Remove from Project site.
- B. Items indicated to be removed and salvaged remain Owner's property. Remove, clean, and deliver to Owner's designated storage area.
- C. Comply with EPA regulations and disposal regulations of authorities having jurisdiction.
- D. Conduct demolition without disrupting Owner's use of the building.
- E. If items suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 DEMOLITION

- A. Maintain and protect existing utilities to remain in service before proceeding with demolition, providing bypass connections to other parts of the building.
- B. Locate, identify, shut off, disconnect, and cap off utility services to be demolished.
- C. Conduct demolition operations and remove debris to prevent injury to people and damage to adjacent buildings and site improvements.
- D. Provide and maintain shoring, bracing, or structural support to preserve building stability and prevent movement, settlement, or collapse.
- E. Protect building structure and interior from weather and water leakage and damage.
- F. Protect walls, ceilings, floors, and exposed finishes that are to remain. Erect and maintain dust- and fume-proof partitions as necessary. Cover and protect fixtures, furnishings, and equipment that are to remain.
- G. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.

- H. Promptly patch and repair holes and damaged surfaces of building caused by demolition. Restore exposed finishes of patched areas and extend finish restoration into remaining adjoining construction.
- I. Promptly remove demolished materials from Owner's property and legally dispose of them. Do not burn demolished materials.

END OF SECTION 02 41 19

SECTION 03 30 53 - CONCRETE WORK

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

A. The general provisions of the contract apply to the Work specified in this Section.

1.02 WORK INCLUDED

- A. Formwork, complete with required shoring, bracing and anchorage.
B. Dovetail anchor slots, flashing reglets, waterstops, and other items specified to be provided and installed under the work of this Section.
C. Concrete reinforcing, complete with required supports, spacers and related accessories.
D. Placement of related items furnished under other Sections.
E. Cast-in-place concrete.
F. Vapor barrier under slabs on grade.
G. Perimeter insulation.

1.03 RELATED WORK

- A. Section 04 20 00: Unit Masonry.
B. Section 05 10 00: Structural Steel.
C. Section 05 50 00: Miscellaneous Metal Fabrications
D. Section 06 10 53: Carpentry

1.04 QUALITY ASSURANCE

- A. Conform to applicable provisions of following reference standards:
1. ACI 301 - Specifications for Structural Concrete for Buildings.
 2. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
 3. ACI 305 - Recommended Practice for Hot Weather Concreting.
 4. ACI 306 - Recommended Practice for Cold Weather Concreting.
 5. ACI 614 - Recommended Practice for Measuring, Mixing, and Placing Concrete.
 6. ACI 318 - Building Code Requirements for Reinforced Concrete.
 7. ACI 347 - Recommended Practice for Concrete Formwork.
 8. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
 9. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
 10. ASTM C33 - Concrete Aggregates.
 11. ASTM C94 - Ready-Mixed Concrete.
 12. ASTM C150 - Portland Cement.
 13. ASTM C260 - Air Entraining Admixtures for Concrete.
 14. ASTM C494 - Chemical Admixtures for Concrete.
 15. ASTM D1190 - Concrete Joint Sealer, Hot-Poured Elastic Type.
 16. ASTM D1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
 17. AWS D12.1 - Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction.

- 18. CRSI 63 - Recommended Practice for Placing Reinforcing Bars.
- 19. CRSI 65 - Recommended Practice for Placing Bar Supports, Specifications and Nomenclature.

B. Conform to notes on drawings.

1.05 TESTING

- A. Inspection and testing of concrete will be provided by the contractor performed by an acceptable testing firm in accordance with and ACI 301 unless noted otherwise.
- B. Compression Tests: Make compression test specimens in accordance with ASTM C31. Make no fewer than three (3) specimens for each test at each age, and make at least one (1) test per day for each class of concrete placed. Unless noted otherwise, specimens shall be cured under laboratory conditions. The standard age of test specimens will be 7 and 28 days. When the average strength of the test specimens falls below the required strength, tests in accordance with ASTM C42 must be performed.
- C. One (1) additional test cylinder for each test will be taken during cold weather concreting, and be cured on job site under same conditions as concrete it represents.
- D. Slump Tests: Take slump tests and record the results as directed by the Owner. Take one (1) slump test per set.

1.06 SHOP DRAWINGS

- A. Submit shop drawings of reinforcing steel in accordance with general conditions.
- B. Indicate bar sizes, spacings, locations and quantities of reinforcing steel and wire fabric, bending and cutting schedules, and supporting and spacing devices.
- C. Submit mix design for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been approved.
- D. Submit reinforcing steel shop drawings in complete sets for foundations, each structural slab, and walls. Partial set submissions will be returned without review.
- E. Allow 10 business days for review of the first submission of each set, beginning with the day immediately following receipt by the engineer. Similarly, allow 8 and 5 business days, respectively, for review of the second and third submission of each set.
- F. For walls, prepare formwork drawings sealed by a professional engineer registered in the state where construction will take place. Indicate pertinent formwork dimensioning, methods of construction, materials, arrangement and types of joints, ties and shores, location of bracing, re-shores, schedule of erection, and stripping.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Cold Weather Requirements:
 - 1. Provide adequate equipment and insulating materials for heating concrete materials and protecting concrete during freezing or near-freezing weather.
 - 2. Do not use frozen materials.
 - 3. See ACI 306 for additional requirements.
- B. Hot Weather and Dry Wind Requirements:
 - 1. Take suitable precautions to avoid drying of the concrete prior to finishing operations.

2. Provide windbreaks, sunshades, fog sprays, or other devices.
3. Concrete deposited in hot weather shall not have a placing temperature that will cause difficulty from loss of slump, flash set, or cold joints.
4. See ACI 305 for additional requirements.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS.

- A. Cement: ASTM C150, Type I or II. Air entraining cement not permitted.
- B. Normal Weight Aggregate: ASTM C33 (aggregate size per ACI 301). Limestone not permitted.
- C. Water: Potable.
- D. Air Entraining Admixtures: ASTM C260. Meet minimum percent entrained air required by ACI 301 for class and application. Air entrain all exterior concrete.
- E. Ready-Mix Concrete: ASTM C94.
- F. Water Cement Ratio: Per ACI 301.
- G. 28 Day Compressive Strength:
 1. Foundations: 3000 psi.
 2. Slabs & Walls: 4000 psi.
- H. Admixtures containing calcium chloride are not permitted.

2.02 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A615, Grade 60.
- B. Steel Wire: ASTM A82, plain, cold drawn steel.
- C. Welded Wire Fabric: ASTM A185, welded steel wire fabric, plain finish.
- D. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Wood, brick and other devices will not be acceptable.

2.03 FORM MATERIALS

- A. Wood: Group 1 Plywood, exterior grade.
- B. Metal: At Contractor's option, prefabricated metal forms may be used.

2.04 PERIMETER INSULATION

- A. As specified in or indicated on drawings.

2.05 RELATED MATERIALS (See drawings for use.)

- A. Pre-molded Joint Material: Cork and resin binder conforming to ASTM D1752 (Type 2)
1/4" thick, unless otherwise noted, compatible with joint sealing compound.
- B. Accessories and Inserts: As noted on drawings.
- C. Water stops: Reference specifications Section 3.25.
- D. Anchor Bolts: ASTM A307, sizes and diameters as shown. Galvanize per ASTM A153.
- E. Under slab Vapor Barrier: 6 mil polyethylene film at 4" slab on grade.
Reference specifications 7.1 for basement slab and wall waterproofing.
- F. Curing Membrane: 6 mil clear polyethylene film or spray on curing compound per ASTM C309 Type I. Curing compound to be compatible with floor finish.
- G. Depth of joint former shall be one-quarter of slab thickness.

- H. Bonding Agent: AASHTO M-235 Class III. Epoxy bonding adhesive for bonding fresh concrete to existing (min. tensile Strength = 800 psi). Follow manufacturer's written instructions.
- I. Dovetail Anchor Slots: Minimum 16 gauge galvanized steel; foam filled; release tapes, sealed slopes, bent tab anchors; securable to concrete formwork; Type 305 as manufactured by Hohmann & Barnard, or approved equal.
- J. Flashing Reglets: Galvanized steel; longest possible lengths; complete with alignment splines for joints; securable to concrete formwork; Type 307 as manufactured by Hohmann & Barnard, or approved equal.
- K. Adhesive Anchors: Hilti HIT Adhesive Anchors or equal.
- L. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Wood, brick and other devices will not be acceptable.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install concrete work in accordance with ACI 301 except as amended by this Section.

3.02 FORMWORK

- A. General: The design, construction, removal and re-shoring of formwork shall be the responsibility of the Contractor and shall be in accordance with the Recommended Practice for Concrete Formwork (ACI 347) and Formwork for Concrete, ACI Publication SP4.

3.03 UNDER SLAB VAPOR BARRIER

- A. Install waterproofing membrane under slabs on grade. Lap joints minimum 6 inches and seal. Do not disturb or damage vapor barrier while placing concrete reinforcing or concrete. If damage does occur, repair areas before placing concrete. Use waterproofing membrane material, lapped over damaged areas minimum 6 inches and seal.
- B. Form Release Agent: Apply form release agent on formwork in accordance with manufacturer's recommendations. Apply prior to placing reinforcing steel, anchoring devices and embedded parts. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are affected by agent. Conform to ACI 301.
- C. Chamfer (3/4") outside corners exposed in complete construction.

3.03 REINFORCEMENT

- A. General: Position, support and secure bar and mesh reinforcement against displacement. Locate and support with metal chairs, runners, bolsters, spacers and hangers, as required. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- B. Welded Wire Fabric: Install welded wire fabric in as long lengths as practicable, lapping at least one mesh.

3.04 STRUCTURAL STEEL GROUNDING

- A. Ground structural steel at each column by connecting one anchor bolt per column to vertical reinforcing by welding a short piece of reinforcing bar to bolt and reinforcing.
- 3.05 INSULATION
- A. Perimeter Insulation: Install where shown on drawings, according to manufacturer's instructions.
- 3.06 INSERTS, EMBEDDED ITEMS AND OPENINGS
- A. Set and build into the work anchorage devices and other embedded items required for work that is attached to, or supported by, cast-in-place concrete.
 - B. Use setting diagrams, templates and manufacturer's instructions for locating and setting.
 - C. Provide formed openings where required for pipes, conduits, sleeves and other work to be embedded in and passing through concrete members.
 - D. Coordinate work of other sections and cooperate with trade involved in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors and other inserts.
 - E. Requirements apply to items furnished and installed as part of the work of this Section and to items furnished under other Sections to be installed under the work of this Section.
 - F. Provide sleeves at all foundation wall penetrations. Drop footings as required so piping, etc., does not pass below footing. Step footing per detail on drawings.
- 3.07 UNDER SLAB VAPOR BARRIER
- A. Install waterproofing membrane under slabs on grade. Lap joints minimum 6 inches and seal. Do not disturb or damage vapor barrier while placing concrete reinforcing or concrete. If damage does occur, repair areas before placing concrete. Use waterproofing membrane material, lapped over damaged areas minimum 6 inches and seal.
- 3.08 CONCRETE PLACEMENT
- A. Subsoil Conditions for Foundations: Prepare site for placement of foundations in accordance with Section 31 23 00.
 - B. Allow Owner the opportunity to observe the base and reinforcement upon which concrete is to be placed prior to placement.
 - C. General:
 - 1. Comply with ACI 304, placing concrete in a continuous operation within planned joints or sections.
 - 2. Do not begin placement until work of other trades affecting concrete is complete.
 - 3. Pumping shall comply with provisions of ACI 304.
 - 4. Consolidate placed concrete using mechanical vibrating equipment with hand rodding and tamping, so that concrete is worked around reinforcement and other embedded items and into all parts of forms in accordance with accepted practice. Avoid over vibration and segregations.
 - D. Placing Concrete:
 - 1. Deposit concrete as nearly as practicable in its final position to avoid segregation due to re-handling or flowing.

2. Conform to the requirements of ACI 614.
 3. The use of conveyors, chutes, or other similar equipment will not be permitted without prior approval.
 4. Immediately after depositing, concrete shall be compacted by agitation in an approved manner to prevent formation of voids. External vibration will not be permitted.
 5. The placing of concrete shall be carried on at such a rate that concrete is at all times plastic and flows readily into spaces between bars.
 6. Provide construction joint when placing new concrete on concrete which has acquired its initial set.
 7. Concrete which has contained its mixing water more than 1-1/2 hrs. shall not be deposited in the work.
 8. Concrete shall not be allowed to drop freely more than 5 feet in unexposed work nor more than 3 feet in exposed work. Where greater drops are required, a tremle or other approved means shall be employed.
 9. Placing, once started, shall be carried on in a continuous operation until placement of the panel or section is completed.
- E. Horizontal Joints: Before depositing on concrete that has set, roughen, clean and brush existing surface with grout. The grout is to consist of cement and fine aggregate in the same proportion as concrete to be placed. Follow the brush coat with 3 inches of concrete, with the coarse aggregate required by the regular mix reduced by 50%.
- F. Vertical Joints: Except as otherwise stated, thoroughly clean the existing surfaces of all vertical joints before placing new concrete.

3.09 JOINTS

- A. Provide construction, isolation and control joints as indicated or required.
- B. Locate construction joints so as to not impair the strength and appearance of the structure.
- C. Key construction joints.
- D. Place control joints in slabs as shown, or, in any case, no more than 25'-0" apart, and so as to limit the area within any increment enclosed by control joints to a maximum of 625 square feet. Form with "Zipcap" former.
- E. Isolation Joints: Locate as shown on drawing. Use pre-molded joint material.
- F. Construct vertical wall construction/control joints with a continuous shear key with chamfered exposed edges. Locate at 40' o.c. maximum.
- G. Watertight Joints: Locate and detail as shown on drawing. Use waterstops for all joints in concrete below the first floor. Seal joints in waterstops per manufacturer's written instructions. Reference Section 3.25.

3.10 FINISHING - EXPOSED FORMED SURFACES

- A. Immediately after curing is complete as specified in this Section, the exposed concrete surface shall be given a grout clean finish. Carefully remove all fins and projections not removed previously. Remove honeycombed and defective concrete down to sound concrete. Dampen area to be patched.
- B. Apply a bonding grout of 1 part cement to 1 part sand by brushing into the surface. The patching material shall be a 1 to 2 mix of approximately the same color as the surrounding concrete and shall be reasonably dry. Consolidate mortar in place and screed off high. Finish flush with wood float.

3.11 FINISHING - INTERIOR FLOOR SLAB

- A. After concrete has been placed, struck off, consolidated and leveled, concrete shall not be worked further until ready for floating.
 - B. The surface shall then be consolidated with power driven floats. Trueness of surface shall be rechecked at this stage with a 10 foot straight-edge applied at not less than two different angles. The slab shall then be re-floated immediately to a uniform, smooth, granular texture.
 - C. Surface shall be finished with power trowels, and finally with hand trowels. The final trowling shall be done when a ringing sound is produced as the trowel is moved over the surface.
 - D. The finish surface shall be free of any trowel marks, uniform in texture and appearance.
 - E. On surfaces intended to support floor coverings, any defects of sufficient magnitude to show through the floor covering shall be removed by grinding.
 - F. Tolerances for finish surfaces shall be Class A defined in ACI-301 as being a "true plane within 1/8 inch in 10 feet as determined by a 10 foot straightedge placed anywhere on the slab in any direction".
 - G. Cure in accordance with procedures specified in this Section.
 - H. After curing is complete, apply specified chemical floor treatment in accordance with manufacturer's written instructions and as called for on drawings.
- 3.12 FINISHING - EXTERIOR CONCRETE
- A. Provide broom finish on exterior slabs.
- 3.13 PROTECTION AND CURING
- A. Keep forms wet until stripped.
 - B. As forms are being stripped, remove fins and projections. Immediately after forms are stripped, cover concrete with polyethylene sheeting or waterproof Kraft paper as specified in this Section.
 - C. Immediately after placing or finishing, concrete surfaces not covered by forms shall be protected from loss of moisture by covering with curing membrane.
 - D. Curing membrane to be lapped 4" at the edges and sealed with pressure sensitive tape, 1-1/2" wide. Weight to prevent displacement. Repair tears and holes appearing during the curing period immediately. When required during hot weather, keep the surface of the membrane in a moist condition. The curing period shall be seven (7) days, unless otherwise approved in writing. At concrete slabs to receive quarry or ceramic tile, do not use liquid curing compounds
 - E. Protect all finished concrete work from damage due to subsequent construction operations. Concrete slabs not scheduled to receive any finish other than sealer shall be protected from staining caused by dropped mortar from any adjacent masonry work.
- 3.14 CLEANING
- A. On completion of work, all forms, shore, equipment, protective covering and all rubbish resulting from this work shall be removed from the premises. All concrete shall be left clean at the complete of the work.

END OF SECTION 03 30 53

SECTION 4.20 – UNIT MASONRY

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. The general provisions of the contract apply to the Work specified in this Section.

1.02 WORK INCLUDED

- A. Concrete unit masonry complete with reinforcement, anchorages, bond beams and pre-cast lintels.
- B. Exterior brick masonry, complete with reinforcing and anchorages.
- C. Interior brick masonry, complete with reinforcing and anchorages.
- D. Mortar and grout for masonry.
- E. Formed control joints.
- F. Installation of built-in-items supplied by others.
- G. Cutting and fitting of masonry for other sections of work.
- H. Parging of masonry surfaces where indicated.
- I. Installation of built-in-flashing.
- J. Installation of fire safing insulation.
- K. Installation of loose fill insulation at all exterior c.m.u. walls.
- L. Installation of cavity insulation.

1.03 RELATED WORK

- A. Section 05 12 00 - Structural Steel.
- B. Section 05 51 00 – Metal Fabrications

1.04 QUALITY ASSURANCE

- A. Perform masonry work in accordance with requirements of ACI 530/ASCE 5 unless indicated otherwise herein.
- B. Perform mortar work in accordance with requirements of ASTM C270 unless indicated otherwise herein.
- C. When requested, provide evidence and test data confirming that products conform to standards stated herein.

1.05 REFERENCE STANDARDS

- A. Masonry work shall conform to applicable provisions of the following reference standards:
 1. ASTM A82 - Cold-Drawn Steel Wire for Concrete Reinforcement.
 2. ASTM A116 - Galvanized Coating for Concrete Reinforcement,
 3. ASTM C150 - Portland Cement.
 4. ASTM C216 - Facing Brick.
 5. ASTM C62 - Building Brick.
 6. ASTM C652 - Hollow Brick.
 7. ASTM C5 - Quicklime for Structural Purposes.
 8. ASTM C207 - Hydrated Lime for Masonry Purposes.
 9. ASTM C144 - Aggregate for Masonry Mortar.
 10. ASTM C90 - Hollow Load Bearing Concrete Masonry Units.
 11. ASTM C145 - Solid Load Bearing Concrete Masonry Units.
 12. ASTM C129 - Hollow Non-Load Bearing Concrete Masonry Units.
 13. ASTM C55 - Concrete Building Brick.

- 14. ASTM C270 - Mortar and Grout for Unit Masonry.
- 15. ANSI A41.1 - Building Code Requirements for Masonry.
- 16. ACI 531.1 - Specification for Concrete Masonry Construction.

1.07 SUBMITTALS AND SAMPLE PANELS

- A. Submit samples and product data in accordance with general conditions.
- B. Submit the following:
 - 1. Samples of face brick and concrete masonry units.
 - 2. Product data on face brick and concrete masonry units.
 - 3. Samples of anchors and reinforcement.
 - 4. Product data on anchors and reinforcement.
- C. Erect the following sample panels: Three (3) free standing (3' x 4') walls of brick veneer (Owner's choice).

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Precautions against freezing: All masonry shall be protected against freezing for not less than forty-eight (48) hours after installation; and shall not be constructed below twenty-eight (28°) degrees F. in rising temperatures or below thirty-six (36°) degrees F on falling temperatures, without temporary heated enclosures or without heating materials or other precautions necessary to prevent freezing. Frozen materials shall not be used nor shall frozen masonry be built upon.

1.09 PROTECTION

- A. Maintain protective boards at exposed external corners which may be damaged by construction activities. Provide such protection without damaging completed work.
- B. Keep expansion joint voids clear of mortar.
- C. Provide temporary bracing as required during masonry erection. Maintain in place until building structure provides permanent bracing.
- D. Cover tops of incomplete masonry at end of work periods.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Substitutions: Items of same function and performance as those specified are acceptable of subject to Owner review.

2.02 MASONRY

- A. Concrete Blocks: ASTM C90 Hollow Core load bearing, Grade N, Type I, complete with corners, bases, bond beams, lintels and fillers to match and complement block units; standard weight. External corners bullnosed. Compressive strength: $f'_m = 1500$ psi. Architectural facing as noted.
- B. Concrete Brick: ASTM C55 Type I, Grade N, standard weight.
- C. Face Brick: ASTM C216; Allow \$500 per thousand; see drawings for special shapes at water table, 45° corners, arches.

2.03 MORTAR MATERIALS

- A. Portland Cement: ASTM C150 Type I.
- B. Aggregates: ASTM C144. Free of frozen and foreign matter.
- C. Hydrated Lime: ASTM C207 Type S.

- D. Quicklime: Non-hydraulic Type ASTM C5.
- E. Premix mortar: Commercially prepared type ASTM C387 mortar Type S. Use only with written permission from Owner.
- F. Water: Clean and free from injurious amounts of oil, alkali, organic matter or other deleterious material.
- G. Masonry Cement: The use of masonry cement is not permitted.

2.04 REINFORCEMENT AND ANCHORAGES

- A. Reinforcing Steel for Bond Beams and Lintels: ASTM A615, Grade 60.
- B. Reinforcing Wire for Horizontal Reinforcing: ASTM A82 deformed steel. ASTM A116 Class 3 galvanized coating.
- C. Cavity Wall Horizontal Reinforcing: Truss type prefabricated continuous joint reinforcement and adjustable tie system; galvanized steel construction; 3/16 inch side rods; No. 9 gauge cross rods; 3/16" diameter eye and pintle sections with plastic drip rings; Dur-O-Eye, or approved equal.
- D. Single Wythe Wall Horizontal Reinforcing: Truss type prefabricated continuous joint reinforcement; galvanized steel construction, 3/16 inch side rods with 9 gauge cross ties.
- E. Column and Other Anchors: Provide adjustable column and beam anchors where masonry abuts or passes steel. Hohmann & Barnard Inc. 1/4" diameter weld on ties and 3/16" diameter vee wall fit or approved equal.
- F. Dovetail Anchors: 12 gauge Dovetail, 3/16" diameter wall tie. Hohmann & Barnard #315-BT flexible dovetail brick tie or equal. Hot dip galvanize.
- G. Brick Veneer Anchors: Hohmann & Barnard or equal 1/4 inch vee ties with plastic drip rings, hot dipped galvanized for use with 14 gauge #DW-10-X anchors. Use with metal stud and gypsum sheathing exterior wall construction.
- H. Masonry ties, brick veneer ties, dovetail anchors etc.; gauge and material as noted. Hot dip galvanize.
- I. Multiple Wythe Wall Horizontal Reinforcing: Truss type pre-fabricated continuous joint reinforcements; galvanized steel construction; 3/16" inch side rods with 9 gauge cross ties.

2.05 GROUT

- A. Use ASTM C476 or 3000 psi concrete per Section 03 30 53. Utilize to fill bond beams, lintels, and cores of concrete masonry units at vertical reinforcing. (See Drawing for location of filled cores.)

2.06 LAMINATED FLASHINGS

- A. Refer to Sections 07 60 00 – Flashing and Sheet Metal

2.07 ACCESSORIES

- A. Control Joints: Preformed rubber, neoprene or polyvinyl chloride of sizes and profiles as shown; Rapid Control joint as manufactured by Dur-O-Wall Corporation, or equal.
- B. Joint Filler: Closed cell polyvinylchloride, polyethylene or polyurethane, oversized 50% self-expanding.
- C. Weep Holes: Clear polyethylene tube, 3/8 inch O.D. Length to suit.
- D. Stone Coping Expansion Joint Filler: "Everlasting Coping Gaskets, Vinyl Type U" manufactured by Williams Products Co., Troy, Michigan, or equal.

- E. Brick Control Joints: Closed cell neoprene sponge as manufactured by Hohmann & Barnard, Inc. or equal.
- F. Joint Filler: Closed cell polyvinylchloride, polyethylene or polyurethane, oversized 50% self-expanding.
- G. Cavity Wall Insulation - 1" isocyanurate or 1" extruded polystyrene.

2.08 MORTAR MIX

- A. Provide minimum 1800 psi ASTM C270, Type S, mortar. Masonry cement is not to be used. Type S mortar below grade, Type N mortar above grade.
- B. Thoroughly mix mortar ingredients, in quantities needed for immediate use.
- C. Do not use anti-freeze compounds to lower the freezing point or mortar of any other additives.
- D. Use mortar within two (2) hours of mixing at temperatures over 78 degrees F., and two and one-half (2-1/2) hours at temperatures under 50 degrees F.
- E. If necessary, re-temper mortar within two (2) hours of mixing to replace water lost by evaporation. Do not re-temper under 50 degrees F.

2.09 CLEANING MATERIALS

- A. Use one of the three following "Sure Klean" products as manufactured by ProSo Co. Final selection to be made in accordance with the manufacturer's recommendations based on the final selection of masonry and mortar:
 - 1. Sure Klean "No. 600" detergent.
 - 2. Sure Klean "No. 101" lime solvent.
 - 3. Sure Klean "Vanatrol."

PART 3 - EXECUTION

3.01 PREPARATION

- A. Supply metal anchors for placement under other Sections. Provide sufficient quantity, and direct their correct placement.
- B. Ensure items built-in by other trades for this work are properly located and sized.
- C. Establish lines, levels and coursing. Protect from disturbances.

3.02 WORKMANSHIP AND INSTALLATION

- A. Place masonry in accordance with lines and levels indicated on drawings.
- B. Fully bond external and internal corners and intersections.
- C. Isolate masonry partitions from vertical structural framing members. Isolate load bearing and non-load bearing walls with a control joint, with mortar raked back 1/4 inch and caulked regardless of joint treatment.
- D. Buttering corners of joints, deep or excessive furrowing of mortar joints is not permitted.
- E. Do not shift or tap masonry after mortar has taken initial set. Where adjustment must be made, remove mortar and replace.
- F. Perform job site cutting of masonry with proper power tools to provide straight and true, unchipped edges.
- G. Where non-bearing masonry partitions extend to underside of floor, roof deck or structural system, stop masonry short 3/8 to 1/2 inches to allow for live load deflection. Fill gap with joint filler; provide Hohmann & Barnard PTA #422 or equal. Provide structural anchorage in accordance with ANSI A41.1 or as shown on drawings.

- H. Ensure masonry courses are of uniform height. Make vertical and horizontal joints equal and of uniform thickness. Lay in full bed of mortar, properly jointed with other work.
- I. Provide lateral support to top of all masonry walls. Where support is not provided by structural framing, install 2 x 4 diagonal braces at 4' - 0" o.c. to roof framing or equal.
- J. Remove excess mortar and projections. Take care to prevent breaking masonry corners.
- K. Lay concrete masonry in running bond. Course 1 block unit and 1 mortar joint to equal 8 inches. Form concave mortar joints.
- L. Lay brick in common bond with Flemish headers every sixth course. Course 3 units and 3 mortar joints to equal 8 inches. Form concave grapevine mortar joints. Headers shall align at alternate courses.
- M. Strike mortar joints of concrete block flush, where resilient floor base if schedules.
- N. Install weep holes 24" o.c. in brick veneer above all flashing, at lintels, or as shown. Keep vents free of debris or mortar.
- O. Brick having an absorption rate in excess of 20 grams per minute (ASTM C67 test) shall be wet when placed in wall, except in freezing weather. CMU shall not be wetted.

3.03 TOLERANCES

- A. Maximum variation from masonry unit to adjacent masonry unit is 1/16 inch.
- B. Maximum variation from vertical and horizontal building lines is 1/4 inch in 10 feet.
- C. Maximum variation from cross sectional thickness of walls is plus or minus 1/4 inch.
- D. Maintain flush face on exposed masonry surfaces.
- E. Concrete block to receive thinset ceramic tile: lay plumb, with flush mortar joints and with maximum surface variation of 1/8 inch.

3.04 REINFORCEMENT AND ANCHORAGES

- A. Place masonry reinforcing and anchorages for concrete unit masonry as follows:
 1. Construct concrete masonry walls with horizontal joint reinforcement in every second mortar joint above grade and every mortar joint below grade.
 2. Place horizontal concrete masonry reinforcement in first and second joints above and below openings. Place continuous in first and second joint below top of walls.
 3. Fully reinforce corners and intersection on every other mortar joint.
 4. Lap masonry reinforcing splices minimum 6 inches.
 5. Discontinue horizontal joint reinforcement at control joints.

3.05 LINTELS

- A. Openings in concrete masonry walls:
 1. Provide lintels as scheduled on drawing.
 2. If not scheduled on drawing, provide (1) 4" x 8" precast concrete lintel with (1) #4 reinforcing bar top and bottom for each 4" wythe of masonry.
 3. All lintels to bear a minimum of 12" each end unless otherwise noted.
 4. Jambs of openings to be constructed with units of 4" minimum length. Layout work accordingly.
 5. Grout jambs of openings for full height x 2' - 0" wide.

6. Embed wall ties for face brick at maximum 16 inches on center vertically and 24 inches on center horizontally. Place at maximum 8 inches on center each way around perimeter of openings, within 12 inches of openings.
7. Provide dovetail anchors, at 16" vertical spacing (every other course), in concrete piers, columns, walls or structural steel members against which concrete masonry abuts. Embed free end of anchor in concrete masonry joints.
8. Secure brick veneer to concrete, wood frame, or steel stud framed back up with wall ties of maximum 16 inches on center vertically and 16 inches on center horizontally. Place at maximum 16 inches on center each way around perimeter of openings within 12 inches of openings.
9. Secure face brick to concrete back up with dovetail anchors placed at 16 inches on center vertically. Lock into anchor slots. Ensure anchor slots have been properly set in concrete back up at 24 inches on center horizontally.

B. Openings in brick masonry walls:

1. Install loose steel angles as called for on drawing or in Section 5.1.

3.06 BOND BEAMS

- A. Reinforce as shown.
- B. Place and consolidate concrete without disturbing reinforcing.
- C. Discontinue at control joints.

3.07 PIERS AND PILASTERS

- A. Place vertical reinforcing in piers and pilasters where shown. Grout in place.

3.08 LAMINATED FLASHINGS

- A. Place and seal laminated flashings in accordance with manufacturer's written recommendations.
- B. Extend flashings through brick veneer, turn up minimum 8 inches and bed into mortar joint of concrete block or seal into sheathing back-up. Lap end joints minimum 6 inches and seal watertight. Use flashing manufacturer's recommended adhesive.
- C. Build in metal flashings as specified.

3.09 CONTROL JOINTS

- A. Install control joints where shown.
- B. Do not continue masonry reinforcing across control joints.

3.10 BUILT-IN WORK

- A. As work progresses, build-in hollow metal frames, window frames, steel angle lintels, nailing strips, anchor bolts, plates, and other items supplied by other trades. Below all bearing plates, grout wall solid for 24" wide and 24" high minimum.
- B. Build-in items plumb and true.
- C. Bed anchors of hollow metal frames in mortar joints. Fill frame voids solid with mortar. Fill masonry cores with grout minimum 12 inches from framed openings.
- D. Do not build-in organic materials which will be subjected to rot or deterioration.

3.11 CUTTING AND FITTING

- A. Cut and fit masonry for chases, pipes, conduit, sleeves, grounds, and other work. Cooperate fully with other sections of work to ensure correct size, shape and location.
 - B. Obtain approval prior to cutting or fitting any area which is not indicated on drawings, or which may impair appearance or strength of masonry work.
 - C. Cut and rework existing masonry as shown for installation on new work. Tooth new work into existing.
- 3.12 FIRE SAFING INSULATION
- A. Where masonry walls intersect fluted metal roof decks, install approved fire safing insulation in voids between deck and top of wall.
- 3.13 CLEANING
- A. Remove excess mortar and smears upon completion of masonry work.
 - B. Point or replace defective mortar. Match adjacent work.
 - C. Clean soiled surfaces using a solution which will not harm masonry or adjacent materials. Consult masonry manufacturers for acceptable cleaners. Use non-metallic tools in cleaning operations.
 - D. Protect adjacent materials during cleaning operations; repair damage to paint work, etc., caused by splashing or spillage of masonry cleaning materials.

END OF SECTION 04 20 00

SECTION 05 12 00 - STRUCTURAL STEEL

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. The general provisions of the Contract apply to the Work specified in this Section.

1.02 WORK INCLUDED

- A. This section of the Work includes all labor, equipment and materials for the following structural steel as shown on the drawings and/or as specified in the Project Manual.
 1. Structural steel framing, support and bracing members.
 2. Plates, angles, washers, bolts, leveling plates, and shims for connections.
 3. Welding for fabrication and connections.
 4. Shop painting and galvanizing.
 5. Erection
 6. Grouting of base plates and bearing plates.

1.03 RELATED WORK

- A. Section 03 30 53 - Concrete Work
- B. Section 04 20 00 - Unit Masonry

1.04 QUALITY ASSURANCE

- A. Codes and Standards: Comply with the provisions of the following codes, specifications and standards:
 1. AISC "Code of Standard Practice for Steel Buildings and Bridges", including commentary.
 2. AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" and including the "Commentary of the AISC Specifications."
 3. AISC "Specifications for Structural Joints Using ASTM A325 or A490 Bolts" approved by the Research Council of Riveted and Bolted Structural Joints of the Engineering Foundation.
 4. AWS D1.1 "Structural Welding Code."
- B. Notes on Drawings: Notes on drawings shall become a part of this specification.

1.05 TESTING

- A. Engage an independent testing and inspection agency to inspect high-strength bolted connections and welded connections and to perform tests and prepare test reports.
- B. Testing agency shall conduct and interpret tests, state in each report whether test specimens comply with requirements, and specifically state any deviation therefrom.
- C. Provide access for testing agency to places where structural steel work is being fabricated or produced so that required inspection and testing can be accomplished.
- D. Testing agency may inspect structural steel at plant before shipment.

- E. Correct deficiencies in structural steel work that inspections and laboratory test reports have indicated to be not in compliance with requirements. Perform additional tests, at Contractor's expense, as necessary to reconfirm any noncompliance of original work and to show compliance of corrected work.
- F. Shop-Bolted Connections: Inspect or test in accordance with AISC specifications.
 - 1. For direct tension indicators, verify that gaps of installed Direct Tension Indicators are less than gaps specified in ASTM F 959, Table 2.
- G. Shop Welding: Inspect and test during fabrication of structural steel assemblies, as follows:
 - 1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
 - 2. Perform visual inspection of all welds.
 - 3. Perform tests on 10% of welds as follows. Test procedures listed are to be used at Contractor's option.
 - a. Liquid Penetrate Inspection: ASTM E165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration not acceptable.
 - c. Ultrasonic Inspection: ASTM E 164.
- H. Field-Bolted Connections: Inspect in accordance with AISC specifications.
 - 1. For Direct Tension Indicators, comply with requirements of ASTM F 959. Verify that gaps are less than gaps specified in Table 2.
- I. Field Welding: Inspect and test during erection of structural steel as follows:
 - 1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
 - 2. Perform visual inspection of all welds.
 - 3. Perform tests on 10% of all welds. Testing procedures are at contractor's option.
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration not acceptable.
 - c. Ultrasonic Inspection: ASTM E 164.

1.06

SUBMITTALS

- A. Submit shop drawings in accordance with general conditions and with AISC Specifications.
- B. Clearly indicate profiles, sizes, spacing and locations of structural members, connections, attachments, anchorages, framed openings, size and type of fasteners, cambers and loads.
- C. Clearly show all bearing plates on existing and proposed wall. Give exact location and elevation.
- D. Indicate welded connections using standard AWS welding symbols.
- E. Submit anchor bolt plan in advance of other submissions.
- F. Mill reports are not required. Welder certification is required upon request.
- G. Submit shop drawings in complete sets for anchor bolts, for each level of framing, and for columns. Partial set submissions will be returned without review.

- H. Allow 15 business days for review of the first submission of each set, beginning with the day immediately following receipt by the engineer. Similarly, allow 10 and 8 business days, respectively, for review of the second and third submissions of each set.
- I. Submit test reports for high strength bolted connections in accordance with AISC Codes and Specifications.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Rolled steel shapes, bars and plates: ASTM A36.
- B. Cold Formed Steel Tubing: ASTM A500, Grade B.
- C. Steel Pipe: ASTM A53, Type E or S, Grade B.
- D. High Strength Bolts: ASTM A325.
- E. Anchor Bolts: ASTM A307.
- F. Welds: Comply with AWS D1.1 "Structural Welding Code".
- G. Galvanizing: ASTM A123 for shapes and assemblies. ASTM A153 for fasteners.
- H. Primer Paint: Fabricators standard rust-inhibiting primer - Sherwin Williams red oxide E61 RC21 or equal. Grout for base plates and bearing plates: Non-shrink, non-staining, high early strength grout. "Five Star Grout" as manufactured by U. S. Grout Corporation or equal.
- J. Expansion Anchors: Hilti "Heavy Duty Expansion Anchors" or equal.
- K. Adhesive Anchors: Ram Set Ram Head "Ceramic 6 Epoxy Anchoring System" or equal.
- L. Shear Studs: ASTM A 108.

PART 3 - EXECUTION

3.01 FABRICATION

- A. Structural steel shall be fabricated and assembled in the shop to the greatest extent possible. Parts not completely assembled in the shop shall be secured with bolts. All work shall be equal to the best modern shop practices. Connections shall conform to the requirements of AISC specifications. Shop connections shall be welded or bolted.
- B. Connections shall be designed in accordance with the reactions shown on the drawings or, if not shown, for the reaction of a uniformly loaded beam as tabulated in the AISC Manual of Steel Construction.
 - 1. All shear connections shall be designed as slip critical unless noted otherwise. Use double-angle, shop welded, field bolted, using 5/16" minimum thickness angles, unless otherwise noted
 - 2. Rigid (moment) connections shall be designed and detailed in accordance with specified codes or as shown on drawings.
 - 3. Shear plate connections, if specifically called out, shall use 3/8" minimum thickness plate. Use thru plates for shear plates on tube steel or pipe columns. If two or more members frame into a single pipe or tube column at an angle other than 180 degrees, orient the thru plate to connect the beam or beams with the highest reaction.
 - 4. Other connection plates, such as gussets and bent plates, shall use 3/8" minimum thickness plate.

- C. Substitution of sections or modification of details or both shall not be made without the approval of the Engineer. Such changes, when approved, shall be made with no additional cost to Owner.
- 3.02 WELDED CONSTRUCTION
- A. Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work.
 - B. Assemble and weld built-up sections by methods which will produce true alignment of axes without warp.
- 3.03 HOLES FOR OTHER WORK
- A. Provide holes required for securing other work to structural steel framing and for the passage of other work through steel framing members, as shown on the construction drawings.
 - B. Provide holes for bolting wood blocking to steel when wood blocking is shown adjacent to structural steel. Provide 9/16" diameter holes at 3'-0 o.c. staggered.
- 3.04 MISCELLANEOUS ITEMS
- A. Furnish base plates, leveling plates, anchor bolts and washers for all items specified in this section.
 - B. For all openings in brick masonry where lintels are not scheduled, provide a 4"x3-1/2" x 5/16" galvanized angle for each wythe of brick unless noted otherwise on drawing. Minimum 8" bearing each end.
 - C. Provide steel angle lintels as noted above in all mechanical/electrical openings greater than 12" wide.
- 3.05 PAINTING
- A. Shop paint all structural steel work, except those members or portions of members to be embedded in concrete or to receive fire proofing. Do not paint contact surfaces which are to be welded or high-strength bolted with slip critical type connections. Do not paint top surfaces of beam flanges where composite construction is indicated or where metal deck must be welded to flange.
 - B. Clean all steel work to be painted. Remove loose rust, mill scale and spatter, slag or flux deposit. Clean steel in accordance with SSPC (Steel Structures Painting Council) as follows: SP-3 "Power Tool Cleaning."
 - C. Immediately after surface preparation, apply structural steel primer paint in accordance with the manufacturer's written instructions and at a rate to provide a uniform, dry film thickness of 2.0 mils. Use painting methods which will result in full coverage of joints, corners, edges and all exposed surfaces.
 - D. Abraded spots, bolts and field welds shall be touched up with an approved rust inhibiting paint equivalent to and compatible with the shop coat.
- 3.06 GALVANIZING
- A. Galvanize all elements, members, connections and fabrications with exterior exposure, such as lintels, continuous shelf angles for brick, canopies, and dunnage or as noted on drawing.
 - B. Use hot dip process. Fabricate welded assemblies prior to galvanizing. Assemble galvanized pieces with galvanized fasteners.

- C. All shearing, punching, machine work, cutting, welding, and shop assembly shall be done before structural steel is galvanized. All connections are to be seal welded. All welding residues must be removed by mechanical means such as brushing, chipping, and sandblasting, etc. Galvanizing shall be applied only after all steel has been cleaned properly and prepared for application of the coating.
- D. Any warped or distorted member shall be straightened to meet the tolerances of the AISC "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings" and the "Code of Standard Practice."
- E. Abraded spots, bolts and field welds shall be touched up with an approved zinc rich paint equivalent to and compatible with the shop coat.

3.07 STORAGE OF MATERIALS

- A. All material shall be stored above ground. Material shall be kept free of dirt, grease and other foreign matter and shall be protected from corrosion.
- B. Do not store materials on the structure in a manner that might cause distortion or damage to the members of the supporting construction. Repair or replace damaged materials or structures as directed.

3.08 ERECTION

- A. Comply with the AISC Specifications and Code of Standard Practice, and with specified requirements. Erection shall be in accordance with the applicable sections of the AISC Specification. As erection progresses the work shall be securely fastened and guyed in order to withstand all loads which may be applied prior to completion of final bracing system. Damage to the structure because of poor workmanship, inadequate guying, etc., and personal injury because of same shall be the responsibility of the Contractor. Damage shall be repaired and/or replaced as directed at no additional cost to Owner.
- B. Provide temporary planking, railing, and working platforms as required and as necessary to effectively complete the work.
- C. Anchor Bolts:
 - 1. Furnish anchor bolts to be set under the work of other Sections.
 - 2. Establish correct elevation and centerline location of all leveling plates.
 - 3. Furnish templates, adjustable setting sleeves and other devices as necessary for presetting bolts and other anchors to accurate locations.
- D. Setting Base Plates and Bearing Plates:
 - 1. Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean the bottom surface of base and bearing plates. Set bearing plates for structural members on shims. Tighten the anchor bolts after the supported members have been positioned and plumbed. Do not remove shims, but if protruding, cut off flush with the edge of the base or bearing plate.
 - 2. Mix non-shrink grout in strict accordance with the manufacturer's written instructions. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain. Finish exposed surfaces and allow to cure in strict compliance with the manufacturer's written instructions, or as otherwise required.
- E. Erection of Steel:
 - 1. Drift pins may be used only to align the several parts in such a manner as to not distort or damage the metal. The use of a torch will not be permitted for correcting fabrication errors, unless approved in writing. High strength bolts

shall be installed in accordance with the AISC "Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts". Field welding shall be performed by certified welders qualified by test using procedures covered in the American Welding Society Standard.

2. Level and plumb individual members of the structure within specified AISC tolerances to lines and levels indicated.
3. Comply with AISC specifications for bearing, adequacy of temporary connections alignments and the removal of paint on surfaces adjacent to field welds.
4. No cutting of holes, slots or other openings in the field, by other trades will be permitted without approval by Architect/Engineer.
5. Clean and touch-up erected steel per 3.05 and 3.06 above.

END OF SECTION 05 12 00

SECTION 06 10 53 – CARPENTRY & MILLWORK

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Applicable provisions of “General Conditions” govern work under this section.

1.02 WORK INCLUDED

- A. The work hereunder consists of furnishing all labor, appliances and materials and in performing all operations in connection with the installation of all carpentry complete in accordance with this division of the specifications, and, in general, includes, but is not limited to, the following:
 1. See Drawings and Room Finish Schedules for the extent of work.
 2. Rough carpentry, furring, centers, lintels, blocking, rough hardware, protective boarding, and related items.
 3. Furnish and install all wood stud framing.
 4. Furnish and install all sheathing.
 5. Furnish & install finished carpentry
 6. Furnish & install casework, cabinets, shelving and related items.
 7. Install Builder’s Finish Hardware.

1.03 SUBMITTALS

- A. See Section 1.30.

PART 2 - PRODUCTS

2.01 CARPENTRY - GENERAL

Carefully lay out, cut, fit and erect framing, furring, blocking and other items of carpentry. Do cutting and carpentry work required for building in of work or other trades. Block, plumb and level all members and secure with sufficient nails, spikes and bolts to insure rigidity.

2.02 FURRING, GROUNDS, & BLOCKING

- A. Provide wood grounds and blocking wherever required for the installation of carpentry work or necessary to secure work, cabinets, or equipment in place. Set grounds true to line, level or plumb.

2.03 ROUGH HARDWARE

- A. All nails, screws, spikes, bolts or hooks and such other items of rough hardware that may be required to fasten the work together shall be furnished under this heading. All shall be hot-dip zinc coated, stainless steel or other non-ferrous suitable material.

2.04 PLYWOOD SHEATHING

- A. ½” CDX plywood secured to studs with galvanized fasteners in strict accordance with manufacturer’s specifications.

2.05 PRIMING, FILL, ETC.

- A. Exterior exposed woodwork shall be primed with one coat of exterior wood primer upon all surfaces and dried before putting together or in place. This includes also edges and butts, backs and other built-in portions.
- 2.06 STUDDING
 - A. See Section 9.2c for standard gauge steel studs and Section 5.4 for heavy gauge steel studs for exterior walls.
- 2.07 APPLICATION OF FINISH HARDWARE
 - A. Receive, store, and be responsible for all Finish Hardware. Properly tag, index, and file all keys in key cabinet as directed. Apply Finish Hardware in accordance with manufacturer's instructions. Fit accurately, apply securely and adjust carefully. Use care not to injure work when applying hardware.
- 2.08 INSULATION - GENERAL
 - A. Furnish and install all blown-in ceiling insulation, exterior sidewall batt insulation, and all interior wall batt sound insulation and all other batt insulation not specified under the heading of "Acoustical Tile and Insulation."
- 2.09 EXTERIOR FRAME WALL INSULATION
 - A. Install in all exterior walls nominal 6" Kraft faced R-19 or as noted fibreglass insulation in accordance with manufacturer's recommendations. Install after mechanical and electrical services have been installed. Leave no gaps or voids.
- 2.10 SOUND INSULATION
 - A. Install in all interior stud partitions from full height noise barrier unfaced batts 3-1/2" thick equal to Owens-Corning fibreglas. Install in strict accordance with manufacturer's recommendations. See Drawings for sound insulation on suspended ceiling. See section 9.2c for sound rated wall.
- 2.11 ROOF SHEATHING
 - A. 5/8" yellow pine plywood C.D.X. Association grade marked. All plywood nailed in place in accordance with local codes. Submit nails for approval.
- 2.12 ROUGH LUMBER
 - A. Requirements for structural lumber:
 - 1. Kiln-dried maximum moisture content 19%.
 - 2. All grade marked with stamp.
 - 3. Minimum allowable unit stress in bending 1300 p.s.i. (ave.), single member uses 1130 p.s.i.
 - 4. Spruce-pine-fire (south) or Hem-fir.
 - B. Light framing (sizes 2" to 4" thick and 2" to 4" wide) No. 2.
 - C. Framing (sizes 2" to 4" thick, 6" and wider): No. 1 or better.

PART 3 - STORAGE & PROTECTION

3.01 - PROTECTION

- A. Protect millwork against dampness during and after delivery. Store under cover in a well-ventilated building where not exposed to extreme changes of temperature or humidity. Do not store or install any doors or millwork in building until plaster work is dry.

END OF SECTION 06 10 53

SECTION 06 17 53 - SHOP FABRICATED WOOD TRUSSES

PART I - GENERAL

1.1 SECTION REQUIREMENTS

Structural Performance: Provide metal-plate-connected wood trusses capable of withstanding design loads as called for in BOCA 1996 without exceeding TPI 1 deflection limits.

- A. Submittals: Product Data, Shop Drawings, and structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- B. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program that involves inspection by SPIB, Timber Products Inspection, TPI, or other independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.
- C. Comply with TP1 1, "National Design Standard for Metal Plate Connected Wood Truss Construction"; TPI HIB, "Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses"; and applicable requirements in AFPA's "National Design Specifications for Wood Construction" and its "Supplement."

PART 2 - PRODUCTS

2.1 MATERIALS

- A. LUMBER: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review, any species, graded visually or mechanically.
- B. CONNECTOR PLATES: TPI 1, fabricated from hot-dip galvanized steel sheet complying with ASTM A 653/A 653M, G60 coating designation; Designation SS, Grade 33, and not less than 0.036 inch thick.
- C. Fasteners: Where trusses are exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- D. Metal Framing Anchors: Provide framing anchors made from hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.

2.2 FABRICATION

- A. Assemble with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install and brace trusses according to TPI recommendations and as indicated. Install trusses plumb, square, and true to line and securely fasten to supporting construction.
- B. Anchor trusses securely at bearing points; use metal framing anchors. Install fasteners through each fastener hole in metal framing anchor.
- C. Securely connect each truss ply required for forming built-up girder trusses. Anchor trusses to girder trusses.
- D. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.
- E. Install wood trusses within installation tolerances of ANSI/TPI 1.
- F. Do not cut or remove truss members.
- G. Remove wood trusses that are damaged or do not meet requirements and replace with trusses that do meet requirements.

END OF SECTION 06 17 53

SECTION 07 21 16 - BLANKET INSULATION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. General provisions of the contract, including the General Conditions, Supplementary Conditions and Division 1, General Requirements, apply to the work specified in this Section.
- B. Furnish and install building thermal insulation as shown, specified herein, or both shown and specified.
- C. Related work specified under other sections:
 - 4. Sound insulation (except as specified herein): See GYPSUM BOARD ASSEMBLIES.

1.02 SUBMITTALS

- A. Data: Submit manufacturer's product data for materials and accessories.

PART 2 - PRODUCTS:

2.01 BATT OR BLANKET INSULATION

- A. Material: Thermal insulating batts or blankets; glass fiber; FS-25 (foil faced) at all ceilings where vapor barrier would be exposed such as at underside of roof deck or at bottom chord of trusses. Where installation conditions require support, the insulation shall have vapor barrier extending to form flanges along both edges. All insulation complying with ASTM C665.
- B. Thicknesses: 6 1/4" (R-19), nominal 8 1/4" (R-30), 10 1/4" (R-38), see drawings for location.
- C. Widths: 16" or 24" as construction required.
- D. Source: Owens-Corning, Certain-Teed or equal.

2.02 UN-FACED BATT OR BLANKET INSULATION

- A. Material: Un-faced fiberglass; thickness shall be same as stud depth unless otherwise indicated; width 16" or 24" as construction required; Owens-Corning, Certain-Teed or equal.

2.03 SAFING INSULATION

- A. Forming Material - Thermofiber safing insulation, un-faced, size as required; Firestopping - firecode compound; install in accordance with manufacturer's written instructions and recommendations; U. S. Gypsum or equal.

2.08 ACCESSORY MATERIALS FOR INSTALLING INSULATION

- A. Adhesive for use with glass fiber or mineral wool insulation. Type suitable for use with the insulation, as recommended by insulation manufacturer.
- B. Typical clips: Stic-Klip fasteners, Type "A" or "B" by Stic-Klip Manufacturing Co.
- C. Clips for safing insulation: Galvanized zee type, U. S. Gypsum Co. "Thermafiber Safing Impaling Clip."
- D. Clip adhesive: Neoprene rubber base, as recommended by clip manufacturer.
- E. Steel wire: Galvanized, annealed, sizes suitable for supporting or securing insulation.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Before beginning insulation work in each location, carefully check previously installed work in that location for defects detrimental to the insulation Installation. Do not proceed until unsatisfactory conditions have been corrected.
- B. Surfaces to which insulation is to be applied shall be reasonably plumb and level, dry, clean and free from dirt, grease and loose particles.

3.02 GENERAL INSTALLATION PROCEDURES

- A. Prepare and use adhesives, fastenings and methods of securing insulation to construction in accordance with the insulation manufacturer's printed application instructions.
- B. Extend insulation full thickness as shown over the entire surface to be insulated. Cut and fit tightly around penetrating elements and abutting construction. Fill gaps and voids with insulation and mastic.
- C. Coordinate work with the installation of other materials to avoid delays.
- D. Remove from the site all insulation that has become damaged, including wet batt or blanket material, and install new undamaged, dry insulation.

3.03 INSTALLING BATT OR BLANKET THERMAL INSULATION

- A. Install faced batt or blanket insulation above ceilings and soffits and at exterior frame walls with vapor barrier toward the interior (warm side in winter). Do not install insulation above or within 3" of recessed lighting fixtures, wiring compartments or ballasts, unless the fixtures are approved for such a purpose.
- B. Install carefully in full thickness, with joints lapping or butted tightly, and blankets tight to adjacent surfaces, except as otherwise specified.

3.04 INSTALLING UN-FACED WALL INSULATION

- A. Install insulation Type #5 against the concealed inside face of exterior walls between zee furring for finish surfaces as the metal furring is installed, at locations where cavity wall insulation cannot be installed to provide thermal insulation.

- B. Where the insulation is also to continue above suspended ceilings (and furring) use adhesive or stick-clips to hold insulation permanently in place.

3.05 INSTALLING UN-FACED INTERIOR WALL INSULATION

- A. Install at all interior stud partitions unless otherwise indicated, full height of wall.

3.06 INSTALLING FIREPROOFING (SAFING) INSULATION

- A. Install safing insulation as fire-stopping continuously in openings and voids as shown on drawings, including, but not limited to:
 1. Spaces between bottom of steel floor and roof deck and top of fire-rated partitions and smoke barriers.
 2. Voids within chases around ducts, pipes and conduit at each floor and roof deck.
 3. Other locations as shown on drawings or required by the Building Code.
- B. Where pipes, ducts and conduit penetrate supported concrete floor slabs and fire-rated walls and at all other poke-through openings, and the spaces around the penetrating elements are not otherwise closed, pack spaces with safing insulation.
- C. Pack safing insulation solidly into voids for full thickness of floor and roof slabs, and in other locations where space permits not less than 4" thick. Where installation conditions require, use the impaling zee clips maximum 24" o.c. as recommended by the insulation manufacturer to provide support for the insulation.

END OF SECTION 07 21 16

SECTION 07 46 43 - SIDING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Factory-finished fiber cement lap siding, panels, shingle, trim, fascia, moulding and accessories; James Hardie HZ10 Engineered for Climate Siding.

1.2 RELATED SECTIONS

- A. Section 06 10 53 - Carpentry: Wood framing and bracing.
- B. Section 07 21 16 - Blanket Insulation.

1.3 REFERENCES

- A. ASTM D3359 - Standard Test Method for Measuring Adhesion by Tape Test, Tool and Tape.
- B. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum of 2 years experience with installation of similar products.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store siding on edge or lay flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under

environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

- A. Product Warranty: Limited, non-pro-rated product warranty.
 - 1. HardiePlank HZ10 lap siding for 30 years.
 - 2. HardiPanel HZ10 vertical siding for 30 years.
- B. Finish Warranty: Limited product warranty against manufacturing finish defects.
 - 1. When used for its intended purpose, properly installed and maintained according to Hardie's published installation instructions, James Hardie's ColorPlus finish with ColorPlus Technology, for a period of 15 years from the date of purchase: will not peel; will not crack; and will not chip. Finish warranty includes the coverage for labor and material.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: James Hardie Building Products, Inc., which is located at: 26300 La Alameda Suite 400 ; Mission Viejo, CA 92691; Toll Free Tel: 866-274-3464; Tel: 949-367-4980; Fax: 949-367-4981; Email: [request info \(info@jameshardie.com\)](mailto:info@jameshardie.com); Web: www.jameshardiecommercial.com
- B. Substitutions: Not permitted.
- C. Requests for approval of equal substitutions will be considered in accordance with provisions of Section 01 10 00.

2.2 SIDING

- A. Lap Siding: Artisan HZ10 Lap Siding as manufactured by James Hardie Building Products, Inc.
 - 1. Type: Smooth 7-1/4 inches (184 mm) with 6 inches (152 mm) exposure.
- B. Soffit Panels: HardieSoffit HZ10 soffit panel, factory sealed on 5 sides as manufactured by James Hardie Building Products, Inc.
 - 1. Type: Smooth vented, provides 5 square inches (32.3 sq.cm) of net free ventilation per linear foot, 16 inches (305 mm) by 12 feet (3658 mm).
 - 2. Thickness: 1/4 inch (6 mm).

2.3 FASTENERS

- A. Wood Framing Fasteners:
 - 1. Wood Framing: 0.093 inch (2.4 mm) shank by 0.222 inch (5.6 mm) head by 2-1/2 inches (64 mm) corrosion resistant siding nails.

2.4 FINISHES

- A. Factory Finish:
 - 1. Product: ColorPlus Technology by James Hardie.
 - 2. Definition: Factory applied finish; defined as a finish applied in the same facility and company that manufactures the siding substrate.
 - 3. Process:

- a. Factory applied finish by fiber cement manufacturer in a controlled environment within the fiber cement manufacturer's own facility utilizing a multi-coat, heat cured finish within one manufacturing process.
 - b. Each finish color must have documented color match to delta E of 0.5 or better between product lines, manufacturing lots or production runs as measured by photospectrometer and verified by third party.
4. Protection: Factory applied finish protection such as plastic laminate that is removed once siding is installed
 5. Accessories: Complete finishing system includes pre-packaged touch-up kit provided by fiber cement manufacturer. Provide quantities as recommended by manufacturer.
- B. Factory Finish Color for Trim, Soffit and Siding Colors:
1. To be selected by Owner from full range of standard colors.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If framing preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Nominal 2 inch by 6 inch (51 mm by 152 mm) wood framing selected for minimal shrinkage and complying with local building codes, including the use of water-resistive barriers or vapor barriers where required. Minimum 1-1/2 inches (38 mm) face and straight, true, of uniform dimensions and properly aligned.
 1. Install water-resistive barriers and claddings to dry surfaces.
 2. Repair any punctures or tears in the water-resistive barrier prior to the installation of the siding.
 3. Protect siding from other trades.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Install a water-resistive barrier is required in accordance with local building code requirements.
- D. The water-resistive barrier must be appropriately installed with penetration and junction flashing in accordance with local building code requirements.
- E. Install Engineered for Climate™ HardieWrap™ weather barrier in accordance with local building code requirements.
- F. Use HardieWrap™ Seam Tape and joint and laps.
- G. Install and HardieWrap™ flashing, HardieWrap™ Flex Flashing.

3.3 INSTALLATION - HARDIEPLANK HZ10 LAP SIDING

- A. Install materials in strict accordance with manufacturer's installation instructions.
- B. Starting: Install a minimum 1/4 inch (6 mm) thick lath starter strip at the bottom course of the wall. Apply planks horizontally with minimum 1-1/4 inches (32 mm) wide laps at the top. The bottom edge of the first plank overlaps the starter strip.
- C. Allow minimum vertical clearance between the edge of siding and any other material in strict accordance with the manufacturer's installation instructions.
- D. Align vertical joints of the planks over framing members.
- E. Maintain clearance between siding and adjacent finished grade.
- F. Locate splices at least one stud cavity away from window and door openings.
- G. Use off-stud metal joiner in strict accordance with manufacturer's installation instructions.
- H. Wind Resistance: Where a specified level of wind resistance is required Hardieplank lap siding is installed to framing members and secured with fasteners described in Table No. 2 in National Evaluation Service Report No. NER-405.
- I. Face nail to sheathing.
- J. Locate splices at least 12 inches (305 mm) away from window and door openings.

3.4 PROTECTION

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

END OF SECTION 07 46 43

SECTION 7 30 00 - ROOFING, FLASHING & SHEET METAL

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Applicable provisions of "General Conditions" govern work under this section.

1.02 WORK INCLUDED

- A. All roof flashing, asphalt shingles, guttering, snow guards, gravel stops, edging, etc.

PART 2 - PRODUCTS

2.01 SHEET METAL IN MASONRY

- A. Copper equal in quality to Revere Standard Copper for building construction, of types and weights herein specified, except as otherwise noted.
- B. Any sheet metal shown on the drawings and not otherwise specified shall be 16 oz. cold rolled copper.

2.02 FABRIC FLASHING

- A. 20 MIL. P.V.C. equal to Guard Flash of Continental Plastics & Chemicals, Inc.

2.03 ASPHALT SHINGLES

- A. Match existing.

PART 3 - EXECUTION

3.01 APPLICATION OF SHINGLES

- A. Nails: Shingles shall be nailed with no less than 11 gauge large head galvanized roofing nails in strict accordance with the manufacturer's recommendations. Nails to be 1-1/2" long. Drive nails straight down, heads flush with shingle surface. No nails shall be exposed.
- B. Underlayment: Decks shall be covered with a single layer of No. 15 asphalt felt lapped 2" horizontally with 4" end laps. Lap the felt 6" from both sides over all hips and ridges. 10
- C. Valleys: Correct preparation of the valleys must be done before the shingles are applied. Valleys should be lined with 36" wide 55# felt. Extend the shingles of the underlying side at least 12" beyond the valley center. The shingles of the overlying side should be rimmed in a straight line 1" from the center of the top and 2" at the bottom. **Important:** When applying shingles, shingles must be sufficiently warm and flexible to prevent cracking when formed across the valley.
- D. Starter Course: Lay shingles reversed with tabs pointing up with the straight edge 1/2" to 3/4" below the drip edge. Cut 6" from the left side of the first reversed shingle and proceed with full shingles. An 18" Mineral Surfaced Starter Strip may be used for the starter course in place of the reversed shingles.
- E. Hips and Ridges: The projecting parts of shingles at hips and ridges should be trimmed flush and capped with individual shingles. In cold weather, below 50°F. , warm shingles before bending. Apply the hip and ridge shingles in double thickness, one directly upon another. Expose the shingles not more than 5-1/8" to the weather, with all nails covered.
- F. General: Install courses of shingles in strict accordance with the manufacturer's recommendations.
- G. Guarantee: Supply owner with manufacturer's guarantee for defects for 25 years and wind damage guarantee for five years.

END OF SECTION 07 30 00

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and color Samples.
- B. Environmental Limitations: Do not proceed with installation of joint sealants when ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F .

PART 2 - PRODUCTS

2.1 JOINT SEALANTS

- A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions.
- B. Sealant for General Exterior Use Where Another Type Is Not Specified, One of the Following:
 - 1. Single-component, non-sag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; and Uses NT, M, A, and O.
- C. Sealant for Exterior Traffic-Bearing Joints, Where Slope Precludes Use of Pourable Sealant:
 - 1. Single-component, non-sag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses T, NT, M, G, A, and O.
- D. Sealant for Use in Interior Joints in Ceramic Tile and Other Hard Surfaces in Kitchens and Toilet Rooms and Around Plumbing Fixtures:
 - 1. Single-component, mildew-resistant silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses NT, G, A, and O; formulated with fungicide.
- E. Sealant for Interior Use at Perimeters of Door and Window Frames:
 - 1. Latex sealant, single-component, non-sag, mildew-resistant, paintable, acrylic-emulsion sealant complying with ASTM C 834.

2.2 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer.

- B. Cylindrical Sealant Backings: ASTM C 1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with ASTM C 1193.

END OF SECTION 07920

SECTION 08 14 33 – STILE & RAIL WOOD DOORS

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. Solid-wood six panel doors.

1.3 SUBMITTALS

- A. Product Data: For each type of door. Include details of core and edge construction, louvers, and trim for openings. Include factory-finishing specifications.]
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
 - 1. Indicate dimensions and locations of mortises and holes for hardware.
 - 2. Indicate dimensions and locations of cutouts.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain wood doors through one source from a single manufacturer.
- B. Quality Standard: Comply with AWI's "Architectural Woodwork Quality Standards Illustrated."
 - 1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.
- C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UBC Standard 7-2.

1.5 DELIVERY, STORAGE, AND HANDLING

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

- B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic sheeting.
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until building is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section, or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 - 1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 - 2. Warranty shall be in effect during the following period of time from date of Substantial Completion:
 - a. Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 GENERAL

- A. See drawings for door types. Match existing six panel doors, including rail profiles, glazing bead profiles, wood species, and color.

2.2 MANUFACTURERS

- A. Doors are to match the existing doors in style, grade, material and finish.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Wood Doors:
 - a. Algoma Hardwoods Inc.
 - b. Eggers Industries; Architectural Door Division
 - c. Oshkosh

2.3 DOOR CONSTRUCTION, GENERAL

- A. Doors for Transparent Finish:
 - 1. Grade: Custom (Grade A faces).
 - 2. Species and Cut: White pine or poplar, quarter sawn.
 - 3. Stiles: Same species as faces or a compatible species.

2.4 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:
 - 1. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements in NFPA 80 for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
 - 1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.
- C. Transom and Side Panels: Fabricate matching panels with same construction, exposed surfaces, and finish as specified for associated doors. Finish bottom edges of transoms and top edges of rabbeted doors same as door stiles.
 - 1. Fabricate door and transom panels with full-width, solid-lumber, meeting rails. Provide factory-installed spring bolts for concealed attachment into jambs of metal door frames.
- D. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated.
 - 2. Louvers: Factory install louvers in prepared openings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames before hanging doors.
 - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Manufacturer's Written Instructions: Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.
 - 1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
- B. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.
 - 1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold.
 - a. Comply with NFPA 80 for fire-rated doors.
 - 2. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
- C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Re-hang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08 14 33

SECTION 08 52 13 - ALUMINUM CLAD WOOD WINDOWS

PART 1 - GENERAL

- 1.01 GENERAL PROVISIONS
 - A. The General Conditions apply to work of this Section.
- 1.02 SECTION INCLUDES
 - A. Factory assembled aluminum clad wood windows, glass and glazing, operable hardware weatherstripping, insect screens, blinds.
 - B. Anchorages, attachments, and shims.
- 1.03 RELATED SECTIONS
 - A. Shop Drawings, Product Data, and Samples
 - B. Final Cleaning
 - C. Sealants and Caulking
- 1.04 PERFORMANCE REQUIREMENTS
 - A. Window units shall meet Grade 40 specifications in accordance with NWWDA-1.S.-2 except where more stringent requirements are specified otherwise.
 - B. Air leakage, when tested in accordance with ASTM E283, at 1.57 p.s.f. (25 MPH), must be 0.15 cfm/ft. of crack or less.
 - C. No water penetration, when tested in accordance with ASTM E331, under static pressure of 6.24 p.s.f. (50 MPH), after 15 minutes, with water being applied at a rate of five gallons per hour per square foot.
 - D. Window assembly shall withstand positive and negative wind loads acting normal to the plane of the window, in accordance with applicable code. Structural tests shall be conducted in accordance ASTM E330.
 - E. The deflection, in a direction normal to the plane of the assembly, of any framing member, when carrying its full design load including weight of glass, shall not exceed 1/175 of its clear span when tested in accordance with ASTM E330.
- 1.05 SUBMITTALS
 - A. Submit shop drawings and product data in accordance with Section 1.3.
 - B. Indicate pertinent dimensioning, general construction, component connects and locations, anchorage methods and locations, hardware locations, and installation details.
- 1.06 SAMPLES
 - A. Submit samples in accordance with Section 1.3.
- 1.07 DELIVERY, STORAGE AND HANDLING
 - A. Deliver materials to job site in manufacturer's or distributor's packaging undamaged, complete with installation instructions.
 - B. Store off ground, under cover, protected from weather and construction activities.

PART 2 - PRODUCTS

- 2.01 MANUFACTURED UNITS
 - A. Pella clad DI double-hung, casement, multi-purpose units as manufactured by Rolscreen Co., Pella, IA, or approved equal. Factory-assembled aluminum clad wood window with sash installed in the frame. Double-hung sash shall pivot between jambs without removal for cleaning.
- 2.02 MATERIALS

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

- A. Frame: Water repellent preservative vacuum treated in accordance with NWWDA I.S.-4, interior exposed surfaces clear Western Pine, exterior surfaces clad with aluminum at head and jambs. Solid type 6063-T6 extruded aluminum at sill. Overall frame depth: 5 in. (127 mm).
 - 1. Jamb liner sash slides shall be high-impact polyvinyl chloride backed by continuous hard-temper aluminum springs.
 - B. Sash: Western Pine, water repellent preservative vacuum treated in accordance with NWWDA I.S.-4, primed on exterior surfaces and edges and clad with aluminum, lap-jointed and sealed. Corners mortised and tenoned, glued and secured with metal fasteners. Sash thickness: 1-3/4 in. (44 mm).
 - C. Glazing System: Quality float glass complying with ASTM C1036. Wet groove-glazed 5/8" (clear) (InsulShield™ argon-filled, double low-E coated) dual-seal insulating glass with foam muntin grid between the two panes of glass. Foam grid shall be adhered to the glass. Room-side muntin bars shall be solid 7/8" wide Western Pine, water-repellent, preservative-treated in accordance with NWWDA I.S.4. Exterior muntin bars shall be extruded, aluminum. Bars shall be adhered to both sides of the insulating glass with VHB acrylic adhesive tape and align with the foam grid. Exterior surfaces finished to match window cladding; interior surfaces unfinished, ready for site finishing.
 - D. Weatherstripping: Foam with 3 mil vinyl skin to engage aluminum frame lip at head and waterstop bar at sill; set into upper sash for tight contact at checkrail, and into sash stiles to seal at vinyl jamb liners.
 - E. Screen: Half size with vinyl coated 18/16 mesh fiberglass screen cloth complying with F5 L-S-125B, set in aluminum frame fitted to outside of window, supplied complete with all necessary hardware.
- 2.03 **HARDWARE**
- A. Electro-galvanized spiral steel extension spring-type balances connected to sash with polyester cord and concealed within the frame.
 - B. Self-aligning recessed sash lock and strike in baked bronze enamel finish, factory installed. Bronze-tone sash lift furnished for field installation.
 - C. Provide egress window hardware on lower sash where indicate
- 2.04 **FABRICATION**
- A. Fabricate windows to accommodate the following opening tolerances:
 - 1. Vertical dimensions between high and low points; plus 1/4 in. or minus 0 in.
 - 2. Width dimensions: plus 1/4 in. or minus 0 in.
 - 3. Building columns or masonry openings: plus or minus 1/4 in. from plumb.
- 2.05 **FINISH**
- A. "Permacoat" Exterior Finish System: Exterior extruded aluminum surfaces shall be finished with the following multi-stage system:
 - 1. Clean and etch aluminum surface of oxides.
 - 2. Pretreat with chrome phosphate conversion coating.
 - 3. Pretreat with chromic acid sealer/rinse.
 - 4. Prime with a baked on modified polyester primer.
 - 5. Top coat with a baked on polyester enamel. Color shall be selected.
 - B. Interior finish: Factory applied one coat primed with acrylic latex.
- 2.06 **TESTING**
- A. All operable window units shall be individually factory tested for air infiltration to ensure compliance with this specification, in accordance with ASTM E283.

PART 3 - EXECUTION

- 3.01 INSTALLATION
- A. Install windows in accordance with manufacturer's recommendations, and approved shop drawings to achieve weathertight and freely operating installation.
 - B. Maintain alignment with adjacent work. Secure assembly to framed openings, plumb and square, without distortion.
 - C. Place insulation in shim spaces around unit perimeter, to maintain continuity of building thermal barrier.
 - D. Install sealant and related backing materials at perimeter of assembly.
 - E. Leave window units closed and locked.
 - F. Install all mullion cover, sills, etc.
- 3.02 FINAL CLEANING
- A. Clean window frames and glass.
 - B. Remove labels and visible markings.

END OF SECTION 08 52 13

SECTION 09 21 16 - GYPSUM WALLBOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Interior gypsum wallboard.
- B. Related Sections include the following:
 - 1. Division 6 Section "Miscellaneous Carpentry" for wood framing, blocking and furring.

1.3 SUBMITTALS

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

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For gypsum board assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Fire-Resistance-Rated Assemblies: Indicated by design designations from UL's "Fire Resistance Directory." Retain paragraph and subparagraph below for STC-rated assemblies.
- B. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.

- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Steel Furring:
 - a. Dietrich Industries, Inc.
 - b. MarinoWare; Division of Ware Ind.
 - c. National Gypsum Company.
 - 2. Gypsum Board and Related Products:
 - a. American Gypsum Co.
 - b. G-P Gypsum Corp.
 - c. National Gypsum Company.
 - d. United States Gypsum Co.

2.2 INTERIOR GYPSUM WALLBOARD

- A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
- B. Gypsum Wallboard: ASTM C 36.
 - 1. Type X (Fire Resistant):
 - a. Thickness: 5/8 inch.
 - b. Long Edges: Tapered.
 - c. Location: Where indicated.
 - 2. General Use:
 - a. Thickness: 1/2 inch.
 - b. Long Edges: Tapered.
 - c. Location: Where indicated.

2.3 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
2. Shapes:
 - a. Corner bead: Use at outside corners.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound; use at exposed panel edges.
 - c. L-Bead: L-shaped; exposed long leg receives joint compound; use where gypsum board abuts another wall material.
 - d. Expansion (Control) Joint: Use where required.

2.4 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475.

B. Joint Tape:

1. Interior Gypsum Wallboard: Paper.
2. Exterior Gypsum Soffit Board: Paper.
3. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
4. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
3. Fill Coat: For second coat, use drying-type, all-purpose compound.
4. Finish Coat: For third coat, use drying-type, all-purpose compound.

2.5 ACOUSTICAL SEALANT

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

1. Acoustical Sealant for Exposed and Concealed Joints:
 - a. Pecora Corp.; AC-20 FTR Acoustical and Insulation Sealant.
 - b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.
2. Acoustical Sealant for Concealed Joints:
 - a. Pecora Corp.; BA-98.
 - b. Tremco, Inc.; Tremco Acoustical Sealant.

2.6 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
- D. Isolation Strip at Exterior Walls:
 - 1. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.
- E. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool. Provide in all interior partitions in depth or thicknesses equal to those of the framing members.
 - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- F. Thermal Insulation: As specified in Division 7 Section "Building Insulation."

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

3.3 APPLYING AND FINISHING PANELS, GENERAL

- A. Gypsum Board Application and Finishing Standards: ASTM C 840 and GA-216.
- B. Install sound attenuation blankets before installing gypsum panels, unless blankets are readily installed after panels have been installed on one side.

- C. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- D. Install gypsum panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- E. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- F. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- G. Attach gypsum panels to framing provided at openings and cutouts.
- H. Form control and expansion joints with space between edges of adjoining gypsum panels.
- I. Cover both faces of stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except where indicated on drawings.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
- J. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations, and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- K. STC-Rated Assemblies: Seal construction at perimeters, behind control and expansion joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.
- L. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's written recommendations.
 - 1. Space screws a maximum of 12 inches o.c. for vertical applications.
- M. Space fasteners in panels that are tile substrates a maximum of 8 inches o.c.

3.4 PANEL APPLICATION METHODS

- A. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of board.
 3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
- B. Multilayer Application on Partitions/Walls: Apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
1. Z-Furring Members: Apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
- C. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- D. Multilayer Fastening Methods: Fasten base layers and face layers separately to supports with screws.
- E. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.
1. For double-layer construction, fasten base layer to studs with screws 16 inches o.c. Center gypsum board face layer over joints in base layer, and fasten to studs with screws spaced 12 inches o.c.
 2. Allow wetted gypsum panels to dry before applying joint treatment.
- 3.5 INSTALLING TRIM ACCESSORIES
- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
 - B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- 3.6 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:
 - 1. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view, unless otherwise indicated.

3.7 FIELD QUALITY CONTROL

- A. Above-Ceiling Observation: Before Contractor installs gypsum board ceilings, Architect will conduct an above-ceiling observation and report deficiencies in the Work observed. Do not proceed with installation of gypsum board to ceiling support framing until deficiencies have been corrected.
 - 1. Notify Architect seven days in advance of date and time when Project, or part of Project, will be ready for above-ceiling observation.
 - 2. Before notifying Architect, complete the following in areas to receive gypsum board ceilings:
 - a. Installation of 100 percent of lighting fixtures, powered for operation.
 - b. Installation, insulation, and leak and pressure testing of water piping systems.
 - c. Installation of air-duct systems.
 - d. Installation of air devices.
 - e. Installation of mechanical system control-air tubing.
 - f. Installation of ceiling support framing.

END OF SECTION 09 21 16

SECTION 09 21 23 - ACOUSTICAL TILE CEILINGS

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 acoustical tiles and metal suspension systems for ceilings.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
 - 1. Acoustical Tile: Set of full-size Samples of each type, color, pattern, and texture.
 - 2. Suspension System Members: 12-inch- long Sample of each type.
 - 3. Exposed Moldings and Trim: Set of 12-inch- long Samples of each type and color.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each acoustical tile ceiling.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of acoustical ceiling tile and supporting suspension system through one source from a single manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical tiles, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical tiles, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical tiles carefully to avoid chipping edges or damaging units in any way.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install acoustical tile ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.7 COORDINATION

- A. Coordinate layout and installation of acoustical tiles and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Units: Full-size units equal to 1.0 percent of quantity installed.
 - 2. Suspension System Components: Quantity of each concealed grid and exposed component equal to 1.0 percent of quantity installed.

1.9 GUARANTEE

- A. This contractor shall furnish a written guarantee warranting all materials and workmanship for a period of one year from the acceptance of the building. The contractor agrees to replace any or all defective work which is found to be due to faulty materials or workmanship.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

2.2 MINERAL-BASE ACOUSTICAL TILES FOR ACOUSTICAL TILE CEILING "ACT"

- A. Products:
 - 1. Equal to Armstrong "Minatone" Tegular Cortega. 24" x 24" x 5/8"
 - 2. Color: White.

2.3 METAL SUSPENSION SYSTEMS, GENERAL

- A. Metal Suspension System Standard: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.
- B. Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.
 - 1. High-Humidity Finish for ACT-1: Comply with ASTM C 635 requirements for "Coating Classification for Severe Environment Performance" where high-humidity finishes are indicated.
- C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.
 - a. Type: Post-installed expansion anchors.
 - b. Corrosion Protection: Carbon-steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 (0.005 mm) for Class SC 1 service condition.
- 2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.
- D. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
 - 1. Zinc-Coated Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 - 2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.135-inch-diameter wire.

2.4 METAL SUSPENSION SYSTEM FOR ACOUSTICAL TILE CEILING

- A. Products:
 - 1. Equal to Armstrong "Prelude ML" Retain one of two paragraphs and associated subparagraphs below. Paragraphs are examples of suspension systems for acoustical tile ceilings; retain or revise to suit Project.
- B. Direct-Hung, Double-Web Suspension System: Main and cross runners roll formed from and capped with cold-rolled steel sheet, pre-painted, electrolytic zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, G30 coating designation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing and substrates to which acoustical tile ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical tile ceilings.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical tiles to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width tiles at borders, and comply with layout shown on reflected ceiling plans.

3.3 INSTALLATION, SUSPENDED ACOUSTICAL TILE CEILINGS

- A. General: Install acoustical tile ceilings to comply with ASTM C 636 and seismic requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.
 - 3. Splay hangers only where required and, if permitted with fire-resistance-rated ceilings, to miss obstructions; offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.
 - 4. Where width of ducts and other construction within ceiling plenum interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
 - 5. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 6. Space hangers not more than 48 inches o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
- C. Install edge moldings and trim of type indicated at perimeter of acoustical tile ceiling area and where necessary to conceal edges of acoustical units.

1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet . Miter corners accurately and connect securely.
 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- D. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- E. Arrange directionally patterned acoustical tiles as follows:
1. Install tiles in a basket-weave pattern.
- F. Install acoustical tiles in coordination with suspension system and exposed moldings and trim. Place splines or suspension system flanges into kerfed edges so tile-to-tile joints are closed by double lap of material.
1. Fit adjoining tile to form flush, tight joints. Scribe, cut and rabbet tile for accurate fit at borders and around penetrations through tile.
 2. In all Rooms with doors to the exterior, hold tile in compression by inserting leaf-type, spring-steel spacers between tile and moldings, spaced 12 inches o.c.
 3. Protect lighting fixtures and air ducts to comply with requirements indicated for fire-resistance-rated assembly.

3.4 CLEANING

- A. Clean exposed surfaces of acoustical tile ceilings, including trim and edge moldings. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace tiles and other ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 23

SECTION 09 65 00 - RESILIENT FLOORING

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

- A. The "General Conditions" apply to each and every contract and contractor or other person or persons supplying any material or labor entering into this building directly or indirectly.

1.02 GUARANTEE

- A. The contractor will be required to furnish a one-year written guarantee to replace any vinyl that may become loose or otherwise defective.

PART 2 - MATERIALS

- A. Vinyl Composition Tile: 12" x 12" x 1/8" Tarkett, Kentile, Armstrong Excelon or approved equal.
- B. Resilient Vinyl Base: Flexible ribbed-backed 4" high 1/8" thick with rounded top and cove bottom for use with vinyl composition tile. Use straight base on carpet. Use pre-formed corner units with factory cut ends. Base shall be FS SS-W-40 Type II vinyl.
- C. Adhesives: Adhesives for resilient floor shall be waterproof type cements as recommended by the manufacturer of the flooring and applied in full accordance with manufacturer's specifications.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The flooring contractor shall carefully inspect the floor upon which vinyl flooring is to be installed and report to the Architect any condition which would prevent the installation of a first-class job. Proceeding with the installation by the resilient floor contractor shall be considered as acceptance of the work previously installed and acceptance by this contractor of the responsibility of a satisfactory installation. Maintain temperature of at least 70°F. in vinyl storage spaces. In rooms where vinyl is to be laid, maintain temperature at least 70°F. for 48 hours before and after vinyl is laid. Employ only workmen skilled in laying the flooring material called for. Finished floors must be smooth and free from buckles, cracks, breaks, waves, and projecting edges and fit neatly at pipes and projects.

3.02 CLEANING

- A. When the vinyl has sufficiently sealed itself to permit cleaning, the contractor will notify the Architect who will determine the time the work will be done. When directed to proceed, the floors shall be thoroughly cleaned with a cleaner as recommended by the manufacturer of the vinyl. The General Contractor shall protect the floors with building paper after the vinyl has been cleaned.

END OF SECTION 09 65 00

SECTION 09 91 23 – INTERIOR PAINTING

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 surface preparation and field painting of exposed interior items and surfaces as shown on the Finish Schedule and called for elsewhere in the Contract Documents.

- 1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

- B. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.

- 1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.

- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

- D. Related Sections include the following:

- 1. Division 8 Section "Steel Doors and Frames" for factory priming steel doors and frames.
- 2. Division 8 Section "Wood Doors" for factory priming steel doors and frames.
- 3. Division 9 Section "Gypsum Board Assemblies" for surface preparation of gypsum board.

1.3 DEFINITIONS

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.

- 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
- 2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
- 3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
- 4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.

1.4 SUBMITTALS

- A. Product Data: For each paint system indicated. Include block fillers and primers.

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
- B. Samples for Initial Selection: For each type of finish-coat material indicated.
1. After color selection, Architect will furnish color chips for surfaces to be coated.
- 1.5 QUALITY ASSURANCE
- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
1. Product name or title of material.
 2. Product description (generic classification or binder type).
 3. Manufacturer's stock number and date of manufacture.
 4. Contents by volume, for pigment and vehicle constituents.
 5. Thinning instructions.
 6. Application instructions.
 7. Color name and number.
 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.
1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.
- 1.7 PROJECT CONDITIONS
- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.
- B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.
- 1.8 EXTRA MATERIALS
- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.
1. Quantity: Furnish Owner with extra paint materials in quantities indicated below:
 - a. One (1) gal. of each color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.
- B. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
1. Benjamin Moore & Co. (Benjamin Moore).
 2. ICI Dulux Paint Centers (ICI Dulux Paints).
 3. Sherwin-Williams Co. (Sherwin-Williams).

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

2.3 INTERIOR PRIMERS

- A. Interior Gypsum Board Primer: Factory-formulated latex-based primer for interior application.
1. Benjamin Moore; Moorcraft Super Spec Latex Enamel Undercoater & Primer Sealer No. 253: Applied at a dry film thickness of not less than 1.2 mils.
 2. ICI Dulux Paints; 1000-1200 Dulux Ultra Basecoat Interior Latex Wall Primer: Applied at a dry film thickness of not less than 1.2 mils.
 3. Sherwin-Williams; PrepRite 200 Latex Wall Primer B28W200 Series: Applied at a dry film thickness of not less than 1.6 mils.
- B. Interior Wood Primer for Acrylic-Enamel and Semigloss Alkyd-Enamel Finishes: Factory-formulated alkyd- or acrylic-latex-based interior wood primer.
1. Benjamin Moore; Moorcraft Super Spec Alkyd Enamel Underbody and Primer Sealer No. 245: Applied at a dry film thickness of not less than 1.5 mils.
 2. ICI Dulux Paints; 3210-1200 Ultra-Hide Aquacrylic GRIPPER Stain Killer Primer Sealer: Applied at a dry film thickness of not less than 1.8 mils.
 3. Sherwin-Williams; PrepRite Wall and Wood Primer B49W200 Series: Applied at a dry film thickness of not less than 1.6 mils.
 4. Sherwin-Williams; PrepRite Classic Interior Primer B28W101 Series: Applied at a dry film thickness of not less than 1.6 mils for application under semi-gloss acrylic or alkyd finish.
- C. Interior Ferrous-Metal Primer: Factory-formulated quick-drying rust-inhibitive alkyd-based metal primer.
1. Benjamin Moore; Moore's IMC Alkyd Metal Primer No. M06: Applied at a dry film thickness of not less than 2.0 mils.
 2. ICI Dulux Paints; 4160-6130 Devguard Multi-Purpose Tank & Structural Primer: Applied at a dry film thickness of not less than 2.0 mils.

3. Sherwin-Williams; Kem Kromik Universal Metal Primer B50NZ6/B50WZ1: Applied at a dry film thickness of not less than 3.0 mils.

D. Interior Zinc-Coated Metal Primer: Factory-formulated galvanized metal primer.

1. Benjamin Moore; Moore's IMC Acrylic Metal Primer No. M04: Applied at a dry film thickness of not less than 2.0 mils.
2. ICI Dulux Paints; 4160-6130 Devguard Multi-Purpose Tank & Structural Primer: Applied at a dry film thickness of not less than 2.0 mils.
3. Sherwin-Williams; primer not required over this substrate.

2.4 INTERIOR FINISH COATS

A. Interior Flat Acrylic Paint: Factory-formulated flat acrylic-emulsion latex paint for interior application.

1. Benjamin Moore; Moorecraft Super Spec Latex Flat No. 275: Applied at a dry film thickness of not less than 1.2 mils.
2. ICI Dulux Paints; 1200-XXXX Dulux Professional Velvet Matte Interior Flat Latex Wall & Trim Finish: Applied at a dry film thickness of not less than 1.4 mils.
3. Sherwin-Williams; ProMar 200 Interior Latex Flat Wall Paint B30W200 Series: Applied at a dry film thickness of not less than 1.4 mils.

B. Interior Low-Luster Acrylic Enamel: Factory-formulated eggshell acrylic-latex interior enamel.

1. Benjamin Moore; Moorcraft Super Spec Latex Eggshell Enamel No. 274: Applied at a dry film thickness of not less than 1.3 mils.
2. ICI Dulux Paints; 1402-XXXX Dulux Professional Acrylic Eggshell Interior Wall & Trim Enamel: Applied at a dry film thickness of not less than 1.4 mils.

C. Interior Semigloss Acrylic Enamel: Factory-formulated semigloss acrylic-latex enamel for interior application.

1. Benjamin Moore; Moorcraft Super Spec Latex Semi-Gloss Enamel No. 276: Applied at a dry film thickness of not less than 1.2 mils.
2. ICI Dulux Paints; 1406-XXXX Dulux Professional Acrylic Semi-Gloss Interior Wall & Trim Enamel: Applied at a dry film thickness of not less than 1.5 mils.
3. Sherwin-Williams; ProMar 200 Interior Latex Semi-Gloss Enamel B31W200 Series: Applied at a dry film thickness of not less than 1.3 mils.

2.5 INTERIOR WOOD STAINS AND VARNISHES

A. Open-Grain Wood Filler: Factory-formulated paste wood filler applied at spreading rate recommended by manufacturer.

1. Benjamin Moore; Benwood Paste Wood Filler No. 238.
2. ICI Dulux Paints; none required.
3. Sherwin-Williams; Sher-Wood Fast-Dry Filler.

B. Interior Wood Stain: Factory-formulated alkyd-based penetrating wood stain for interior application applied at spreading rate recommended by manufacturer.

1. Benjamin Moore; Benwood Penetrating Stain No. 234.
2. ICI Dulux Paints; 1700-XXX WoodPride Interior Solventborne Wood Finishing Stain.
3. Sherwin-Williams; Wood Classics Interior Oil Stain A-48 Series.

- C. Clear Sanding Sealer: Factory-formulated fast-drying alkyd-based clear wood sealer applied at spreading rate recommended by manufacturer.
- D. Interior Alkyd- or Polyurethane-Based Clear Satin Varnish: Factory-formulated alkyd- or polyurethane-based clear varnish.
 - 1. Benjamin Moore; Benwood Interior Wood Finishes Polyurethane Finishes Low Lustre No. 435.
 - 2. ICI Dulux Paints; 1902-0000 WoodPride Interior Satin Polyurethane Varnish.
 - 3. Sherwin-Williams; Wood Classics Fast Dry Oil Varnish, Satin A66-300 Series.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application. Comply with procedures specified in PDCA P4.
 - 1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 - 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
 - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
 - 1. Provide barrier coats over incompatible primers or remove and reprime.
 - 2. Cementitious Materials: Prepare concrete, concrete unit masonry, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.

- a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
 - c. If transparent finish is required, backprime with spar varnish.
 - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.
 - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
 4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.
 - a. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.
 5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 3. Provide finish coats that are compatible with primers used.
 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in

- place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
 7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
 9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
 10. Sand lightly between each succeeding enamel or varnish coat.
- B. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
- C. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- D. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.
- E. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- F. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- E. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- F. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
1. Provide satin finish for final coats.
- G. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 CLEANING

- E. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.5 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
 - 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.6 INTERIOR PAINT SCHEDULE

- A. Concrete Unit Masonry: Provide the following finish systems over interior concrete masonry:
 - 1. Flat Acrylic Finish: Two finish coats over a block filler.
 - a. Block Filler: Concrete unit masonry block filler.
 - b. Finish Coats: Interior flat acrylic paint.
 - 2. Low-Luster Acrylic-Enamel Finish: Two finish coats over a block filler.
 - a. Block Filler: Concrete unit masonry block filler.
 - b. Finish Coats: Interior low-luster acrylic enamel.
 - 3. Semigloss Acrylic-Enamel Finish: Two finish coats over a block filler.
 - a. Block Filler: Concrete unit masonry block filler.
 - b. Finish Coats: Interior semigloss acrylic enamel.
- B. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
 - 1. Flat Acrylic Finish: Two finish coats over a primer.
 - a. Primer: Interior gypsum board primer.
 - b. Finish Coats: Interior flat acrylic paint.
 - 2. Low-Luster Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior gypsum board primer.
 - b. Finish Coats: Interior low-luster acrylic enamel.
 - 3. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior gypsum board primer.
 - b. Finish Coats: Interior semigloss acrylic enamel.
- C. Plaster: Provide the following finish systems over new interior plaster surfaces:
 - 1. Flat Acrylic Finish: Two finish coats over a primer.
 - a. Primer: Interior plaster primer.
 - b. Finish Coats: Interior flat acrylic paint.
 - 2. Low-Luster Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior plaster primer.

- b. Finish Coats: Interior low-luster acrylic enamel.
 - 3. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior plaster primer.
 - b. Finish Coats: Interior semigloss acrylic enamel.
- D. Wood and Hardboard: Provide the following paint finish systems over new interior wood surfaces:
 - 1. Low-Luster Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior wood primer for acrylic-enamel and semigloss alkyd-enamel finishes.
 - b. Finish Coats: Interior low-luster acrylic enamel.
 - 2. Semigloss Acrylic-Enamel Finish: Two finish coats over a wood undercoater.
 - a. Primer: Interior wood primer for acrylic-enamel and semigloss alkyd-enamel finishes.
 - b. Finish Coats: Interior semigloss acrylic enamel.
 - 3. Full-Gloss Acrylic-Enamel Finish: Two finish coats over a wood primer.
 - a. Primer: Interior wood primer for acrylic-enamel and semigloss alkyd-enamel finishes.
 - b. Finish Coats: Interior full-gloss acrylic enamel.
- E. Ferrous Metal: Provide the following finish systems over ferrous metal:
 - 1. Flat Acrylic Finish: Two finish coats over a primer.
 - a. Primer: Interior ferrous-metal primer.
 - b. Finish Coats: Interior flat acrylic paint.
 - 2. Low-Luster Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior ferrous-metal primer.
 - b. Finish Coats: Interior low-luster acrylic enamel.
 - 3. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior ferrous-metal primer.
 - b. Finish Coats: Interior semigloss acrylic enamel.
 - 4. Full-Gloss Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior ferrous-metal primer.
 - b. Finish Coats: Interior full-gloss acrylic enamel.
- G. Zinc-Coated Metal: Provide the following finish systems over interior zinc-coated metal surfaces:
 - 1. Flat Acrylic Finish: Two finish coats over a primer.
 - a. Primer: Interior zinc-coated metal primer.
 - b. Finish Coats: Interior flat acrylic paint.
 - 2. Low-Luster Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior zinc-coated metal primer.
 - b. Finish Coats: Interior low-luster acrylic enamel.
 - 3. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior zinc-coated metal primer.
 - b. Finish Coats: Interior semigloss acrylic enamel.

- H. Polyurethane Stain Full-Gloss Varnish Finish: Two finish coats of polyurethane tinted full-gloss varnish over a sealer coat and interior wood stain. Wipe filler before applying stain.
1. Filler Coat: Open-grain wood filler.
 2. Stain Coat: Interior wood stain.
 3. Sealer Coat: Clear sanding sealer.
 4. Finish Coats: Interior waterborne clear gloss varnish.

END OF SECTION 09 91 23

SECTION 10 40 00 - SAFETY SPECIALTIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.
- B. Fire Extinguishers: NFPA 10, listed and labeled for the type, rating, and classification of extinguisher.

PART 2 - PRODUCTS

2.1 FIRE EXTINGUISHERS AND CABINETS

- A. PORTABLE FIRE EXTINGUISHERS: Multipurpose dry-chemical type, UL-rated, per OSFM Fire Prevention Regulations.
- B. FIRE PROTECTION CABINETS: Recessed or semi-recessed flat trim style 18 gauge pressed steel construction with Duo-Panel doors and spring tension friction catches. Finish to be baked enamel inside, prime coat outside. Door frames shall be one piece tubular construction. Inside dimensions shall be 27" high x 12" wide x 8" deep. Color to be red. Manufacturers shall be Elkhart, Larsen, Allen, J. L. Industries or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install cabinets and brackets at heights indicated or, if not indicated, at heights to comply with applicable regulations of authorities having jurisdiction.

END OF SECTION 10 40 00

SECTION 12 32 16 – MANUFACTURED PLASTIC LAMINATE CASEWORK

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data, Shop Drawings, and material Samples.
- B. Comply with KCMA A161.1.
- C. Comply with KCMA A 161.2 for plastic-laminate countertops.
- D. Verify dimensions by field measurements; measure for countertops after base cabinets are installed

PART 2 - PRODUCTS

2.1 CASEWORK

- A. Workroom Cabinets:
 - 1. Plastic-laminate-faced cabinets, flush overlay style.
 - 2. Exposed Plastic Laminate: NEMA LD 3, Grade VGS.
 - 3. Semi-exposed Materials: Plastic laminate, NEMA LD 3, Grade VGS.
- B. Solid-Surface Material Countertops and Splashes: Homogeneous solid sheets of filled plastic resin complying with material and performance requirements of ANSI Z124.3, Type 5 or Type 6, without a pre-coated finish, 3/4" thick.
 - 1. Products: Basis of Design
 - a. CorianAlternate manufacturers will be considered, including but not limited to:
 - b. Wilson Art
 - c. Nevamar
- C. Countertop Configuration:
 - 1. Front Style: Rolled.
 - 2. Cove Type: Applied backsplash rests on top forming seam at inside corner.
 - 3. Backsplash: Square edge.
 - 4. End Splash: Square edge.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install cabinets with no variations in flushness of adjoining surfaces by using concealed shims. Where casework abuts other finished work, scribe and cut for accurate fit. Provide filler strips, scribe strips, and moldings in finish to match casework face.

ADDITION TO THE MILLSBORO PUBLIC LIBRARY

- B. Install cabinets without distortion so doors and drawers fit openings properly and are aligned.
- C. Install level and plumb to a tolerance of 1/8" in 8 feet.
- D. Fasten each cabinet to adjacent unit and to structural members of wall construction. Fasten wall cabinets through back, near top and bottom, at ends and not less than 24 inches o.c.
- E. Fasten plastic-laminate countertops by screwing through comer blocks in base units into underside of countertop. Spline and glue joints in countertops and use concealed mechanical clamps.
- F. Fasten solid surface countertops by screwing through comer blocks in base units into underside of countertop. Align adjacent surfaces. Form seams 1/8" wide and adhere with manufacturer's recommended joint adhesive in color to match countertop. Dress joints smooth, remove surface scratches, and clean entire surface.

END OF SECTION 12 32 16

SECTION 31 23 00 - STRUCTURE EXCAVATION AND BACKFILL

PART 1 GENERAL

1.01 GENERAL PROVISIONS

- A. The general provisions of the Contract apply to the Work specified in this Section.

1.02 WORK INCLUDED

- A. Excavate for structure(s) and remove subsoil from site unless subsoil meets requirements and is approved as fill material for site grading, and is needed.
- B. Cap off and seal discontinued utility services and remove portions of lines within excavated areas.
- C. Shore and brace excavations as required by laws and ordinances and as required to stabilize adjacent structures and systems.
- D. Place and compact fills to rough grade elevations.
- E. Dewater excavations by pumping or wellpoints as required.
- F. Removal and replacement of unforeseen unsuitable material under building foundations and slabs.
- G. Excavation consist of removal and disposal of all on site materials including, but not limited to, soil, muck, rubble, paving, buried structures, and fill. Excavation does not include rock removal.

1.03 WORK NOT INCLUDED

- A. Rock excavation consists of bedrock and ledgerock removal which cannot be accomplished without blasting or the use of rippers, and disposal of such material.

1.04 RELATED WORK

- A. General Conditions: Layout of work, testing laboratory services and temporary controls.

1.05 QUALITY ASSURANCE

- A. Conform to referenced specifications by American Society for Testing of Materials (ASTM), American Association of State Highway and Transportation Officials (AASHTO), and Delaware Department of Transportation Standard Specifications for Road and Bridge Construction (DeIDOT).

1.06 LABORATORY TESTING AND ON-SITE GEOTECHNICAL EVALUATIONS

- A. The contractor shall employ an independent geotechnical engineering firm subject to the Owner's approval. The geotechnical engineering firm shall be responsible for but not limited to: testing of on-site material; testing of borrow material; evaluation of subgrade conditions; observation during proof rolling; preparation of reports; certification that materials meet project specifications; and recommendations required to alleviate geotechnical difficulties encountered during construction. The testing laboratory shall assist the contractor in assuring, and documenting to the owner, that soils utilized for construction meet or exceed project specifications. All documents shall be signed and sealed by a Professional Engineer registered in the State of Delaware.

- B. For projects in which a previously prepared geotechnical report is available the testing laboratory is responsible for being familiar with the report in order to certify that the design assumptions and the intent of the report are met or exceeded. In addition, the testing laboratory/contractor shall notify the Owner immediately in the event that conditions unforeseen by the geotechnical report are encountered.
 - C. The Owner, at the Owner's option, may employ an on-site Geotechnical Engineer to review construction, approve submittals and contractor requests, and make recommendations to the Owner. As used in this Section, the term "Owner" specifically includes such on-site Geotechnical Engineer and other consultants who the Owner may employ.
- 1.07 INSPECTION OF SUBGRADE SOILS
- A. Although elevations for foundations are given on the drawings, actual grades will be determined in the field based on careful examination of subgrade soils.
 - B. Where unsuitable natural subgrade soils are encountered, undercut and fill in accordance with the provisions of this Section and the instructions of the Owner.
 - C. The contractor's testing agency or geotechnical engineer shall inspect all subgrades for foundation and slab support and provide written documentation that the subgrade meets these specifications.
 - D. Do not undercut except with the Specific authorization of the Owner.
- 1.08 MATERIALS TESTING
- A. Furnish reports from a certified testing laboratory demonstrating that materials to be furnished meet the requirements of the specifications.
 - B. No materials shall be ordered until tests are submitted and approved by Owner.
- 1.09 SITE COMPACTION TESTING
- A. Testing of compacted fill materials and subgrade conditions shall be performed by the contractor's geotechnical engineering firm. Testing will be performed so as to least encumber the performance of work.
 - B. Contractor shall pay for costs of additional testing as required due to improper performance of work.
 - C. When work of this Section or portions of work are completed notify Owner. Do not proceed with additional portions of work until authorized by Owner.
 - D. If, during progress of work, tests indicate that subgrade materials do not meet specified requirements: remove defective work; replace and retest materials at no cost to Owner and remove; replace unsuitable materials.
 - E. Ensure compacted fills are tested before proceeding with placement of surface materials.
- 1.10 SUBMITTALS
- A. Submit test results for structural fill materials to be used. Such test results are to clearly indicate types of materials and composition, hardness, compactability and suitability for proposed usage.
 - B. Submit documents indicating suitability of existing subgrades.
 - C. Submit manufacturer's data on PVC underdrain, filter fabric and filter board.

- 1.11 PROTECTION
- A. Protect trees, shrubs and lawns, areas to receive plantings, rock outcroppings, and other features remaining as part of final landscaping.
 - B. Protect benchmarks and existing structures, roads, sidewalks, paving, and curbs against damage from equipment and vehicular or foot traffic.
 - C. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods, as required to prevent cave-ins or loose dirt from falling into excavations.
 - D. Underpin adjacent structures which may be damaged by excavation work, including service lines and pipe chases.
 - E. Notify Owner of unexpected sub-surface conditions and discontinue work in area until Owner provides notification to resume work.
 - F. Protect bottom of excavations and soil around and beneath foundations from frost.
 - G. Grade around excavations to prevent surface water run-off into excavated area.
 - H. Keep excavations clear of water by pumping or use of wellpoints.
 - I. Exercise care during excavation for spread footings in natural soils to produce as little disturbance as possible at the foundation level. Remove all loose or soft soils from the bottom of the excavation prior to placing concrete.

PART 2 - PRODUCTS

- 2.01 MATERIALS
- A. Structural Fill: Soil acceptable as structural fill shall be classified in accordance with ASTM D 2487 as GW, GP, GM, SW, SP, SM, SC, ML, and CL or combinations thereof. All fill soils shall have a liquid limit less than 40 percent, a plasticity index less than 15 percent, a maximum dry density greater than 105 pcf and shall be free of organic material, roots and frozen materials, and shall contain no particles greater than 3 inches in diameter.
 - B. Crushed Stone: Washed, uniformly graded free draining stone meeting specifications of AASHTO No. 57 aggregate.
 - C. General Fill: Use granular excavated soils if approved and sufficient. DeIDOT common borrow type F (Sect. 209.03).
 - D. Sub-soil for Foundations: On-site excavated material meeting requirements of project specifications. Verify minimum bearing capacity of 3,000 psf for all foundations.
 - E. Foundation Drain per industry standard. Provide PVC perforated pipe of 4" minimum diameter. Reference Section 1.03 for submittal requirements.

PART 3 - EXECUTION

- 3.01 GENERAL
- A. Safety Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
 - B. Comply with DeIDOT specifications.
 - C. The use of explosives will not be permitted.
- 3.02 PREPARATION AND LAYOUT

- A. Establish extent of excavation by area and elevation; designate and identify datum elevation.
- B. Set required lines and levels.
- C. Maintain benchmarks, monuments and other reference points.

3.03 UTILITIES

- A. Before starting excavation, establish location and extent of underground utilities occurring in work area.
- B. Notify Owner so provisions can be made to remove and relocate lines which are in the way of excavation. Comply with laws and ordinances concerning underground utilities.
- C. Maintain, re-route or extend, as required, existing utility lines to remain which pass through work area.
- D. Pay costs for this work, except those covered by utility companies.
- E. Protect utility services uncovered by excavation.
- F. Remove abandoned utility service lines from areas of excavation; cap, plug or seal such lines and identify at grade.
- G. Accurately locate and record on Project Record Documents, abandoned and active utility lines that are re-routed or extended.

3.04 EXCAVATION

- A. Excavate sub-soil in accordance with lines and levels required for construction of the work, including space for forms, bracing and shoring, foundation drainage system, applying dampproofing, waterproofing and to permit inspection. All unsuitable soil shall be removed and replaced as specified.
- B. Do additional excavation only by written authorization from Owner.
- C. Machine slope banks.
- D. Hand trim excavations and leave free from loose or organic matter.
- E. When each phase of excavation has been completed, notify the Owner so that subgrades may be inspected.
- F. Where unsuitable natural soils are encountered in excavations for footings or ground supported slabs, as determined by the Owner or the testing laboratory, undercut and replace to original design subgrade elevation with structural fill.
- G. Upon inspection of the subgrade, the geotechnical engineer may require that the subgrade be proofrolled with a heavily loaded dump truck or other pneumatic tired vehicle.
- H. Excavations are not to interfere with normal 45° bearing splay of any foundation.
- I. If suitable as approved in advance by the Owner, stockpile excavated sub-soil for re-use where permitted. Remove excess or unsuitable excavated sub-soil from site.
- J. Base excavation on earth excavation. If rock is encountered, it shall be removed as a negotiated extra.
- K. Do not disturb soil within branch spread of existing trees or shrubs that are to remain.
- L. If necessary to excavate through roots, perform work by hand and cut roots with a sharp axe.

- M. Excavation for mechanical and electrical work shall be performed under the work of those Divisions.
- N. Correct unauthorized excavation at no cost to Owner.

3.05

FILLING AND BACKFILLING

- A. Stockpile fill materials in areas designated by Owner.
- B. Ensure areas to be filled are free from debris, snow, ice and water, and that ground surfaces are not in a frozen condition.
- C. Do not fill over existing sub-grade surfaces which are porous, wet or spongy or that are determined to be unsuitable by the Owner or the geotechnical engineer.
- D. Do not start backfilling operations until foundation waterproofing and drainage system have been inspected.
- E. Compact existing sub-grade surfaces if densities are not equal to that required for backfill materials.
- F. Cut out soft areas of existing sub-grade. Backfill and compact to required density. Use specified material.
- G. Backfill simultaneously on each side of foundation walls and piers to equalize soil pressures. Do not backfill against foundation walls of basements or crawl spaces until floor structural system is in place.
- H. Where temporary unbalanced pressures are liable to develop on walls before final structural systems are in place, erect necessary shoring to counteract imbalance. Leave in place until their removal will not adversely affect the structure.
- I. Backfill systematically and as early as possible to allow maximum time for natural settlement and compaction.
- J. Proof-roll subgrades for ground supported slabs with a ten ton roller under the observation of the Owner or the testing laboratory.
- K. Spread fill evenly by mechanical equipment or by manual means, and mix thoroughly and spread in lifts not exceeding six inches. The thickness of each layer shall be built up in horizontal layers as nearly even as practicable to prevent the thickness of lift from exceeding that specified. Each lift shall be compacted to 95% of maximum dry modified density. The reference density will be determined in the laboratory by the testing laboratory in conformance with ASTM D1557 Modified Proctor Test. The degree of compaction shall be checked by the geotechnical engineer and each successive lift shall not be placed or compacted until the previous lift is inspected and approved by the geotechnical engineer or Owner.
- L. Fill areas to grades, contours, levels and elevations using specified materials.
- M. All proofrolling, fill and compaction operations shall extend 5' beyond exterior walls and pavement boundaries.

3.07

FILL TYPES

- A. Structural Fill: Under all foundations and slabs on grade and as noted on drawings. Compact to 100% modified proctor under footings and 95% under slabs.
- B. Crushed stone: As specified on drawings. Place in a single layer and mechanically roll or compact.

- C. General Fill: Exterior side of foundation walls to top of subgrade. Compact to 95% modified proctor.
- 3.08 SURPLUS MATERIALS
- A. Remove surplus backfill materials from site.
 - B. Leave stockpile areas completely free of all excess fill materials.

END OF SECTION 31 23 00

SECTION 31-40-00 - UNDERPINNING AND SHORING

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. The General Conditions apply to work of this Section.

1.02 WORK INCLUDED

- A. Shore, brace, and otherwise stabilize existing structures and foundations.
- B. Excavate adjacent to and below existing foundations.
- C. Place and compact structural fill (required as underpinning material).
- D. Place cast-in-place concrete.
- E. Remove shoring, bracing, or other stabilization.
- F. Provide, maintain, and remove excavation support systems, including cribbing, sheeting, anchoring and other means of temporary and permanent support for excavations.

1.03 RELATED WORK

- A. Test structural fill in accordance with Section 31 23 00.
- B. Test cast in place concrete in accordance with Section 03 31 00.
- C. Inspect and test subsoil that will support new foundations to verify allowable bearing pressures and maximum anticipated settlements that served as basis for design. These values are noted in the drawings and specifications and are described in greater detail in the Geotechnical Report which is available for inspection at the office of the architect. Use qualified, registered geotechnical engineers for such verification.

1.04 SUBMITTALS

- A. Provide submittals for structural fill in accordance with Section 31 23 00.
- B. Provide submittals for concrete in accordance with Section 0331 00.
- C. Provide submittals for inspection and testing of subsoils in accordance with Section 2.21.
- D. Submit plans, sections, and details of proposed shoring, bracing, and other stabilization of existing structures and foundations. Clearly show relation to existing construction. Drawings must be sealed by a qualified professional engineer registered in the state of Delaware.
- E. At Owner's request, submit plans, section, and details of proposed excavation support systems. Clearly show relation to existing construction. Drawings must be sealed by a qualified professional engineer registered in the state of Delaware.
- F. Submit complete photographic documentation if defects in existing construction that are present prior to underpinning or shoring operation. Document defects at any elevation that are within 25 horizontal feet of any portion of underpinning.

1.05 PROTECTION

- A. Protect existing construction that is not scheduled for demolition.
- B. Provide protection throughout excavation, placement of fill, and concreting in accordance with those sections noted under "RELATED WORK".
- C. Comply with applicable requirements of governing authorities having jurisdiction.

PART 2 - PRODUCTS

- 2.01 SHORING AND BRACING OF EXISTING STRUCTURES AND FOUNDATIONS
 - A. Use materials, products, and systems of suitable strength, stiffness, integrity, and durability for particular application and service.
- 2.02 FILL MATERIALS
 - A. Comply with Section 31 23 00.
- 2.03 CONCRETE
 - A. Comply with Section 031 00.
- 2.04 NON-SHRINK GROUT
 - A. Non-shrink, non-metallic, high early strength grout. "Five Star Grout" as manufactured by U. S. Grout Corporation.
- 2.05 EXCAVATION SUPPORT SYSTEMS
 - A. Use materials, products, and systems of suitable strength, stiffness, integrity, and durability for particular application and service.

PART 3 - EXECUTION

- 3.01 SHORING, BRACING, AND STABILIZATION OF EXISTING CONSTRUCTION
 - A. Shore, brace, and otherwise stabilize existing construction to maintain elevation, alignment, level, strength, integrity, and appearance.
 - B. Design, install, and maintain shoring, bracing, and other stabilization to provide adequate strength, stiffness, integrity, anchorage, and durability throughout underpinning operation.
- 3.02 EXCAVATION
 - A. Comply with Section 2.21, except as noted below.
 - B. Do not use tools, machinery, or methods that will damage or disturb existing construction that is not scheduled for demolition or removal.
 - C. Coordinate excavation and shoring to maintain elevation, alignment, level, strength, integrity, and appearance of existing construction at all times.
- 3.03 FILL PLACEMENT
 - A. Comply with Section 2.21, except as noted below.
 - B. Reduce lift thickness, if necessary, to achieve required density.
- 3.04 CONCRETE PLACEMENT
 - A. Comply with Section 3.3, except as noted below.
 - B. Clean, roughen, and blow-down vertical faces of existing concrete against which concrete will be cast.
 - C. Clean bottom horizontal surfaces of existing concrete which will be underpinned.
 - D. Bring concrete to a uniform, level elevation no less than 1-1/2" and no more than 3" from the bottom surface of existing concrete.
 - E. Allow concrete to cure at least 24 hours.

- F. Pack the void between horizontal concrete surfaces with a scarcely-moist mix of non-shrink grout, mixed according to manufacturer's recommendations. Thoroughly and completely compact the grout to fill all irregularities and voids.
 - G. Cure concrete and grout for at least 48 hours after grout placement.
- 3.05 REMOVAL OF SHORING FOR UNDERPINNING
- A. Do not remove shoring, bracing, or other stabilization until concrete and grout have cured for required period.
 - B. Coordinate removal with filling operations to maintain elevation, alignment, strength, integrity, and appearance of existing construction at all times.
 - C. Completely remove all materials, products, systems, and anchorages.
- 3.06 EXCAVATION SUPPORT SYSTEMS
- A. Provide cribbing, sheeting, anchoring and other means of temporary and permanent support for excavations.
 - B. Conform to applicable requirements of governing authorities having jurisdiction.
 - C. Use temporary support systems unless permanent support systems have been approved in advance by Owner.
 - D. Main support systems through course of construction.
 - E. Completely remove temporary support systems when they are no longer required.

END OF SECTION 31 40.00

SECTION 232 00 00 - SITE IMPROVEMENT

PART 1 - GENERAL

1.01 A. GENERAL CONDITIONS

1. The "General Conditions" apply to each and every contract and contractor or other person or persons supplying any material or labor entering into this building directly or indirectly.

1.02 A. WORK INCLUDED

1. FINE GRADING - Allow time for full settlement of filled and corrected areas before beginning fine grading work. Fine grade all areas affected by the grading work and the construction work and bring neatly to the finished grade elevations. Spread stockpiled topsoil evenly on all exterior graded areas not receiving paving.
2. CURBS: See Drawings.
3. WALKS: See Drawings

1.03 A. INSTALLATION

1. PAVING: See Drawings for different conditions and types of paving and bases. Strip and grade new areas and install 6" of compacted crusher run. Paving shall be one layer of 2" Type "C" hot mix over crusher run. Existing paved area to be topped shall receive 1" Type "C" over existing. Hot mix bituminous pavement shall meet Delaware Department of Transportation Engineering Department specifications. Neatly saw existing hot mix areas where hot mix joins existing street.
2. CONCRETE WALKS: The concrete walks as indicated on Site Plan shall be four (4") inches thick, laid over a four (4") inch thick bed of select material. The concrete shall be of same strength concrete as specified for the building construction in general and shall be finished with a wood float finish.

The concrete walks shall be of width indicated, or called for on the drawings, and shall be scored into blocks of approximately the same length as the width of the walk. At approximately 30'-0" intervals, expansion joints shall be installed using one piece of 3/8" thick pre-moulded expansion joint filler in the cross joints.

3. TERMITE TREATMENT: Equal to Pryfon-6. Mix 1 gallon with 96 gallons of water to produce a .75% water solution.
 - a. Under Slab Treatment: Apply at solution rate of one gallon per 10 sq. ft. of dirt fill and 1-1/2 gallons per 10 sq. ft. of gravel. Cover with polyethylene after treatment to prevent rain washout. Treat around all plumbing and utility lines extending through slab.
 - b. Perimeter Treatment: Rod or trench around outside perimeter of foundation wall as in paragraph hereinafter. Apply at emulsion rate of 4 gallons per 10 linear feet per

foot of depth of footing. Treat all soil to be replaced in rod holes and trenches. Along outside of foundation walls, dig a narrow trench 15" deep. Rod holes 1' o.c. to footing. Apply 2 gallons per 10 linear feet of trench, backfill, and apply another 2 gallons per 10 linear feet. Then cover with thin layer of soil.

- c. Foundation Wall Hollow Masonry Unit Treatment: Apply inside voids at emulsion rate of 2 gallons per 10 linear feet. Apply emulsion so that it will reach the footing.
- d. Crawl Space: Rod or trench along the inside and outside at the foundation walls, around piers, plumbing, and utility services. Apply 4 gallons of solution per 10 linear feet per foot of depth. If trench is used, cover treated soil with a thin layer of untreated soil.
- e. Application of this insecticide shall be by certified applicator in strict conformance to manufacturer's written recommendations.

END OF SECTION 32 00 00

SECTION 32 92 19 - SEEDING

PART 1 -GENERAL

- 1.01 GENERAL CONDITIONS
- A. General provisions of the contract including the GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS and Division 1, GENERAL REQUIREMENTS, apply to the work specified in this section.
 - B. Scope: The Contractor shall furnish all labor, materials, and equipment required to complete the work described herein. Contractor shall seed all graded and disturbed areas in accordance with these specifications. The Contractor shall be responsible for the initial watering and subsequent maintenance of the seeded areas until after the first cutting. Contractor shall re-seed any area which does not show the proper density of grass.
- 1.02 PRODUCTS & EXECUTION
- A. Site Preparation: Grade as needed and as indicated. Remove all construction debris from soil.
 - B. Seedbed Preparation: Apply 4,000 pounds per acre or 92 pounds per 1,000 sq. ft. of pulverized dolomitic limestone and 1,088 pounds per acre or 25 pounds per 1,000 sq. ft. of 10-10-10 or equivalent fertilizer. The lime and fertilizer shall be worked into the top two inches of topsoil by raking.
 - C. Seeding:
 - 1. Apply 5 pounds of Kentucky #31 tall fescue per 1,000 sq. ft.
 - 2. Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry includes seed and fertilizer) preferably on a firm, moist seedbed. Normal coverage is 1/4 to 1/2 inch.
 - 3. Where feasible, except when a cultipacker seeder is used, the seedbed shall be firmed following seeding operations with a light roller.
 - 4. Mulching:
 - a. Mulch Materials: Mulch materials shall be un-weathered, un-chopped small grain straw (preferably wheat) at the rate of 1-1/2 to 2 tons per acre, or 70 to 90 pounds per 1,000 sq. ft.
 - b. Spreading: Spread uniformly by hand or mechanically so that approximately 85% of the soil surface will be covered.
 - c. Anchoring: Mulch anchoring shall be accomplished immediately after placement of mulch to minimize loss by wind or water. Emulsified asphalt shall be applied as anchor material, as blown from the applicator or as a separate condition. Apply uniformly at a rate of 0.04 gallons per sq. yd. rapid curing (R.S.-1 of R.S.-2), medium during (M.S.-2) or slow setting (S.S.-1) emulsified asphalt depending on desired curing time. See the manufacturer's specifications. Emulsified asphalt shall not be used in freezing weather. As an alternate, mulch binding may be accomplished by application of an alkyd emulsion resin mixed and applied in accordance with manufacturer's specifications.

END OF SECTION 32 92 19