

Project Manual

For:

Marathon County Group Home Chadwick Group Home Addition and Alterations

Schofield, Wisconsin

March 2020

Owner:

Marathon County
Facilities and Capital Management Department
1000 Lakeview Dr, Ste 300
Wausau, WI 54403.

Prepared by:



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Project No. 18.023

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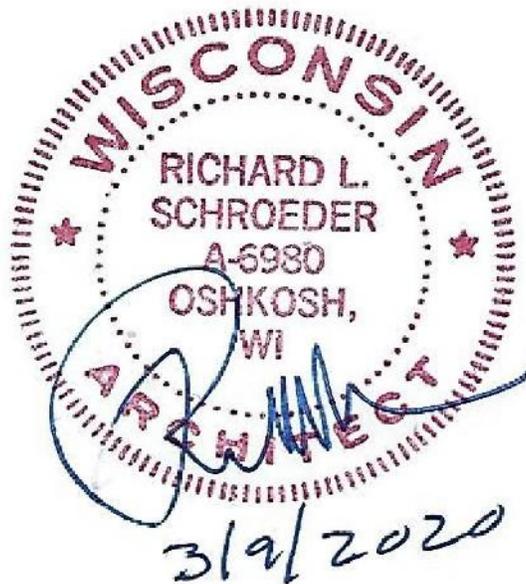
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SECTION 00 01 05
CERTIFICATION OF PROJECT DOCUMENTS

CERTIFICATION

The Project Manual and Drawings for the Marathon County – Chadwick Group Home Addition and Alteration were prepared by or under the direct supervision of the following Registered Architect under the laws of the State of Wisconsin.

Rick Schroeder, AIA
Registration No. 6980-5



END OF CERTIFICATIONS PAGE

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OFFICIAL NOTICE TO VENDORS
MARATHON COUNTY, WISCONSIN
REQUEST FOR BIDS

Marathon County is issuing a request for bids to solicit qualified contractors for the construction of a 300 s.f. bedroom addition with basement and interior alterations of the main floor pantry area and existing adjacent bedroom at the Marathon County Chadwick Group Home. Work will include excavation, CMU foundations, poured concrete footings, wood frame construction, vinyl siding, metal shingle roofing, vinyl windows, prehung wood doors, vinyl flooring, painted gypsum board walls/ceilings and removal of existing roof skylights. The work will include general construction, HVAC, plumbing, fire protection and electrical under one contract.

) *Marathon County Chadwick Group Home, 5006 Chadwick St., Schofield, WI 54476*

Interested firms may obtain a copy of the Request for Bid from the Facilities and Capital Management Department, 1000 Lakeview Drive, Suite 300 Wausau, WI 54403, or on the Marathon County Website www.co.marathon.wi.

A Mandatory Pre Bid Meeting for interested firms has been scheduled for this project, at 9:00 AM, March 16, 2020 at the Marathon County Chadwick Group Home, 5006 Chadwick St., Schofield, WI 54476. All visitor will be required to sign the prebid sign in sheet.

Bids shall be submitted to Craig Christians, at the FCM Department at the address indicated above. The envelope containing the Proposals shall bear the name and address of the interested firm and the notation “**Marathon County Chadwick Group Home Addition and Alteration**”

All bids must be received in writing (faxed or emailed will not be accepted) at the Marathon County Facilities and Capital Management Department at 1000 Lakeview Drive, Suite 300 Wausau, WI 54403 no later than 2pm, March 26, 2020. Bids received after that date and time will NOT be accepted. Actual receipt by said time is required and deposit in the mail is insufficient.

Bids shall remain firm once submitted and may not be withdrawn for a period of ninety (90) days, subject to provisions for correction of error in the proposal as contained in section 3.05 (1) (g) of the procurement code.

SECURITY DEPOSIT:

Bids shall be accompanied by a security deposit in the form of a Bid Bond or certified check in the amount of no less than 10 percent of the Bid Sum. Endorse the Bid Bond or certified check in the name of the Owner as obligee, signed and sealed by the Contractor as principal and the Surety.

After a Bid has been accepted, all securities will be returned to the respective Bidders. For the accepted Bidder, the security deposit will be returned after execution of the Contract. If no contract is awarded, all security deposits will be returned. Include the cost of the Bid security in the Bid Sum.

Marathon County reserves the right to reject, in whole or in part, any and all bids; to waive any technical deficiencies in the bids; to accept the bid and award final contract to the responsible offeror determined to be the most advantageous to Marathon County. The contract shall be awarded in accordance with the terms and conditions of section 3.05 (2) (g) of the procurement code. This solicitation may be canceled if doing so is determined to be in the best interests of

Marathon County. Upon award of the contract, all submitted documents become subject to the Open Records Law of the State of Wisconsin.

The General Code of the County of Marathon contains various procurement policies which are applicable to this proposed procurement. These include prohibitions against gratuities and kickbacks.

By: Craig Christians, Facility Planner
Facilities & Capital Management Dept.

END OF BID INVITATION

SECTION 00 21 14
INSTRUCTIONS TO BIDDERS

1. SUMMARY

1.2 WORK IDENTIFIED IN THE CONTRACT DOCUMENTS

- A. The work will be done under single lump sum contract.

1.3 CONTRACT TIME

- A. The construction shall begin immediately upon execution of contract documents.
B. Due to daily usage of the project area throughout the duration of the project, performance of the work under this Contract must be done in accordance of the defined project schedule.
C. The project shall be Substantially Completed not later than August 28, 2020, inclusive of lead times for materials ordered for the project.

2. BID DOCUMENTS AND CONTRACT DOCUMENTS

2.1 DEFINITIONS

- A. Bid Documents: Contract Documents supplemented with Instructions to Bidders and Bid Form identified herein.
B. Contract Documents: Defined in General and Supplementary Conditions.
C. Bid, Offer, or Bidding: Act of submitting a Bid.
D. Bid Sum: Monetary sum identified by the Bidder in the Bid Form.

2.2 CONTRACT DOCUMENTS IDENTIFICATION

- A. The Contract Documents are identified by the project name “**Marathon County – Chadwick Group Home Addition and Alteration**” as prepared by Funktion Design Studio, 207 Windtree Drive, Wausau, WI 54401 and are enumerated in the Project Manual.

2.3 AVAILABILITY

- A. Bid Documents may be reviewed at the office of the Owner.
B. Electronic sets of Bid Documents can be obtained by each Bidder upon request.
C. Bid Documents are made available only for the purpose of obtaining Bids for this project. Their use does not grant a license for other purposes.

2.4 EXAMINATION

- A. Bid Documents may be viewed at the office of the Owner.
B. Upon receipt of Bid Documents verify that documents are complete. Notify Owner should the documents be incomplete.
C. Immediately notify the Owner upon finding discrepancies or omissions in the Bid Documents.

2.5 QUERIES/ADDENDA

- A. Direct questions by e-mail only (verbal answers are not binding on any party) to the following:
1. Funktion Design Studio – Melody Hamlin, Project Manager melody@funktiondesignstudio.com.
B. Addenda may be issued during the Bidding period. All Addenda become part of the Contract Documents. Include resultant costs in the Bid Sum.
C. Clarifications and requests for determination of equal products must be received by Owner in writing not less than 4 days before date set for receipt of Bids. The written reply, if any, will be in the form of an Addendum issued to all appropriate Bidders.

2.6 PRODUCT/SYSTEM SUBSTITUTIONS

- A. Substitute products will be considered if submitted ***prior*** to the time listed in 2.5.C - 4 days prior to bid date to be reviewed by the owner and noted as “approved equal”.
- B. The submittal shall provide sufficient information to determine acceptability of such products.
- C. Provide complete information on required revisions to other Work to accommodate each substitution, the value of additions to or reductions from the Bid Sum, including revisions to other Work.
- D. Provide Products as specified unless substitutions are submitted in this manner and subsequently accepted.

2.7 REPRESENTATIONS

- A. By submitting a bid, the Bidder represents that:
- B. Bidder has visited the Project Site and is familiar with the conditions at the site which affect the Contract Sum and the performance of the Work.
- C. All Bid Sums are based on the materials, products, requirements, equipment and systems required by the contract Documents, unless any exceptions or deviations are indicated on the Bid Form.
- D. Bidder agrees to comply with provisions related to conflicts, as specified in the Supplementary Conditions, unless any exceptions or deviations are indicated on the Bid Form.

3. SITE ASSESSMENT

3.1 SITE EXAMINATION

- A. The Contractor shall visit the project site before submitting a Bid and carefully examine the Contract Documents and their relationship to existing conditions to become thoroughly familiar with the requirements of the Work.
- B. A scheduled mandatory pre bid meeting is set for 9:00 AM, March 16, 2020 at the Marathon County Chadwick Group Home 5006 Chadwick Street, Schofield, 54476.
- C. The Contractor will not be allowed extra compensation for work required by existing conditions for which through careful examination of the site the Contractor could have become informed prior to submitting a Bid.

3.2 SUBCONTRACTORS/SUPPLIERS/OTHERS

- A. The Owner reserves the right to reject a proposed Subcontractor for reasonable cause.
- B. The Contractor shall consult the specifications for each division of the Work to ascertain the extent of the Contractor’s work. The Contractor, and the Subcontractors, shall confer and cooperate to serve the best interest of the Work as a whole.

4. BID ENCLOSURES/REQUIREMENTS

4.1 WITHDRAWAL OF BIDS

- A. Bidders may withdraw, modify or cancel submitted Bids only before the date and time established for the receipt of Bids. Submitted Bids may not be withdrawn, modified or canceled after such date and time.

4.2 BID FORM REQUIREMENTS

- A. Complete all requested information in the Bid Form.
- B. Refer to Document 00 72 00 – General Conditions.
- C. Refer to Document 00 73 10 – Marathon County Procurement Policy for insurance requirements.

4.3 FEES FOR CHANGES IN THE WORK

- A. Include in the Bid Form, the fees proposed for changes (both additions and deductions) in the Work.

5. BID ACCEPTANCE/REJECTION

5.1 DURATION OF BIDS

- A. Bids shall remain open to acceptance by the Owner for a period of time after the Bid closing date as identified on the Bid Form.

5.2 ACCEPTANCE OF BIDS

- A. The Contract, if awarded, will be awarded to the lowest responsible and responsive Bidder on the basis of the Base Bid, and full consideration of the selected Alternatives, as may be in the best interest of the Owner. In determining responsibility, the Owner will consider the scope of the work involved, time of delivery, competency of Bidder, his ability to render satisfactory service, and past performance.
- B. The Owner reserves the right to reject any or all Bids, or parts thereof, and to award to the Bidder who, in the judgment of the Owner, will best serve the County. A bid which has not been prepared according to the instructions set forth in the Request for Bids, or which does not include a price which is both adequate and reasonable on each and every item named in the bid, may be subject to rejection. Bids may be withdrawn or modified only as allowed pursuant to Section 3.05(1) (g) of the Marathon County Procurement Code.
- C. If two or more Bidders submit identical Bids, the Owner may make award to that Bidder of his choice, and such decision shall be final.
- D. Awards will not be made to any Bidder in default of a Contract with the Owner, or to any Bidder having as his agent or employee any individual previously in default or guilty of misrepresentation.
- E. Bid results may be published in construction periodicals.

5.3 BIDDER'S QUALIFICATIONS

- A. To demonstrate qualification for performing the Work of this Contract, Bidders will be requested to submit written evidence of financial position, previous experience, current commitments, and license to perform work in the location of the project.
- B. Bidder to fill out Document 00 21 45 - Bidder's Proof of Responsibility and include with their Bid Form.

5.4 BID BOND

- A. Bids shall be accompanied by a security deposit in the form of a Bid Bond or certified check in the amount of no less than 10 percent of the Bid Sum. Endorse the Bid Bond or certified check in the name of the Owner as obligee, signed and sealed by the Contractor as principal and the Surety.
- B. After a Bid has been accepted, all securities will be returned to the respective Bidders. For the accepted Bidder, the security deposit will be returned after execution of the Contract. If no contract is awarded, all security deposits will be returned. Include the cost of the Bid security in the Bid Sum.

5.5 PERFORMANCE ASSURANCE

- A. The accepted bidder before commencing the Work shall furnish a Performance Bond and Labor and Material Payment Bond to the Owner in the following amounts:
 - 1. The Performance Bond shall be in an amount equal to 100% of full amount of the Contract Sum as security for faithful performance of the obligations of the Contract Documents and prepared on AIA Document A312 or a standard surety bond form.
 - 2. The Labor and Material Bond shall be in an amount equal to 100% of full amount of the Contract Sum as security for the payment of all persons performing labor and furnishing materials in

connection with the Contract Documents and prepared on AIA Document A312 or a standard surety bond form.

3. Such bond shall be issued by a surety satisfactory to the Owner and shall name the Owner as a primary coobligee.

END OF SECTION

**SECTION 00 21 45
BIDDER'S PROOF OF RESPONSIBILITY**

BIDDER _____

TO: MARATHON COUNTY

DATED _____ **AND WHICH IS AN INTEGRAL PART OF THE
BID FORM.**

**1.01 BIDDER'S PROOF OF RESPONSIBILITY SHALL SUBMITTED WITH THEIR BID
FORM.**

- A. On all contracts, the bidder must submit a full and complete statement, sworn to before an officer authorized by law to administer oaths, of financial ability, equipment and experience in the work prescribed and of such other matters as the Owner may require for the protection and welfare of the public (Section 66.0901(2), Wisconsin Statutes).
- B. The object of the questionnaire is not to discourage bidding or make it difficult for qualified bidders to file bids. Neither is it intended to discourage beginning contractors. It is intended to make it possible for the Owner to have exact information on financial ability, equipment and experience of the bidder involved so as not to award contracts to parties apparently not qualified to perform the Work.
- C. If the Owner is not satisfied with the sufficiency of the answers to the questionnaire and financial statement, it may disqualify the Bidder or require additional information (Section 66.0901(4), Wisconsin Statutes).
- D. Any questions regarding the information to be provided on this form should be directed to the Owner.

1.02 STATEMENT OF BIDDER'S QUALIFICATIONS

- A. Name of Bidder _____
Bidder's Address _____
- B. Type of Organization (check one): Corporation ____ Partnership __ Individual ____
Joint Venture ____ . Other ____ . If other, attach a brief statement describing the organization.
- C. When organized? _____
- D. If a corporation, when and where incorporated _____

- E. Attach a statement listing the corporate officers, partners or other principal members of your organization and detailing the background and experience of the principal members of your personnel, including the officers.
- F. How many years has your organization been engaged in the contracting business under the present firm name? _____
- G. General character of work performed by your firm?

- H. Attach a list of contracts on hand, for both public and private construction, including for each contract, the class of work, the contract amount, the percent completed, the estimated completion date, and the name and address of the Owner or contracting officer.
- I. Has your organization ever defaulted on a contract or failed to complete any work awarded to it? Yes No . If so, attach a statement stating where and why.
- J. Has an officer or partner of your organization been an officer or partner of some other organization within the past 5 years that failed to complete a construction contract during that period? Yes No . If so, attach a statement indicating the name of the individual, other organization and explain where and why.
- K. Has any officer or partner of your organization within the past 5 years failed to complete a construction contract handled in his/her own name? Yes No. . If so, attach a statement indicating the name of individual and explain where and why.
- L. Attach a list of the major projects your organization has completed within the past 3 years, including for each project: the class of work, the contract amount, the completion date, the name and address of the owner or contracting officer.
- M. Attach a list of major equipment which is available to your organization for the proposed work. Indicate type, model, age and condition.
- N. Attach a statement of your experience in the construction of work similar in nature and importance to this project.
- O. Credit available: Attach a letter from your bank(s) or other financial institution(s) advising line of credit set up for your organization.

**1.03 NAME OF INSURANCE COMPANY AND NAME, ADDRESS AND TELEPHONE
NUMBER OF AGENT**

1.04 FINANCIAL STATEMENT:

- A. Condition at close of business on _____, 20__ .
- B. Assets
 - 1. Cash \$ _____
 - 2. Accounts Receivable \$ _____
 - 3. Real Estate Equity \$ _____
 - 4. Materials in Stock \$ _____
 - 5. Equipment, Book Value \$ _____
 - 6. Furniture and Fixtures, Book Value \$ _____
 - 7. Other Assets \$ _____
- C. Liabilities
 - 1. Accounts, notes and interest payable \$ _____
 - 2. Other Liabilities \$ _____
- D. NET WORTH \$ _____

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BID FORM

Owner: County of Marathon
Facilities & Capital Management
Department
1000 Lakeview Dr,
Ste 300, (Door 27)
Wausau, Wisconsin 54401

Project: Marathon County – Chadwick Group
Home Addition and Alteration

Date: _____

Bid Submitted by:

Full Name: _____

Full Address: _____

Telephone: _____

PART 1. OFFER

A. Having examined the Place of the Work and all matters referred to in the Instructions to Bidders and the Contract Documents for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of:

MARATHON COUNTY – CHADWICK GROUP HOME ADDITION AND ALTERATION - TO INCLUDE ALL LABOR AND MATERIALS TO COMPLETE THE PROJECT. (ADDITIONAL PRODUCT INFORMATION AND SCOPE OF WORK CAN BE ATTACHED TO DOCUMENT).

_____ Dollars \$ _____

PART 2. ALTERNATES

- A. The following amounts shall be added to or deducted from the bid amount. Refer to Section 01 23 00 - Alternatives: Schedule of Alternatives.
- B. Alternative # 1: (Add) (Deduct) \$ _____
- C. Alternative # 2: (Add) (Deduct) \$ _____

PART 3. ADDENDA (IF APPLICABLE)

A. The following Addenda have been received. The modifications to the Bid Documents noted therein have been considered and all costs thereto are included in the Bid Sum.

Addendum # _____	Dated _____	Addendum# _____	Dated _____
Addendum # _____	Dated _____	Addendum# _____	Dated _____
Addendum # _____	Dated _____	Addendum# _____	Dated _____

PART 4. SUBCONTRACTORS/SUPPLIERS (complete only if applicable)

A. We propose to employ the following subcontractors and suppliers for the stated categories of work within the contract for General Construction.

Category of Work	Subcontractor

PART 5. CHANGES TO THE WORK

A. When the Architect establishes that the method of valuation for Changes in the Work will be net cost plus a percentage fee in accordance with General Conditions, our percentage fee will be:

1. _____ percent overhead and profit on the net cost of our own Work;
2. _____ percent on the cost of work done by any Subcontractor

B. On work deleted from the Contract, our credit to Owner shall be the Architect - approved net cost plus _____ of the overhead and profit percentage noted above.

PART 6. BID FORM SIGNATURE(S)

The Corporate Seal of: _____
(Print the full name of your Business)

was hereunto affixed in the presence of: _____
(Signature - Authorized signing officer)

(Printed Name and Title)

(Seal) _____
(Signature - Authorized signing officer)

(Printed Name and Title)

If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

END OF BID FORM

SECTION 00 72 00
GENERAL CONDITIONS

ARTICLE 1 - GENERAL PROVISIONS

1.1 THE CONTRACT

The Contract represents the entire and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a written modification.

1.1.1 The Contractor's completed Bid Form shall be included in the Contract Documents.

1.2 THE WORK

The term "Work" means the construction and services required by the Contract Documents, and includes all other labor, materials, equipment and services provided by the Contractor to fulfill the Contractor's obligations.

1.3 THE INTENT

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

1.3.1 All Work shown and specified is intended to be included in the Contract. Therefore, Work shown on the Drawings and not specified shall be included in the Contract, and Work identified in the Specifications and not shown on the Drawings shall be included in the Contract.

1.3.2 It shall be the responsibility of the Contractor to establish the extent of the work of each Subcontractor and each trade.

1.3.3 If a conflict in Contract Documents occurs the following shall apply:

1.3.3.1 Addenda or modifications of any nature to the drawings and specifications take precedence over the original Contract Documents.

1.3.3.2 Where a conflict occurs in the Documents, not reconciled by Addenda, the installation of greater quantity and better quality shall be provided.

1.3.3.3 Where a conflict occurs between the Specifications and the Drawings, not reconciled by Addenda, the installation of greater quantity and better quality shall be provided.

1.3.3.4 Where work or materials are shown or specified in more than one location in the contract documents which results in a duplication of work by more than one Contractor, the Contractors shall include the cost for such work or materials in their contracts and the Owner shall determine which Contractor shall provide the work or materials and which Contractor shall provide a credit to the Owner.

1.3.4 Drawings are in part diagrammatic, intended to convey the scope of the work, and indicate general arrangement of materials and equipment. Drawings are not necessarily to scale and the printed dimensions should be used, not scaled measurements. Each Contractor shall

become familiar with all conditions affecting the Contractor's work and shall consult all construction drawings and specification sections.

1.3.5 All details and notes on the Drawings shall be considered to be typical and what is shown or noted in one instance shall apply to all similar and related instances whether or not the detail or note is repeated.

1.3.6 Small details and related material not usually drawn or specified, but necessary for the proper installation and completion of the Work, shall be furnished and installed by the Contractor without extra charge, the same as if specified in the Project Manual or shown on the Drawings.

1.3.7 These Drawings and Specifications are intended for use only for this Project on this site and should not be used for other projects on the same or different site.

1.4 THE OWNER

The Owner as referenced in the Contract Documents is Marathon County, also referred to elsewhere in the Contract Documents as "The County". The agent for the County is the Marathon County Facilities & Capital Management Department.

1.5 THE CONTRACTOR

The term "Contractor" when used in any section of the specifications, means the Contractor who has a contract directly with the Owner.

ARTICLE 2 - OWNER

2.1 INFORMATION AND SERVICES REQUIRED OF THE OWNER

Except for permits and fees which are the responsibility of the Contractor under the Contract Documents, the Owner shall obtain and pay for other necessary approvals, easements, assessments and charges.

2.2 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work which is not in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work until the correction is made.

2.3 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven day period after receipt of written notice from the Owner to correct such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies, correct such deficiencies. In such case, a Change Order shall be issued deducting the cost of correction from payments due the Contractor.

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

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

- 2.4.2** The Contractor shall coordinate and cooperate with separate contractors employed by the Owner.
- 2.4.3** Costs caused by delays or by improperly timed activities or defective construction shall be borne by the party responsible, therefore.

ARTICLE 3 - CONTRACTOR

3.1 EXECUTION OF THE CONTRACT

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

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner. Before commencing activities, the Contractor shall: (1) take field measurements and verify field conditions; (2) carefully compare this and other information known to the Contractor with the Contract Documents; and (3) promptly report errors, inconsistencies or omissions discovered to the Owner.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

- 3.3.1** The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work.
- 3.3.2** The Contractor, as soon as practicable after award of the contract, shall furnish in writing to the Owner the names of subcontractors or suppliers for each portion of the Work. The Owner will promptly reply to the Contractor in writing if the Owner, after due investigation, has reasonable objection to the subcontractors or suppliers listed.
- 3.3.3** The Contractor shall have a qualified superintendent on the construction site at all times while work on the Project is being performed. The Owner shall have the right to review the qualifications of the Contractor's superintendent and reject the superintendent at Owner's discretion.

3.4 LABOR AND MATERIALS

- 3.4.1** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work.
- 3.4.2** The Contractor shall deliver, handle, store and install materials in accordance with manufacturers' instructions.

3.5 WARRANTY

The Contractor warrants to the Owner that: (1) materials and equipment furnished under the Contract will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; and (3) the Work will conform to the requirements of the Contract Documents.

3.5.1 Where warranties are specified in the individual specification sections for products, materials, systems, and equipment, provide the specified warranties from the supplier of the products, materials, systems, and equipment. In the event the specified warranties are not available from the suppliers, the Contractor shall provide the specified warranties unless the Contractor has stated an exception in the Bid Form.

3.6 PERMITS, FEES AND NOTICES

3.6.1 The Contractor shall obtain and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work.

3.6.2 The Contractor shall comply with and give notices required by agencies having jurisdiction over the Work. If the Contractor performs Work knowing it to be contrary to laws, statutes, and ordinances, building codes, and rules and regulations without notice to the Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs. The Contractor shall promptly notify the Owner in writing of any known inconsistencies in the Contract Documents with such governmental laws, rules and regulations.

3.7 SUBMITTALS

The Contractor shall promptly review, approve in writing and submit to the Owner Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents. Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents.

3.8 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, the Contract Documents and the Owner.

3.9 CUTTING AND PATCHING

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

3.10 CLEANING UP

The Contractor shall keep the premises and surrounding area free from accumulation of debris and trash related to the Work.

3.11 INDEMNIFICATION

To the fullest extent permitted by law, the Contractor agrees to release, indemnify, defend, and hold harmless Marathon County, their officials, officers, employees and agents from and against all judgments, damages, penalties, losses, costs, claims, expenses, suits, demands, debts, actions and/or causes of action of any type or nature whatsoever, including actual and reasonable attorney's fees, which may be sustained or to which they may be exposed, directly or indirectly, by reason of personal injury, death, property damage, or other liability, alleged or proven, resulting from or arising out of the performance of contractor, its officers, officials, employees, agent or assigns. Marathon County does not waive, and specifically reserves its right to assert any and all affirmative defenses and limitations of liability as specifically set forth in Wisconsin Statutes, Chapter 893 and related statutes.

ARTICLE 4 - OWNER'S ADMINISTRATION OF CONTRACT

- 4.1 The Owner will provide administration of the Contract as described in the Contract Documents.
- 4.2 The Owner will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the Work.
- 4.3 The Owner will not have control over or charge of and will not be responsible for construction means, methods, techniques, procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Owner will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.
- 4.4 Based on the Owner's observations and evaluations of the Contractor's Applications for Payment, the Owner will review and certify the amounts due the Contractor.
- 4.5 The Owner will have authority to reject Work that does not conform to the Contract Documents.
- 4.6 The Owner will promptly review and approve or take appropriate action upon Contractor's submittals such as Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
- 4.7 The Owner will promptly interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of the Contractor.
- 4.8 Interpretations and decisions of the Owner will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings.

ARTICLE 5 - CHANGES IN THE WORK

- 5.1 After execution of the Contract, changes in the Work may be accomplished by Change Order or by order for a minor change in the Work. The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.
- 5.2 A Change Order shall be a written order to the Contractor signed by the Owner to change the Work, Contract Sum or Contract Time.
- 5.3 The Owner will have authority to order minor changes in the work not involving changes in the Contract Sum or the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be written orders and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.
- 5.4 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be subject to equitable adjustment.

ARTICLE 6 - TIME

- 6.1 Time limits stated in the Contract Documents are of the essence of the Contract.
 - 6.1.1 Contract time is identified in Document 00 21 13 – Instructions to Bidders.
- 6.2 If the Contractor is delayed at any time in progress of the Work by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control, the Contract Time shall be extended by Change Order for such reasonable time as the Owner may determine.

ARTICLE 7 - PAYMENTS AND COMPLETION**7.1 CONTRACT SUM**

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

7.2 APPLICATIONS FOR PAYMENT

7.2.1 At least thirty days before the date established for each progress payment, the Contractor shall submit to the Owner an itemized Application for Payment for operations completed in accordance with the Agreement. Such application shall be supported by such data substantiating the Contractor's right to payment as the Owner may reasonably require and reflecting retainage if provided for elsewhere in the Contract Documents.

7.2.2 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment, all Work for which Certificates for Payments have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or other encumbrances adverse to the Owner's interests.

7.2.2.1 Submit two (2) copies of each Application for Payment.

7.3 PROGRESS PAYMENTS

7.3.1 The Owner shall make payment in the manner provided in the Contract Documents.

7.3.2 The Contractor shall promptly pay each Subcontractor and material supplier, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such entities' portion of the Work.

7.3.3 The Owner shall not have responsibility for the payment of money to a Subcontractor or material supplier.

7.3.4 A progress payment, or partial or entire use or occupancy of the project by the Owner shall not constitute acceptance of Work not in accordance with the requirements of the Contract Documents.

7.4 SUBSTANTIAL COMPLETION

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

7.4.1.1 At the stated Substantial Completion of the Work, a Punch list comprised of the Contractor's list of Work to be completed and the Owner's additions to the list shall be issued.

7.5 FINAL COMPLETION AND FINAL PAYMENT

7.5.1. Upon receipt of a final Application for Payment, the Owner will inspect the Work. When the Owner finds the Work acceptable and the Contract fully performed, Owner will promptly issue a final Payment.

7.5.1.1. Completion or correction of all items on the punch list by the Contractor shall not waive the Owner's right to have other omissions and defects corrected at the Contractor's expense when such omissions and defects are discovered after completion of the Punch list items.

7.5.2 Final payment shall not become due until the Contractor submits to the Owner data establishing payment or satisfaction of obligations, such as receipts, claims, security interests or encumbrances arising out of the Contract.

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

ARTICLE 8 - PROTECTION OF PERSONS AND PROPERTY

8.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs, including all those required by law in connection with performance of the Contract. The Contractor shall promptly remedy damage and loss of property caused in whole or in part by the Contractor, or by anyone for whose acts the Contractor may be liable.

ARTICLE 9 - CORRECTION OF WORK

9.1 The Contractor shall promptly correct Work rejected by the Owner as failing to conform to the requirements of the Contract Documents. The Contractor shall bear the cost of correcting such rejected Work.

9.2 In addition to the Contractor's other obligations including warranties under the Contract, the Contractor shall, for a period of one year after Substantial Completion, correct work not conforming to the requirements of the Contract Documents.

9.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it and the Contractor shall reimburse the Owner for the cost of correction.

ARTICLE 10 - MISCELLANEOUS PROVISIONS

10.1 ASSIGNMENT OF CONTRACT

Neither party to the Contract shall assign the Contract as a whole without written consent of the other.

10.2 TESTS AND INSPECTIONS

10.2.1 Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time.

10.2.2 If the Owner requires additional testing, the Contractor shall perform these tests.

10.2.3 The Owner shall pay for tests except for testing Work found to be defective for which the Contractor shall pay.

10.3 GOVERNING LAW

The Contract shall be governed by the law of the State of Wisconsin.

ARTICLE 11 - TERMINATION OF THE CONTRACT**11.1 TERMINATION BY THE CONTRACTOR**

If the Owner fails to make payment when due or substantially breaches any other obligation of this Contract, following seven days' written notice to the Owner, the Contractor may terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, construction equipment and machinery, including reasonable overhead, profit and damages.

11.2 TERMINATION BY OWNER

11.2.1 The Owner may terminate the Contract if the Contractor:

- 11.2.1.1** persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- 11.2.1.2** fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- 11.2.1.3** persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or
- 11.2.1.4** is otherwise guilty of substantial breach of a provision of the Contract Documents.

11.2.2 When any of the above reasons exist, the Owner, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's survey, if any seven days' written notice, terminate employment of the Contractor and may:

- 11.2.2.1** take possession of the site and of all materials thereon owned by the Contractor;
or
- 11.2.2.2** finish the Work by whatever reasonable method the Owner may deem expedient.

11.2.3 When the Owner terminates the Contract for one of the reasons stated in Subparagraph 11.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

11.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

11.2.5 The Contract may also be terminated by the Owner according to the provisions set forth in Section 00 73 10 "Marathon County Procurement Policy" in the Project Manual.

ARTICLE 12 – INSURANCE**12.1 CONTRACTOR'S INSURANCE**

12.1.1 The Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, insurance as set forth in Section 00 73 10 "Marathon County Procurement Policy" in the Project Manual.

END OF SECTION

SECTION 00 73 10
MARATHON COUNTY STANDARD TERMS AND CONDITIONS

- 1.0 SPECIFICATIONS:** The specifications in any request for bids or proposal which forms the subject of this contract are the minimum acceptable. When specific manufacturer and model numbers are used, they are to establish a design, type of construction, quality, functional capability and/or performance level desired. When alternates are bid/proposed/provided, they must be identified by manufacturer, stock number, and such other information necessary to establish equivalency. Marathon County shall be the sole judge of equivalency. Contractors are cautioned to avoid bidding/proposing alternates to the specifications which may result in rejection of their bid/proposal.
- 2.0 DEVIATIONS AND EXCEPTIONS:** Deviations and exceptions from original text, terms, conditions, or specifications shall be described fully, on the Contractor's letterhead, signed, and attached to the response to request. In the absence of such statement, the bid/proposal shall be accepted as in strict compliance with all terms, conditions, and specifications and the Contractor shall be held liable.
- 3.0 ACCEPTANCE-REJECTION OF BIDS OR PROPOSALS:** Marathon County reserves the right to accept or reject any or all bids/proposals, to waive any technicality in any bid/proposal submitted, and to accept any part of a bid/proposal as deemed to be in the best interests of Marathon County. Bids/proposals MUST be date and time stamped by the office of the soliciting purchasing agent on or before the date and time that the bid/proposal is due. Bids/proposals date and time stamped in another office will be rejected. Receipt of a bid/proposal by the mail system does not constitute receipt of a bid/proposal by the purchasing agent's office.
- 4.0 METHOD OF AWARD:** Award of bids shall be made to the lowest responsible, responsive bidder unless otherwise specified. Award of proposals shall be subject to criteria set for in the request for proposal.
- 5.0 QUALITY:** Unless otherwise indicated in the request, all material shall be first quality. Items which are used, demonstrators, obsolete, seconds, or which have been discontinued are unacceptable without specific prior written approval by the Marathon County.
- 6.0 WARRANTY:** Unless otherwise specifically stated by the bidder/proposer, equipment purchased as a result of this request shall be warranted against defects by the bidder/proposer for one (1) year from date of receipt. The equipment manufacturer's standard warranty shall apply as a minimum and must be honored by Contractor.
- 7.0 DELIVERY:** Deliveries shall be F.O.B. destination freight prepaid and included unless otherwise specified. Failure of the Vendor to adhere to delivery schedules as specified or to promptly replace rejected materials shall render Contractor liable for all costs in excess of the contract price when alternate procurement is necessary. Excess costs shall include the administrative costs.
- 8.0 ORDERING:** Purchase orders shall be placed directly to Contractor by authorized departments or purchasing agents who have issued the request for bids or proposal. No other purchase orders are authorized.
- 9.0 PAYMENT TERMS AND INVOICING:** Marathon County normally will pay properly submitted Contractor invoices within thirty (30) days of receipt providing goods and/or services have been delivered, installed (if required), and accepted as specified.
- 9.1 Invoices presented for payment must be submitted in accordance with instructions contained on the purchase order including reference to purchase order number and submittal

to the correct address for processing.

9.2 A good faith dispute creates an exception to prompt payment.

10.0 TAXES: Marathon County and its departments are exempt from payment of all federal tax and Wisconsin state and local taxes on its purchases except Wisconsin excise taxes as described below. Marathon County, including all its departments, is required to pay the Wisconsin excise or occupation tax on its purchase of beer, liquor, wine, cigarettes, tobacco products, motor vehicle fuel and general aviation fuel. However, it is exempt from payment of Wisconsin sales or use tax on its purchases. Marathon County may be subject to other states' taxes on its purchases in that state depending on the laws of that state. Contractors performing construction activities are required to pay state use tax on the cost of materials.

11.0 CONTRACT INTEGRATION: These Standard Terms and Conditions shall apply to any contract or order awarded as a result of a request except where special requirements are stated elsewhere in the request; in such cases, the special requirements shall apply. The documents constituting the contract between Marathon County and Contractor are intended to be complementary so that what is required by any one of them shall be as binding as if called for by all of them. In the event of any conflicting provisions or requirements within the several parts of the Contract Documents, they shall take precedence in the following order: Change Orders (with the most recent taking precedence); Contract Document Amendments; the Contract Document as described in this signed Agreement; Request for Proposal Addenda; Request for Proposal; and Firm's Proposal. Any terms of any other documents concerning this agreement are superseded by the terms set forth herein.

12.0 APPLICABLE LAW AND COMPLIANCE: This contract shall be governed under the laws of the State of Wisconsin. Contractor shall at all times comply with and observe all federal and state laws, local laws, ordinances, and regulations which are in effect during the period of this contract and which in any manner affect the work or its conduct. Marathon County reserves the right to cancel this contract if Contractor fails to follow the requirements of s. 77.66, Wis. Stats., and related statutes regarding certification for collection of sales and use tax.

13.0 SAFETY REQUIREMENTS: All materials, equipment, and supplies provided to Marathon County must comply fully with all safety requirements as set forth by the Wisconsin Administrative Code and all applicable OSHA Standards.

13.1 Contractor shall execute and maintain its work so as to avoid injury or damage to any persons or property. Contractor shall comply with the requirements and specifications relating to safety measures applicable in particular operations or kinds of work. In carrying out its work, Contractor shall, at all times, exercise all necessary precautions for the safety of employees appropriate to the nature of the work and the conditions under which the work is to be performed and be in compliance with all applicable federal, state and local statutory and regulatory requirements including Wisconsin Labor Code and the U.S. Department of Transportation Omnibus Transportation Employee Testing Act, including the obligation to conduct safety inspections to verify said compliance by its employees, agents, and/or subcontractors.

13.2 Contractor is specifically notified that it is subject to federal requirements listed under Title 29, Chapter 15 of the United States Code (Occupational Health and Safety Act) by virtue of its contract with Marathon County, a public entity. Contractor shall provide a similar notice to all its subcontractors.

13.3 **SAFETY DATA SHEET:** If any item(s) on an order(s) resulting from this award(s) is a hazardous chemical, as defined under 29CFR 1910.1200, provide one (1) copy of a Material

Safety Data Sheet for each item with the shipped container(s) and one (1) copy with the invoice(s).

14.0 INSURANCE REQUIREMENTS: Contractor shall not commence work under this contract until all insurance required under this paragraph is obtained, and such insurance has been approved Marathon County, nor shall Contractor allow any subcontractor to commence work on their subcontract until all similar insurance requirements have been obtained and approved.

14.1 Maintain worker's compensation insurance as required by Wisconsin Statutes, for all employees engaged in the work. In case any work is sublet, Contractor shall require the subcontractor similarly to provide statutory Workers' Compensation Insurance for all of the latter's employees, unless such employees are covered by the protection afforded by Contractor.

14.2 **General Liability, Professional Liability and Property Damage Insurance.** Contractor shall secure and maintain in force throughout the duration of this contract such General Liability, Professional Liability (if necessary), and Property Damage Insurance as shall protect itself and any subcontractor performing work covered by this contract from claims for damages for personal injuries including accidental death, as well as from claims for property damage, which may arise from operations under this contract, whether such operations be by Contractor, or by any subcontractor or by anyone directly or indirectly employed by either of them; and the amount of such insurance shall be as follows:

J Comprehensive General Liability \$1,000,000 per occurrence and \$2,000,000 in aggregate for bodily injury and Property Damage.

J Professional Liability Coverage, \$1,000,000 per occurrence and \$2,000,000 in aggregate.

J Automobile Liability \$1,000,000 per occurrence and \$2,000,000 in aggregate for bodily injury and property damage.

J Excess Liability Coverage, \$1,000,000 over the General Liability and Automobile Liability Coverage.

J If aircraft are used in conjunction with this project, \$2,000,000 per occurrence and in aggregate for bodily injury and property damage.

14.3 Marathon County reserves the right to require higher or lower limits where warranted.

14.4 Marathon County reserves the right to require additional security, including, but not limited to, bid bonds or performance bonds as specifically set forth in its request for bids or proposals.

14.5 **PROOF OF INSURANCE:** Contractor shall furnish the County with a Certificate of Insurance countersigned by a Wisconsin Resident Agent or Authorized Representative of the insurer indicating that Contractor meets the insurance requirements identified above. The Certificates of Insurance shall include a provision prohibiting cancellation of said policies except upon 30 days prior written notice to the County and specify the name of the contract or project covered. The Certificate of Insurance shall be delivered to the Authorized Purchasing Agent, with a copy of the Certificate of Insurance to be delivered to the Marathon County Risk Manager for approval prior to the execution of this contract. Upon renewal of the required insurance, and annually thereafter, the County shall receive a new Certificate of Insurance for three years after completion of the project. The Certificates shall name Marathon County as an additional insured and describe the contract by name and or identification number in the "Description of Operations" section of the form.

15.0 CANCELLATION / TERMINATION: Marathon County reserves the right to:

- 15.1 **NONAPPROPRIATION OF FUNDS.** Cancel any contract in whole or in part without penalty due to non- appropriation of funds or for failure of the Contractor to comply with terms, conditions, and specifications of this contract.
- 15.2 Terminate this contract, for the County’s convenience, at any time by a notice in writing from the County to Contractor by certified mail. If the Contract is terminated by the County as provided herein, Contractor shall be paid an amount which bears the same ratio to the total compensation as the services actually performed bear to the total services of Contractor covered by this Contract, unless payments of compensation have previously been made.
- 16.0 CONTRACT MODIFICATIONS:** The scope of the services to be performed under this Contract may be amended or supplemented by mutual written agreement between the parties to the Contract. This amendatory provision shall not operate to prevent Marathon County from exercising its reserved right to establish reasonable time schedules for any of the work or services to be performed by or deliveries to be received from Contractor hereunder. Furthermore, this amendatory provision shall not operate to prevent the County from canceling any of the services not yet performed or any deliveries no yet made at the time notice is given to Contractor of the cancellation of such services or portion of the work to be performed hereunder.
- 17.0 ASSIGNMENT:** No right or duty in whole or in part of the scope of work under this contract may be assigned or delegated without the prior written consent of Marathon County.
- 18.0 PATENT INFRINGEMENT:** The Contractor selling articles to Marathon County as described herein guarantees the articles were manufactured or produced in accordance with applicable federal labor laws. Further, that the sale or use of the articles described herein will not infringe any United States patent. The Contractor covenants that it will at its own expense defend every suit which shall be brought against Marathon County (provided that such contractor is promptly notified of such suit, and all papers therein are delivered to it) for any alleged infringement of any patent by reason of the sale or use of such articles, and agrees that it will pay all costs, damages, and profits recoverable in any such suit.
- 19.0 PUBLIC RECORDS ACCESS:** Marathon County is a political subdivision of the State of Wisconsin and as such is subject to the Wisconsin Public Records Law. It is the policy of Marathon County to maintain an open and public process in the solicitation, submission, review, and approval of procurement activities. Bid openings are public unless otherwise specified. Evaluations of responses to requests for proposals are subject to further discussion, clarification and negotiation. Records of bids and responses to requests for proposal will not be available for public inspection prior to issuance of the award of the contract.
- 20.0 PROPRIETARY INFORMATION:** Any restrictions on the use of data contained within a response to request, must be clearly stated in the bid/proposal itself. Proprietary information submitted in response to a request will be handled in accordance with the Wisconsin Public Records Law. Proprietary restrictions normally are not accepted. However, when accepted, it is Contractor's responsibility to defend the determination in the event of an appeal or litigation.
- 20.1 Data contained in a bid/proposal, all documentation provided therein, and innovations developed as a result of the contracted commodities or services cannot be copyrighted or patented. All data, documentation, and innovations become the property of Marathon County.
- 20.2 Any material submitted by Contractor in response to Marathon County’s request that the vendor considers confidential and proprietary information and which qualifies as a trade secret, as provided in s. 19.36(5), Wis. Stats., or material which can be kept confidential under the Wisconsin Public Records Law, must be identified and include citation to the specific provisions of law that preclude disclosure and any factual or background information

necessary to establish that the identified provisions of the law apply to that particular information. Bid/proposal prices cannot, under any circumstances, be held confidential.

- 20.3 In the event Marathon County becomes involved in litigation due to Contractor's refusal of permission to release information identified as confidential or proprietary, Contractor agrees to indemnify, defend and hold harmless Marathon County for any costs associated with said litigation.
- 21.0 CONFIDENTIALITY OF MARATHON COUNTY'S DATA:** In the event work conducted under this contract requires Contractor to have access to Marathon County's database via Internet, direct contact or other connection to allow the provision of installation, support and maintenance services, Contractor agrees to keep all such data confidential and to execute any reasonable agreement to assure Marathon County that Contractor will comply with all state and federal confidentiality laws and/or regulations. These restrictions herein shall survive the termination of this contract, regardless of the reason for termination, and shall continue in full force and effect and shall be binding upon Contractor or its agents, employees, successors, assigns or subcontractors. Contractor shall defend and incur all costs, if any, for actions that arise as a result of noncompliance by Contractor, its agents, employees, successors, assigns and subcontractors regarding the confidentiality restrictions herein.
- 22.0 PROMOTIONAL ADVERTISING / NEWS RELEASES:** Reference to or use of Marathon County, any of its departments, agencies or other subunits, or any county official or employee for commercial promotion is prohibited. News releases pertaining to this procurement shall not be made without prior approval of Marathon County. Release of broadcast e-mails pertaining to this procurement shall not be made without prior written authorization of Marathon County's purchasing agent.
- 23.0 MUTUAL HOLD HARMLESS/INDEMNIFICATION:** Contractor hereby agrees to release, indemnify, defend, and hold harmless Marathon County, its officials, officers, employees and agents from and against all judgments, damages, penalties, losses, costs, claims, expenses, suits, demands, debts, actions and/or causes of action of any type or nature whatsoever, including actual and reasonable attorney's fees, which may be sustained or to which they may be exposed, directly or indirectly, by reason of personal injury, death, property damage, or other liability, alleged or proven, which is determined to be caused by the negligent or intentional acts or omissions of Contractor's officers, officials, employees, agents or assigns. Marathon County hereby agrees to release, indemnify, defend, and hold harmless Contractor, its officials, officers, employees and agents from and against all judgments, damages, penalties, losses, costs, claims, expenses, suits, demands, debts, actions and/or causes of action of any type or nature whatsoever, including actual and reasonable attorney's fees, which may be sustained or to which they may be exposed, directly or indirectly, by reason of personal injury, death, property damage, or other liability, alleged or proven, which is determined to be caused by the negligent or intentional acts or omissions of Marathon County's officers, officials, employees, agents or assigns. Marathon County does not waive, and specifically reserves, its rights to assert any and all affirmative defenses and limitations of liability as specifically set forth in Wisconsin Statutes, Chapter 893 and related statutes.
- 24.0 FORCE MAJEURE:** Neither party shall be in default by reason of any failure in performance of this Agreement in accordance with reasonable control and without fault or negligence on their part. Such causes may include, but are not restricted to, acts of nature or the public enemy, acts of the government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes and unusually severe weather, but in every case the failure to perform such must be beyond the reasonable control and without the fault or negligence of the party.
- 25.0 GRATUITIES AND KICKBACKS:** It shall be unethical for any person to offer, give, or agree to

give any elected official, employee or former employee, or for any elected official, employee or former employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer for employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program requirement or a purchase request, influencing the contents of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceedings or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefore. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or a higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract, or order.

- 26.0 DISPUTE RESOLUTION:** This Contract and the performance of the parties' obligations hereunder will be governed by and construed and enforced in accordance with the laws of the State of Wisconsin, including conflict of law provisions. Contractor consents to personal jurisdiction in the State of Wisconsin. The venue of any action hereunder shall be in Marathon County, Wisconsin. If a dispute related to this agreement arises, all parties shall attempt to resolve the dispute through direct discussions and negotiations. If the dispute cannot be resolved by the parties, and if all parties agree, it may be submitted to either mediation or arbitration. If the matter is arbitrated, the procedures of Chapter 788 of the Wisconsin Statutes or any successor statute shall be followed. If the parties cannot agree to either mediation or arbitration, any party may commence an action in court as set forth above. If a lawsuit is commenced, the parties agree that the dispute shall be submitted to alternate dispute resolution pursuant to §802.12, Wis. Stats., or any successor statute. Unless otherwise provided in this contract, the parties shall continue to perform according to the terms and conditions of the contract during the pendency of any litigation or other dispute resolution proceeding.
- 27.0 INDEPENDENT CONTRACTOR STATUS:** The parties hereto agree that Contractor, its officers, agents and employees, in the performance of this Contract, shall act in the capacity of an independent contractor and not as an officer, employee or agent of Marathon County. The Contractor shall not be entitled to any of the rights, benefits, salaries, wages or fringe benefits which employees of Marathon County are eligible to receive. No federal, state, or local taxes or social security deductions or contributions shall be made by Marathon County on behalf of the Contractor. Neither Marathon County nor Contractor will represent itself as the agent or legal representative of the other or as partner or joint venture for any purpose whatsoever, and neither shall have any right to create or assume any obligation of any kind, express or implied, for or on behalf of the other in any way whatsoever. Furthermore, Contractor agrees to take such steps as are necessary to ensure that each of its subcontractors, if any, will not be considered to be an agent, servant, joint venture with, or partner of, Marathon County.
- 28.0 NON-DEBARMENT CLAUSE:** Contractor hereby certifies that neither it nor any of its principal officers or officials has ever been suspended or debarred, for any reason whatsoever, from doing business or entering into contractual relationships with any governmental entity. Contractor further agrees and certifies that this clause shall be included in any subcontract of this contract. . Marathon County also reserves the right to cancel this contract with any federally debarred contractor or a contractor that is presently identified on the list of parties excluded from federal or State of Wisconsin procurement and non-procurement contracts.
- 29.0 STATEMENT OF COMPLIANCE:** Contractor has carefully reviewed Marathon County's required contract language, as set forth in the Request for Proposal/Bid pertaining to termination of contract, change orders, gratuities and kickbacks, non-appropriation of funds, hold harmless/indemnification, insurance requirements/proof of insurance, dispute resolutions, and non-

debarment, and is in full compliance with all statements and requirements.

30.0 WAIVER/SEVERABILITY: No waiver of any default hereunder shall be deemed as a waiver of any prior or subsequent default of the same or other provisions of this contract. If any provision of this contract is held invalid by a court of competent jurisdiction, such invalidity shall not affect the validity or operation of any other provision and said provision shall continue to apply to the extent allowed by said court or, if not so allowed, be deemed severed from this contract entirely

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SECTION 01 10 10

GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 PROJECT

- A. Project Name: Marathon County – Chadwick Group Home Addition and Alteration
- B. Project Location: 5006 Chadwick Street, Schofield, Wisconsin
- C. Owner's Name: Marathon County
- D. Owner's Representative: Craig Christians, Facility Planner
- E. Architect's Name: Funktion Design Studio, LLC
- F. Architect of Record: Rick Schroeder, AIA
- G. Architect's Representative: Melody Hamlin
- H. Architect's Project Number: 19.026
- I. The Work generally consists of a one bedroom addition with a full basement addition, remodeling of a portion of the existing adjacent bedroom, kitchen and pantry closets. The work will include general construction, Fire Protection, Fire Alarm, HVAC, plumbing and electrical.

1.02 CONTRACT DESCRIPTION

- A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 72 00 - General Conditions.

1.03 DESCRIPTION OF ALTERATIONS WORK

- A. Scope of demolition and removal work is shown on drawings and specified in Section 02 41 00.
- B. Scope of alterations work is shown on drawings.

1.04 WORK BY OWNER

- A. Marathon County will remove the existing exterior deck and ramp from the work area prior to commencement of work by Contractor.

1.05 EXISTING CONDITIONS

- A. Information pertaining to details of the existing structure appear on the drawings. Such details are based on available records but are not guaranteed to be complete or correct; they are provided to assist the Contractor. Contractor to verify all existing conditions

1.06 OWNER OCCUPANCY

- A. The Owner does intend to occupy the existing building during the entire construction period.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- C. The areas adjacent to the first-floor work will be occupied.

1.07 CONTRACTOR USE OF SITE AND PREMISES

- A. Arrange use of site and premises to allow:
 - 1. Use of site by the public.
- B. Provide access to and from site as required by law and by Owner:

1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
 2. Do not obstruct roadways, sidewalks, or other public ways without permit.
 3. Keep driveways and entrances serving premises clear and available to Owner, Owner's tenants and employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 4. Schedule deliveries to minimize use of driveways and entrances.
 5. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Contractor or his authorized representative must be present to accept delivery of all equipment and/or materials shipments. The Owner's personnel will not accept, unload or store anything delivered to the project site addressed to the Contractor, or for the Contractor's use without specific prior agreement.
- D. Assigned areas will be available for outside storage of materials. Access to building shall be through designated entrances.
- E. Time Restrictions:
1. Limit construction work to the hours of 8:30 am to 4:30 pm, Monday thru Friday.
- F. There is NO SMOKING on the described Marathon County properties.

1.08 WORK SEQUENCE

- A. The Work shall be conducted in to comply with the completion dates indicated in Document 00 21 14 – Instructions to Bidders.
- B. Before commencing Work, submit a schedule showing the sequence of work, commencement date, and completion date.

1.09 SPECIFICATIONS FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 2014 CSI "MasterFormat" numbering system.

1.10 WORK UNDER OTHER CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.

1.11 FIELD MEASUREMENTS AND INSPECTION OF SURFACES

- A. Contractor shall be solely responsible for the accuracy of measurements and laying out his own work and shall make good any errors due to faulty measurements taken, information obtained, layout or failure to report discrepancies.
- B. Contractor shall notify the Architect in case of discrepancies between existing work and drawings, and defects in such surfaces that are to receive his work. The Architect will direct such surfaces to be remedied.

1.12 TEMPORARY FACILITIES

- A. Electric power, water, on-site storage and work areas are available through existing facilities free of charge at the site. The Contractor shall make arrangements with the Owner for the use

of such facilities and shall comply with such requirements and restrictions for their use as may be prescribed. Contractor shall provide all extensions from sources of power or water at site. The Contractor shall provide any services in excess of those available at site.

- B. The Contractor shall furnish and maintain ladders, scaffolds, hoists and the like and remove them upon completion of the work.
- C. Each Contractor shall provide temporary lighting for their own use, including light fixtures and extension cords.

1.13 TEMPORARY SANITARY FACILITIES

- A. Sanitary facilities are available through existing facilities free of charge at the site. The Contractor shall make arrangements with the Owner for the use of such facilities and shall comply with such requirements and restrictions for their use as may be prescribed.
- B. Maintain daily in clean and sanitary condition.
- C. At end of construction, return facilities to same or better condition as originally found.

1.14 PROTECTION

- A. Work shall comply with the General Orders on Safety in Construction as issued by the Department of Safety and Professional Services.
- B. Precaution shall be exercised at all times for the protection of persons (including employees) and property. The safety provision of applicable laws, Building and Construction Codes shall be observed. Machinery, equipment and all hazards shall be guarded or eliminated in accordance with safety provisions of the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America.
- C. Contractor shall install temporary partitions for public safety.
- D. All structures and equipment shall be constructed, installed and operated with guards, controls and other devices in conformance with the Wisconsin Safety Code
- E. Contractor shall assume the responsibility for the protection of all finished construction under his Contract and shall repair and restore any and all damage of finished work to its original state.
 - 1. Contractor to protect existing landscaping from damage during construction.
- F. Any damage to lawn or landscaping must be repaired by the Contractor at his expense.
- G. Contractor shall provide protection per City of Wausau and Marathon County ordinances and restrictions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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**SECTION 01 23 00
ALTERNATES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Description of alternates.

1.02 ACCEPTANCE OF ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at the Owner's option. Accepted alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each alternate.

1.03 SCHEDULE OF ALTERNATES

- A. Alternate No. 1 – Fire protection retrofit installation to protect the first floor utilizing the wet system. Fire suppression contractor responsible to disconnect and remove all existing antifreeze system components from basement to 6 inches above the first floor ceilings. General contractor to add all required soffits and vertical chases, patch all existing adjacent wall construction and finishes. See sheet FP102 and related notes on sheet A101 and A102
- B. Alternate No. 2 – Site Clear the existing antifreeze system components in the attic. General contractor to seal/ patch all ceiling penetrations from the existing sprinkler locations. Match all adjacent wall construction and finishes.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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**SECTION 01 41 00
REGULATORY REQUIREMENTS**

PART 1 GENERAL

1.01 SUMMARY

- A. Regulatory requirements applicable to this project are the following:
1. State of Wisconsin amendments to some or all of the following.
 2. County of Marathon amendments to some or all of the following.
 3. Village of Weston amendments to some or all of the following.
 - a. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.
 - b. State of Wisconsin Uniform Dwelling Code CHS. SPS 320 TO 325
 4. 29 CFR 1910 - Occupational Safety and Health Standards; current edition; as a workplace.
 5. DHS 83 Community-Based Residential Facilities
 6. Zoning Code: Village of Weston

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Progress cleaning.
- B. Salvaging, recycling, and disposing of nonhazardous demolition and construction waste.

1.02 WASTE MANAGEMENT REQUIREMENTS

- A. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- B. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.03 DEFINITIONS

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill acceptable to authorities having jurisdiction.
- D. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.
- E. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.
- F. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- G. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.04 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
- B. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
- C. Site: Maintain Project site free of waste materials and debris.
- D. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Provide dust control measures to keep dust and debris from occupied areas.
 - 3. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- E. Installed Work: Keep installed work clean. Clean installed surfaces per written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically

recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

- F. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- G. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

END OF SECTION

**SECTION 01 77 00
CLOSEOUT PROCEDURES**

PART 1 GENERAL

1.01 SUMMARY

- A. Administrative and procedural requirements for contract closeout, including, but not limited to, the following:
1. Inspection procedures.
 2. Warranties.
 3. Final cleaning.

1.02 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 2. Advise Owner of pending insurance changeover requirements.
 3. Submit 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, damage or settlement surveys, property surveys, and similar final record information.
 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 8. Complete startup testing of systems.
 9. Submit test/adjust/balance records.
 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 11. Advise Owner of changeover in heat and other utilities.
 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 13. Complete final cleaning requirements, including touchup painting.
 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for 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.

1.03 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
 - 1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
 - 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. Submit pest-control final inspection report and warranty.
 - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training DVDs.
- 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.

1.04 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit One (1) copy of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.05 WARRANTIES

- A. Submit written warranties for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy dividers with tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- C. Provide two (2) copies.

PART 2 PRODUCTS**2.01 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

3.01 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 antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a 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.
 - m. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - n. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - o. Replace parts subject to unusual operating conditions.
 - p. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

- q. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - 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. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests.
- D. 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

**SECTION 02 41 00
DEMOLITION**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

- A. Section 01 10 00 - General Requirements.
- B. Section 01 74 19 - Construction Waste Management and Disposal: Limitations on disposal of removed materials; requirements for recycling.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 SCOPE

- A. Remove items as indicated or required for tie in of new construction.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Protect existing structures and other elements that are not to be removed.
 - 1. Provide bracing and shoring.
 - 2. Prevent movement or settlement of adjacent structures.

3.03 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation only.
 - 1. Verify that construction and utility arrangements are as shown.
 - 2. Report discrepancies to Architect before disturbing existing installation.
 - 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove items indicated on drawings.
- C. Services (Including but not limited to HVAC, Plumbing, Electrical, Telecommunications, and Communications): Remove existing systems and equipment as indicated.
 - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
 - 2. Where existing active systems serve occupied facilities, but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - 3. Verify that abandoned services serve only abandoned facilities before removal.
 - 4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.
- D. Protect existing work to remain.

1. Prevent movement of structure; provide shoring and bracing if necessary.
2. Perform cutting to accomplish removals neatly and as specified for cutting new work
3. Repair adjacent construction and finishes damaged during removal work.
4. Patch as specified for patching new work.

3.04 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Remove from site all materials not to be reused on site; comply with requirements of Section 01 74 19 - Construction Waste Management and Disposal.
- C. Leave site in clean condition, ready for subsequent work.
- D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Floors and slabs on grade.
- B. Concrete reinforcement.
- C. Concrete curing.

1.02 REFERENCE STANDARDS

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; American Concrete Institute International; 2010.
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).
- C. ACI 301 - Specifications for Structural Concrete; American Concrete Institute International; 2010.
- D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004 (Errata 2007).
- E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.
- F. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).
- G. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2011.
- H. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.
- I. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Billet-Steel Bars for Concrete Reinforcement; 2013.
- J. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2013.
- K. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2013.
- L. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2012a.
- M. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2013.
- N. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2012.
- O. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.
- P. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2012.
- Q. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.
- R. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2013.
- S. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2012.
- T. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2011.
- U. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2011.

1.03 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Design Mixes: For each concrete mix indicated.
- C. Samples: Submit samples of underslab vapor retarder to be used.

1.04 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318, unless modified by the requirements of the Contract Documents.

PART 2 PRODUCTS**2.01 FORMWORK**

- A. Formwork Design and Construction: Comply with guidelines of ACI 347 to provide formwork that will produce concrete complying with tolerances of ACI 117.
- B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
 - 1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
 - 2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces. Natural rock formations that maintain a stable vertical edge may be used as side forms.
 - 3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
 - 4. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

2.02 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420).
 - 1. Type: Deformed billet-steel bars.
 - 2. Finish: Unfinished, unless otherwise indicated.
- B. Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain type.
 - 1. Form: Flat Sheets.
- C. Reinforcement Accessories:
 - 1. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
 - 2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150, Type I - Normal Portland type.
- B. Fine and Coarse Aggregates: ASTM C 33.
 - 1. Uniformly graded not exceeding 1-1/2 inch nominal size.
- C. Water: Clean and not detrimental to concrete. Comply with ASTM C 94.

2.04 ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260/C260M.
- C. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.
- D. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.

2.05 ACCESSORY MATERIALS

- A. Underslab Vapor Retarder: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.
 - 1. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.
 - 2. Products:
 - a. Stego Industries, LLC; Stego Wrap Vapor Barrier 15-mil (Class A): www.stegoindustries.com.

2.06 BONDING AND JOINTING PRODUCTS

- A. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
 - 1. Material: ASTM D1751, cellulose fiber.

2.07 CURING MATERIALS

- A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf.
- C. Curing and Sealing Compound, Low Gloss: Liquid, membrane-forming, clear, non-yellowing acrylic; complying with ASTM C309, Type 1, Class B.
- D. Moisture-Retaining Sheet: ASTM C171.
 - 1. White-burlap-polyethylene sheet, weighing not less than 10 oz/per linear yd, 40 inches wide.
 - 2. Polyethylene film, clear, minimum nominal thickness of 0.0040 in.
- E. Water: Potable, not detrimental to concrete.

2.08 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
 - 1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- D. Normal Weight Concrete:
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days:
 - a. Slabs-on-grade: 4,000 pounds per square inch (27.6 MPa)
 - b. Exterior Exposed Concrete: 4,000 psi (27.6 MPa)
 - 2. Water-Cement Ratio: Maximum 40 percent by weight.
 - 3. Total Air Content: 4 to 6 percent, determined in accordance with ASTM C173/C173M.
 - a. Air content of trowel-finished interior concrete floors shall not exceed 3.0 percent.
 - 4. Maximum Slump: 4 inches.
 - a. Slump Limit for Concrete Containing High-Range Water-Reducing Admixture: Not more than 8 inches after adding admixture to plant- or site-verified, 2 to 3-inch slump.

2.09 MIXING

- A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685.
 - 1. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.
 - 2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
- B. Ready-Mixed Concrete: Comply with ASTM C94/C94M. When air temperature is between 85 and 90 deg. F, reduce mixing and delivery time from 1 1/2 hours to 75 minutes; when air temperature is above 90 deg. F, reduce mixing and delivery time 60 minutes.
- C. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

- A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
- B. Verify that forms are clean and free of rust before applying release agent.
- C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
- D. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade.
 - 1. Place sheets in position with longest dimension parallel with direction of pour.
 - 2. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with Stego Wrap, Stego Tape, and/or Stego Mastic and follow manufacturer's written instructions.
 - 3. Install, protect, and repair vapor retarder sheets according to ASTM E 1643. Repair damaged vapor retarder before covering.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

- A. Comply with requirements of ACI 301. Comply with CRSI's "Manual of Standard Practice." Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.04 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Do not add water to concrete during delivery, at Project site, or during placement.
- D. Consolidate concrete with mechanical vibrating equipment.
- E. Notify Architect not less than 24 hours prior to commencement of placement operations.
- F. Ensure inserts and embedded parts will not be disturbed during concrete placement.

- G. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

- A. Tolerances: Comply with ACI 117.
- B. Construct joints true to line with faces perpendicular to surface plane of concrete.
- C. Anchor joint fillers and devices to prevent movement during concrete placement.
- D. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab, unless otherwise indicated.
1. Install wherever necessary to separate slab from other building members, including columns, walls, equipment foundations, footings, stairs, manholes, sumps, and drains.
- E. Saw Cut Contraction Joints: Construct slab-on-grade control joints to form panels of patterns as shown on drawings.
1. Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use SOFF-CUT saw cuts 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab. Use appropriate SOFF-CUT saw model and blade as required for saw cut depth (SOFF-CUT International).
- F. Construction Joints: Where not otherwise indicated, use metal combination screed and key form, with removable top section for joint sealant. Locate and install so as not to impair strength or appearance of concrete at locations indicated or as approved by the Architect.

3.06 CONCRETE FINISHING FORMED SURFACES

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height. Apply to concrete surfaces not exposed to public view.
- C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
 - a. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, or painting.
 - b. Do not apply rubbed finish to smooth-formed finish
- D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
1. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, thin set quarry tile, and thin set ceramic tile.
 2. Other Surfaces to Be Left Exposed: "Steel trowel" as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

3.07 CONCRETE FINISHING UNFORMED SURFACES

- A. General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on the surface.
1. Do not further disturb surfaces before starting finishing operations.

- C. Nonslip Broom Finish: Apply a nonslip broom finish to surfaces indicated and to exterior concrete platforms, steps, and ramps. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route

3.08 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
 - 1. Normal concrete: Not less than 7 days.
- C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.
 - 1. Surfaces Not in Contact with Forms:
 - a. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
 - b. Ponding: Maintain 100 percent coverage of water over floor slab areas, continuously for 4 days.
 - c. Spraying: Spray water over floor slab areas and maintain wet.
 - d. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.
 - 2. Final Curing: Begin after initial curing but before surface is dry.
 - a. Moisture-Retaining Sheet: Lap strips not less than 3 inches and seal with waterproof tape or adhesive; secure at edges.
 - b. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.09 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.10 PROTECTION

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

SECTION 04 20 00
UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete Block.
- B. Mortar and Grout.
- C. Reinforcement and Anchorage.
- D. Flashings.
- E. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 07 90 05 - Joint Sealers: Backing rod and sealant at control and expansion joints.

1.03 REFERENCE STANDARDS

- A. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures and Related Commentaries; American Concrete Institute International; 2011.
- B. ASTM A82/A82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2007.
- C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- D. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement; 2013.
- E. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2010.
- F. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2013.
- G. ASTM C55 - Standard Specification for Concrete Building Brick; 2011.
- H. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2013.
- I. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2011.
- J. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2011.
- K. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.
- L. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006 (Reapproved 2011).
- N. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2012.
- O. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2011.
- P. ASTM C476 - Standard Specification for Grout for Masonry; 2010.
- Q. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete; 2010.
- R. ASTM C1148 - Standard Test Method for Measuring the Drying Shrinkage of Masonry

Mortar; 1992a (Reapproved 2008) .

- S. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2012.
- T. ASTM C1357 - Standard Test Methods for Evaluating Masonry Bond Strength; 2009.
- U. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.
- V. ASTM E514/E514M - Standard Test Method for Water Penetration and Leakage Through Masonry; 2011.
- W. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

- A. See Section 00 72 00 - General Conditions.
- B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.
- C. Samples: Submit four samples of decorative block units to illustrate color, texture, and extremes of color range.
- D. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.
- E. Manufacturer's Certificate: Certify that water repellent admixture manufacturer has certified masonry unit manufacturer as an approved user of water repellent admixture in the manufacture of concrete block.

1.05 QUALITY ASSURANCE

- A. Comply with provisions of ACI 530/530.1/ERTA, except where exceeded by requirements of the contract documents.
- B. Fire Rated Assemblies: Conform to applicable code for UL Assembly as shown on drawings.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

1.07 PROJECT CONDITIONS

- A. Cold-Weather Requirements: Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or freezing conditions. Comply with cold-weather construction requirements in ACI 530.1/ASCE 6/TMS 602.
- B. Hot-Weather Requirements: When ambient temperature exceeds 100 deg F, or 90 deg F with a wind velocity greater than 8 mph, do not spread mortar beds more than 48 inches ahead of masonry. Set masonry units within one minute of spreading mortar

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

- A. Concrete Block: Comply with referenced standards and as follows:

1. Size: Standard units with nominal face dimensions of 16 x 8 inches and nominal depths as indicated on the drawings for specific locations.
2. Special Shapes: Provide non-standard blocks configured for corners, lintels, headers, control joint edges, and other detailed conditions.
3. Load-Bearing Units: ASTM C90, normal weight.
 - a. Hollow block, as indicated.
 - b. Exposed faces: Manufacturer's standard color and texture where indicated.
 - c. Exposed Faces: Split faced where indicated, integral coloring, color as selected by the Architect from
Manufacturer's standard colors.
4. Units with Integral Water Repellent: Exterior concrete block units as specified in this section with polymeric liquid admixture added to concrete masonry units at the time of manufacture.
 - a. Performance of Units with Integral Water Repellent:
 - 1) Water Permeance: When tested per ASTM E514 and for a minimum of 72 hours.
 - (a) No water visible on back of wall above flashing at the end of 24 hours.
 - (b) No flow of water from flashing equal to or greater than 0.032 gallons per hour at the end of 24 hours.
 - (c) No more than 25% of wall area above flashing visibly damp at end of test.
 - 2) Flexural Bond Strength: ASTM C1357; minimum 10% increase.
 - 3) Compressive Strength: ASTM C1314; maximum 5% decrease.
 - 4) Drying Shrinkage: ASTM C1148; maximum 5% increase in shrinkage.
 - b. Use only in combination with mortar and grout that also has integral water repellent admixture.
 - c. Use water repellent admixtures for masonry units, mortar and grout by a single manufacturer.

2.02 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C150, Type I; color as required to produce approved color sample.
 1. Hydrated Lime: ASTM C207, Type S.
 2. Mortar Aggregate: ASTM C144; except for joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 Sieve.
 3. Grout Aggregate: ASTM C404.
- B. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979.
- C. Water: Clean and potable.
- D. Cold-Weather Admixture: Nonchloride, noncorrosive admixture complying with ASTM C494, Type C, and recommended by the manufacturer for use in masonry mortar of composition indicated.
- E. Moisture-Resistant Admixture: Water repellent compound designed to reduce capillarity.
 1. Acceptable product: Dry Block Admixture; W.R. Grace & Co.
- F. Integral Water Repellent Admixture for Mortar and Grout: Polymeric liquid admixture added to mortar and grout at the time of manufacture.
 1. Use only in combination with masonry units manufactured with integral water repellent admixture.
 2. Use only water repellent admixture for mortar and grout from the same manufacturer as water repellent admixture in masonry units.

3. Meet or exceed performance specified for water repellent admixture used in masonry units.

2.03 REINFORCEMENT AND ANCHORAGE

- A. Manufacturers of Joint Reinforcement and Anchors:
 1. WIRE-BOND: www.wirebond.com.
 2. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Reinforcing Steel: ASTM A615/A615M Grade 60 (420) deformed billet bars; uncoated.
- C. Single Wythe Joint Reinforcement for Exterior Walls: Truss or ladder type; ASTM A1064/A1064M steel wire, hot dip galvanized after fabrication to ASTM A153/A153M, Class B; 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage on each exposure.
- D. Single Wythe Joint Reinforcement for Interior Walls: Truss or ladder type; cold drawn steel wire conforming to ASTM A1064/A1064M; 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage on each exposure.
- E. Flexible Anchors: 2-piece anchors that permit differential movement between masonry and building frame, sized to provide not more than 1 inch and not less than 1/2 inch of mortar coverage from masonry face.
 1. Steel frame: Crimped wire anchors for welding to frame, 0.25 inch thick, with trapezoidal wire ties 0.1875 inch thick, hot dip galvanized to ASTM A 153/A 153M, Class B.
- F. Wall Ties: Corrugated formed sheet metal, 7/8 inch wide by 0.05 inch thick, hot dip galvanized to ASTM A 153/A 153M, Class B, sized to provide not more than 1 inch and not less than 1/2 inch of mortar coverage from masonry face.
- G. Two-Piece Wall Ties: Formed steel wire, 0.1875 inch thick, adjustable, eye and pintle type, hot dip galvanized to ASTM A 153/A 153M, Class B, sized to provide not more than 1 inch and not less than 1/2 inch of mortar coverage from masonry face and to allow vertical adjustment of up to 1-1/4 in.

2.04 FLASHINGS

- A. Rubberized Asphalt Flashing: Self-adhering polymer-modified asphalt sheet; 40 mils (0.040 inch) minimum total thickness; with cross-linked polyethylene top and bottom surfaces.
- B. Flashing Sealant/Adhesives: Type compatible with type of flashing used.

2.05 ACCESSORIES

- A. Preformed Control Joints: Rubber material. Provide with corner and tee accessories, fused joints.
- B. Preformed Compressible Joint Filler: Closed Cell Neoprene: ASTM D1056, Type 2, Class A, Grade 1, B2F1. Thickness and depth to fill the joint as specified.
- C. Single Wythe Concrete Masonry Unit Drainage System:
 1. Pan: High density polypropylene composition .0625 inch thick with perimeter flange, with a weep spout opening and a 45 degrees drip edge that extends 1.0 inches from the outer flange. 8-inch wall system.

2. Integrated web spacer/bridge unit: High density polypropylene .0625 inch thick that overlaps the adjacent pan and extends from face shell to face shell. Bridge is removable for corner installation.
 3. Drainage Mat: Open weave polyester mesh (7 x 16 inch) installed in each CMU cell above the pan.
 4. Mortar Net Solutions; Blockflash: www.mortarnet.com.
- D. Building Paper: ASTM D226/D226M, Type I ("No.15") asphalt felt.
- E. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

2.06 MORTAR AND GROUT MIXES

- A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
1. Masonry below grade and in contact with earth: Type S.
 2. Exterior, loadbearing masonry: Type N.
 3. Exterior, non-loadbearing masonry: Type N.
 4. Interior, loadbearing masonry: Type N.
 5. Interior, non-loadbearing masonry: Type O.
- B. Colored Mortar: Proportion selected pigments and other ingredients to match Funktion Design Studio, LLC's sample, without exceeding manufacturer's recommended pigment-to-cement ratio.
- C. Grout: ASTM C476. Consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 2 inches or less; coarse grout for spaces with smallest horizontal dimension greater than 2 inches.
- D. Admixtures: Add to mixture at manufacturer's recommended rate and in accordance with manufacturer's instructions; mix uniformly.
- E. Mixing: Use mechanical batch mixer and comply with referenced standards.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive masonry.
- B. Verify that related items provided under other sections are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

- A. Direct and coordinate placement of metal anchors supplied for installation under other sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COLD AND HOT WEATHER REQUIREMENTS

- A. Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

3.04 COURSING

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Concrete Masonry Units:
 - 1. Bond: Running.
 - 2. Coursing: One unit and one mortar joint to equal 8 inches.
 - 3. Mortar Joints: Concave.

3.05 PLACING AND BONDING

- A. Lay hollow masonry units with face shell bedding on head and bed joints.
- B. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- C. Layout walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement type joints, returns, and offsets. Avoid using less than half size units, particularly at corners, jambs, and other locations.
- D. Remove excess mortar and mortar smears as work progresses.
- E. Remove excess mortar with water repellent admixture promptly. Do not use acids, sandblasting or high pressure cleaning methods.
- F. Interlock intersections and external corners, except for units laid in stack bond.
- G. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- H. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

3.06 REINFORCEMENT AND ANCHORAGE - GENERAL

- A. Fasten anchors to structural framing and embed in masonry joints as masonry is laid. Unless otherwise indicated on drawings or closer spacing is indicated under specific wall type, space anchors at maximum of 36 inches horizontally and 24 inches vertically.

3.07 REINFORCEMENT AND ANCHORAGE - SINGLE WYTHE MASONRY

- A. Install horizontal joint reinforcement 8 inches on center.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.

3.08 MASONRY FLASHINGS

- A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
 - 1. Extend flashings full width at such interruptions and at least 4 inches into adjacent masonry or turn up at least 4 inches to form watertight pan at non-masonry construction.
 - 2. Seal lapped ends and penetrations of flashing before covering with mortar.
- B. Extend flashings to within 1/4 inch of exterior face of masonry.
- C. Lap end joints of flashings at least 6 inches and seal watertight with mastic or elastic sealant.

3.09 SINGLE WYTHE CONCRETE MASONRY UNIT DRAINAGE SYSTEM

- A. Lay pans on formed concrete foundation above grade or lay the course(s) of block below the desired flashing level until above grade.
- B. Install pans by placing two units on each block or evenly along a formed concrete foundation or slab. The drip edge (weep spout) on the pan should extend slightly beyond the face of the CMU, a molded reference lip on the bottom of the pan should rest against the edge of the block or slab.
- C. Span the continuous row of pans with attached web spacers/bridge units designed to divert water to the adjoining pans.
- D. If the walls are reinforced, eliminate the pan and bridge at the grouted core. Remove bridge and cross-bed the webs adjacent to the core to be grouted making sure to overlap the flange. This will prevent grout from spreading beyond the intended core.
- E. Utilize standard mortar spreading techniques with mortar lapped, first over the inner and second over the outer flanges of the pan units. This will stabilize the units during installation and later help divert moisture into the pan.
- F. Reduce clogging from mortar and grout droppings by installing the 7 x 16 inch polyester mesh drainage mats into the core cavity above the pans. This will suspend mortar droppings in the core allowing moisture to flow down the inside face of the block and into the pan.
- G. Tool all head and bed joints and remove any obstruction from the weep spouts.

3.10 LINTELS

- A. Install loose steel lintels over openings.
- B. Maintain minimum 8 inch bearing on each side of opening.

3.11 CONTROL AND EXPANSION JOINTS

- A. Do not continue horizontal joint reinforcement through control and expansion joints.
- B. Form control joint with a sheet building paper bond breaker fitted to one side of the hollow contour end of the block unit. Fill the resultant core with grout fill. Rake joint at exposed unit faces for placement of backer rod and sealant.
- C. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.
- D. Size control joint in accordance with Section 07 90 05 for sealant performance.
- E. Form expansion joint as detailed.

3.12 BUILT-IN WORK

- A. As work progresses, install built-in metal door frames and other items to be built into the work and furnished under other sections.
- B. Install built-in items plumb, level, and true to line.
- C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
 - 1. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.
- D. Do not build into masonry construction organic materials that are subject to deterioration.

3.13 TOLERANCES

- A. Maximum Variation from Alignment of Columns: 1/4 inch.
- B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- F. Maximum Variation of Mortar Joint Thickness: Head joint, minus 1/4 inch, plus 3/8 inch.
- G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

3.14 CUTTING AND FITTING

- A. Cut and fit for chases. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.15 CLEANING

- A. Remove excess mortar and mortar droppings.
- B. Replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces with cleaning solution.
- D. Use non-metallic tools in cleaning operations.

3.16 PROTECTION

- A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION

**SECTION 06 10 00
ROUGH CARPENTRY**

PART 1 GENERAL

1.01 SCOPE

- A. Structural dimension lumber framing.
- B. Non-structural dimension lumber framing.
- C. Rough opening framing for doors, windows, and roof openings.
- D. Sheathing.
- E. Preservative treated wood materials.
- F. Concealed wood blocking, nailers, and supports.
- G. Miscellaneous wood nailers, furring, and grounds.

1.02 RELATED WORK

- A. Section 06 17 53 - Shop-Fabricated Wood Trusses.
- B. Section 07 25 00 - Weather Barriers: Air barrier over sheathing.

1.03 REFERENCE STANDARDS

- A. AFPA (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; American Forest and Paper Association; 2012.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- C. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood Protection Association; 2012.
- D. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; National Institute of Standards and Technology, U.S. Department of Commerce; 2010.
- E. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology, Department of Commerce; 2010.
- F. WWPA G-5 - Western Lumber Grading Rules; Western Wood Products Association; 2011.

1.04 SUBMITTALS

- A. A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Structural Composite Lumber: Submit manufacturer's published structural data including span tables, marked to indicate which sizes and grades are being used; if structural composite lumber is being substituted for dimension lumber or timbers, submit grading agency structural tables marked for comparison.

- C. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.
- D. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. Species: Spruce- Pine- Fir (SPF), unless otherwise indicated.
 - 2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
 - 3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Grading Agency: Western Wood Products Association (WWPA).
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: Kiln-dry or MC15.
- D. Exterior Stud Framing (2 by 2 through 2 by 6):
 - 1. Species: Spruce-Pine-Fir (SPF).
 - 2. Grade: No. 1/No. 2.
- E. Interior Bearing Stud Framing (2 by 2 through 2 by 6):
 - 1. Species: Spruce-Pine-Fir (SPF).
 - 2. Grade: No. 1/No. 2.
- F. Small Beam Framing (2 by 6 through 4 by 16):
 - 1. Species: Spruce-Pine-Fir (SPF).
 - 2. Grade: No. 1/No. 2.
- G. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.

2.03 EXPOSED DIMENSION LUMBER

- A. Grading Agency: Western Wood Products Association (WWPA).
- B. Sizes: Nominal sizes as indicated on drawings.
- C. Surfacing: S4S.
- D. Moisture Content: S-dry or MC19.

2.04 STRUCTURAL COMPOSITE LUMBER

- A. At Contractor's option, structural composite lumber may be substituted for concealed dimension lumber and timbers.
- B. Structural Composite Lumber: Factory fabricated beams, headers, and columns, of sizes and types indicated on drawings; structural capacity as published by manufacturer.

2.05 CONSTRUCTION PANELS

- A. Roof Sheathing: Any PS 2 type, rated Structural I Sheathing.
 - 1. Bond Classification: Exterior.
 - 2. Span Rating: 24.
 - 3. Performance Category: 5/8 PERF CAT.
- B. Wall Sheathing: Any PS 2 type.
 - 1. Bond Classification: Exterior.
 - 2. Grade: Structural I Sheathing.
 - 3. Span Rating: 24.
 - 4. Performance Category: 7/16 PERF CAT.
 - 5. Edge Profile: Square edge.

2.06 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
- B. Joist Hangers: Hot dipped galvanized steel, sized to suit framing conditions.
- C. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.

2.07 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
- B. Preservative Treatment:
 1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.
 - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
 - b. Treat lumber exposed to weather.
 - c. Treat lumber in contact with masonry or concrete.

PART 3 EXECUTION

3.01 PREPARATION

- A. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.
- B. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- C. Install structural members full length without splices unless otherwise specifically detailed.
- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.
- E. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
- F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.
- C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.05 INSTALLATION OF CONSTRUCTION PANELS

- A. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
 - 1. Nail panels to framing; staples are not permitted.
- B. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.

3.06 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.07 CLEANING

- A. Waste Disposal: Comply with the requirements of Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
 - 1. Comply with applicable regulations.
 - 2. Do not burn scrap on project site.
 - 3. Do not burn scraps that have been pressure treated.
 - 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

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SECTION 06 17 53
SHOP-FABRICATED WOOD TRUSSES

PART 1 GENERAL**1.01 SCOPE**

- A. Shop fabricated wood trusses for roof framing.
- B. Bridging, bracing, and anchorage.

1.02 RELATED REQUIREMENTS**1.03 REFERENCE STANDARDS**

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- B. TPI 1 - National Design Standard for Metal Plate Connected Wood Truss Construction; Truss Plate Institute; 2007 and errata (ANSI/TPI 1).
- C. TPI DSB-89 - Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses; Truss Plate Institute; 1989.

1.04 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Shop Drawings: Show truss configurations, sizes, spacing, size and type of plate connectors, cambers, framed openings, bearing and anchor details, and bridging and bracing.
 - 1. Include identification of engineering software used for design.
 - 2. Provide shop drawings stamped or sealed by design engineer.
- C. Calculations: Provide design calculations stamped by a Professional Structural Engineer licensed in Wisconsin. Where truss calculations are based on standard catalog or "tabled" members, submit copy of the catalog or table accompanied by written certification of a registered engineer's review. State design assumptions in submittal. Submit at same time as shop drawings. Submit Minimum of 2 copies to Architect for state submittal.

1.05 QUALITY ASSURANCE

- A. Designer Qualifications: Perform design by or under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in Wisconsin.
- B. Fabricator Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Handle and erect trusses in accordance with TPI BCSI 1.
- B. Store trusses in vertical position resting on bearing ends.

PART 2 MATERIALS

2.01 TRUSSES

- A. Wood Trusses: Designed and fabricated in accordance with TPI 1 and TPI DSB-89 to achieve structural requirements indicated.

2.02 MATERIALS

- A. Lumber:
 - 1. Moisture Content: Between 7 and 9 percent.
- B. Steel Connectors: Hot-dipped galvanized steel sheet, ASTM A653/A653M Structural Steel (SS) Grade 33/230, with G90/Z275 coating; die stamped with integral teeth; thickness as indicated.
- C. Truss Bridging: Type, size and spacing recommended by truss manufacturer.

2.03 ACCESSORIES

- A. Wood Blocking, Bridging, Plates, and Miscellaneous Framing: As specified in Section 06 10 00.
- B. Fasteners: Electrogalvanized steel, type to suit application.
- C. Bearing Plates: Electrogalvanized steel.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that supports and openings are ready to receive trusses.

3.02 PREPARATION

- A. Coordinate placement of bearing items.

3.03 ERECTION

- A. Install trusses in accordance with manufacturer's instructions and TPI DSB-89 and TPI BCSI 1.
- B. Set members level and plumb, in correct position.
- C. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure plumb, and in true alignment until completion of erection and installation of permanent bracing.
- D. Do not field cut or alter structural members without approval of Architect.
- E. Install permanent bridging and bracing.

3.04 TOLERANCES

- A. Framing Members: 1/2 inch maximum, from true position.

END OF SECTION

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**SECTION 06 20 00
FINISH CARPENTRY**

PART 1 GENERAL

1.01 SCOPE

- A. Finish carpentry items.
- B. Wood casings and moldings.
- C. Hardware and attachment accessories.

1.02 REFERENCE STANDARDS

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.
- B. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2010.
- C. Federal Specifications MM-L-736(C) - Lumber, Hardwood

1.03 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.

1.04 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect work from moisture damage.

PART 2 MATERIALS

2.01 FINISH CARPENTRY ITEMS

- A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI (AWS) for Economy Grade.
- B. Interior Woodwork Items:
 - 1. Moldings, Bases, Casings, and Miscellaneous Trim: As noted on drawings.

2.02 MOISTURE CONTENT

- A. Moisture content of lumber and millwork at time of delivery to site.
 - 1. Interior finish lumber, trim, and millwork 1-1/4 inches or less in nominal thickness: 12 percent on 85 percent of the pieces and 15 percent on the remainder.
 - 2. Moisture content of other materials shall be in accordance with the standards under which the products are produced.

2.03 HARDWARE

- A. Rough Hardware:
 - 1. Furnish rough hardware with a standard plating, applied after punching, forming and assembly of parts; galvanized, cadmium plated, or zinc-coated by electric-galvanizing process. Galvanized where specified.
 - 2. Use galvanized coating on ferrous metal for exterior work unless non-ferrous metals or stainless is used.
 - 3. Fasteners:
 - a. Bolts with Nuts: FF-N-836.
 - b. Expansion Bolts: A-A-1922A.
 - c. Screws: Fed. Spec. FF-S-111.

2.04 FABRICATION

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

- A. Install work in accordance with AWI/AWMAC/WI (AWS) requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

3.03 PREPARATION FOR SITE FINISHING

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.

3.04 TOLERANCES

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

**SECTION 07 21 00
THERMAL INSULATION**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Board insulation at perimeter foundation wall, underside of floor slabs, and exterior wall behind siding wall finish.
- B. Batt insulation and vapor retarder in exterior wall.
- C. Loose fill insulation and vapor retarder in ceiling.
- D. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.
- E. Loose fill insulation for CMU
- F. Foundation and insulation protection liner.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Supporting construction for batt insulation.

1.03 REFERENCE STANDARDS

- A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2015a.
- B. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014.
- C. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.
- D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- E. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2012.
- F. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies; 2011.
- G. ASTM C549 – Standard for Perlite Loose Fill Insulation

1.04 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

1.05 QUALITY ASSURANCE

- A. Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84 for surface-burning characteristics, by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency

1.06 FIELD CONDITIONS

- A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS**2.01 APPLICATIONS**

- A. Insulation Under Concrete Slabs: Extruded polystyrene board.
- B. Insulation at Perimeter of Foundation: Extruded polystyrene board.
- C. Insulation in Masonry Walls: Perlite loose fill.
- D. Insulation over Wall Sheathing: Extruded polystyrene board.
- E. Insulation in Wood Framed Walls: Batt insulation with separate vapor retarder.
- F. Insulation in Wood Framed Ceiling Structure: Batt insulation with separate vapor retarder.

2.02 FOAM BOARD INSULATION MATERIALS

- A. Extruded Polystyrene Board Insulation: Extruded polystyrene board; ASTM C578; with either natural skin or cut cell surfaces, and the following characteristics:
 - 1. Type: ASTM C578, Type IV.
 - 2. Flame Spread Index: 5 or less, when tested in accordance with ASTM E84.
 - 3. Smoke Developed Index: 165 or less, when tested in accordance with ASTM E84.
 - 4. R-value; 1 inch of material at 72 degrees F: 5, minimum.
 - 5. Board Size: 48 x 96 inch.
 - 6. Board Edges: Square.
 - 7. Compressive Resistance: 25 psi.
 - 8. Board Density: 1.60 lb/cu ft.
 - 9. Water Absorption, Maximum: 0.3 percent, by volume.
 - 10. Manufacturers:
 - a. Dow Chemical Co: www.dow.com.
 - b. Owens Corning Corp: www.owenscorning.com.

2.03 FIBER BOARD INSULATION MATERIALS

- A. Glass Fiber Board Insulation: Rigid glass fiber, ASTM C612.
 - 1. Facing: None, unfaced.

2. Flame Spread Index: 25 or less, when tested with facing, if any, in accordance with ASTM E84 .
3. Smoke Developed Index: 50 or less, when tested with facing, if any, in accordance with ASTM E84.

2.04 BATT INSULATION MATERIALS

- A. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
 1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
 2. Smoke Developed Index: 50 or less, when tested in accordance with ASTM E84.
 3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
 4. Facing: Unfaced.
 5. Manufacturers:
 - a. CertainTeed Corporation: www.certainteed.com.
 - b. Johns Manville: www.jm.com.
 - c. Owens Corning Corp: www.owenscorning.com.

2.05 LOOSE FILL INSULATION MATERIALS

- A. Glass Fiber Loose-Fill Insulation, complying with ASTM C764, Type 1 for pneumatic application.
 1. Flame Spread Index: Not more than 5, when tested in accordance with ASTM E84.
 2. Smoke Developed Index: Not more than 5, when tested in accordance with ASTM E84.
 3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
 4. Facing: Unfaced.
 5. Manufacturers:
 - a. CertainTeed Corporation: www.certainteed.com.
 - b. Johns Manville: www.jm.com.
 - c. Owens Corning Corp: www.owenscorning.com.

2.06 LOOSE FILL INSULATION MATERIALS

- A. Perlite Loose-Fill Insulation, complying with ASTM C549,
 1. Manufacturer to furnish a certificate to the Architect stating that the product conforms to the Standard Specifications for loose fill insulation as adopted by Perlite Institute, Inc.

2.07 FOUNDATION AND INSULATION PROTECTION LINER

- A. Foundation and Insulation Protection Liner: .060” thickness fiberglass reinforced plastic liner, pebbled grey finish. 10 year Limited Warranty
 1. Manufacturers:
 - a. Glasteel; Glasliner: www.glasteel.com
 - b. Nudo; Ground Breaker: www.nudo.com
 2. Use matching trim and accessories.

2.08 ACCESSORIES

- A. Sheet Vapor Retarder: Polyethylene film for above grade application, 10 mil thick.
- B. Tape joints of rigid insulation in accordance with roofing and insulation manufacturers' instructions.
- C. Insulation Fasteners: Impaling clip of unfinished steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.
- D. Adhesive: Type recommended by insulation manufacturer for application.
- E. Vent Baffles: Nominal 48 inch by 22-1/2 inch, preformed water-resistant fiberboard or foam plastic, designed for insertion between rafters and joists to maintain vent air flow into attic spaces from eave vents. Provide in proper width to suit framing spacing. Acceptable Manufacturers, subject to compliance with specified requirements, or approved equal: Ampcor Products, BV series; Air Vent, Inc., Pink Flash; CpD Waynroy, Inc., Propervent; Ray Lite, StyroVent

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.
- B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION AT FOUNDATION PERIMETER

- A. Apply adhesive to back of boards:
 - 1. Three continuous beads per board length.
- B. Install boards horizontally on foundation perimeter.
 - 1. Place boards to maximize adhesive contact.
 - 2. Install in running bond pattern.
 - 3. Butt edges and ends tightly to adjacent boards and to protrusions.
- C. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- D. Immediately following application of board insulation, place protective boards over exposed insulation surfaces.
 - 1. Apply adhesive in five continuous beads per board length.
 - 2. Install boards horizontally from base of foundation to top of insulation.
 - 3. Butt boards tightly, with joints staggered from insulation joints.

3.03 BOARD INSTALLATION AT EXTERIOR WALLS

- A. Adhere a 6 inch wide strip of polyethylene sheet over expansion joints with double beads of adhesive each side of joint.

- B. Install rigid insulation directly to steel studs or exterior grade sheathing at 16 inches on center with manufacturer recommended mechanical fasteners. Tape all joints with manufacturer's minimum 4 inch wide sealant tape; comply with ASTM E2357.
- C. Install boards horizontally on walls.
- D. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.04 BOARD INSTALLATION UNDER CONCRETE SLABS

- A. Place insulation under slabs on grade after base for slab has been compacted.
- B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- C. Prevent insulation from being displaced or damaged while placing vapor retarder and placing slab.

3.05 BATT INSTALLATION

- A. Install insulation and vapor retarder in accordance with manufacturer's instructions.
- B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
- E. At metal framing, place vapor retarder on warm side of insulation; lap and seal sheet retarder joints over member face.
- F. Tape seal tears or cuts in vapor retarder.
- G. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane. Tape seal in place.

3.06 LOOSE FILL INSULATION

- A. Apply in accordance with ASTM C1015 and manufacturer's written instructions.
- B. Level horizontal applications to uniform thickness as indicated, lightly settle to uniform density, but do not compact excessively.
- C. For cellulosic-fiber loose-fill insulation, comply with CIMA's Bulletin #2, "Standard Practice for Installing Cellulose Insulation."

3.07 PERLITE LOOSE FILL INSULATION

- A. The insulation shall be installed in the following locations: In the cores of all exterior (and interior) hollow masonry walls, in the cavity between all exterior (and interior) masonry walls and. Between exterior masonry walls and interior furring.
- B. The insulation shall be poured directly (or via a hopper) in the top of the wall at any convenient interval (not in excess of 20 ft [6 m]). Wall sections under doors and windows shall be filled before sills are placed. Rodding or tamping is not necessary.

- C. All holes and openings in the wall through which insulation can escape shall be permanently sealed or caulked prior to installation of the insulation. Copper, galvanized steel, or fiber glass screening shall be used in all weep holes. (The inclusion of weep holes is considered good construction design practice to allow passage of any water which might penetrate the cavities or core spaces of wall construction.)
- D. Insulation must remain dry. Cavity caps or other suitable means should be used as the work progresses to insure that the insulation is protected from inclement weather.

3.08 VENT BAFFLES

- A. Place tightly between each structural member spacing. Ensure that lower ends extend to perimeter of exterior wall and interior ends terminate clear of insulation to maintain air pathway. Secure to framing members with corrosion-resistant screws.

3.09 PROTECTION

- A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

**SECTION 07 25 00
WEATHER BARRIERS**

PART 1 GENERAL

1.01 SCOPE

- A. Vapor Retarders: Materials to make exterior walls, joints between exterior walls and roof, and joints around frames of openings in exterior walls water vapor resistant and air tight.
- B. Air Barriers: Materials that form a system to stop passage of air through exterior walls and joints around frames of openings in exterior walls.

1.02 RELATED WORK

- A. Section 03 30 00 - Cast-in-Place Concrete: Vapor retarder under concrete slabs on grade.

1.03 DEFINITIONS

- A. Air Barrier: Air tight barrier made of material that is relatively air impermeable but water vapor permeable, both to the degree specified, with sealed seams and with sealed joints to adjacent surfaces. Note: For the purposes of this specification, vapor impermeable air barriers are classified as vapor retarders.
- B. Vapor Retarder: Air tight barrier made of material that is relatively water vapor impermeable, to the degree specified, with sealed seams and with sealed joints to adjacent surfaces.
 - 1. Water Vapor Permeance: For purposes of conversion, $57.2 \text{ ng}/(\text{Pa s sq m}) = 1 \text{ perm}$.

1.04 REFERENCE STANDARDS

- A. ASTM D4397 - Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications; 2010.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- C. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.
- D. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials; 2013.

1.05 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Product Data: Provide data on material characteristics.
- C. Shop Drawings: Provide drawings of special joint conditions.

PART 2 MATERIALS**2.01 WEATHER BARRIER ASSEMBLIES**

- A. Air Barrier:
 - 1. On outside surface of sheathing of exterior walls use air barrier sheet, mechanically fastened type.
- B. Interior Vapor Retarder:
 - 1. On inside face of studs of exterior walls, under cladding, use mechanically fastened vapor retarder sheet.
 - 2. On bottom face of rafters, under cladding, use mechanically fastened vapor retarder sheet.

2.02 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

- A. Air Barrier Sheet, Mechanically Fastened:
 - 1. Air Permeance: 0.004 cubic feet per minute per square foot, maximum, when tested in accordance with ASTM E2178.
 - 2. Water Vapor Permeance: 5 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure A (desiccant procedure).
 - 3. Ultraviolet and Weathering Resistance: Approved in writing by manufacturer for minimum of 6 months weather exposure.
 - 4. Surface Burning Characteristics: Flame spread index of 25 or less, and smoke developed index of 50 or less, when tested in accordance with ASTM E84.
 - 5. Seam and Perimeter Tape: Polyethylene self adhering type, mesh reinforced, 2 inches wide, compatible with sheet material; unless otherwise specified.

2.03 VAPOR RETARDER MATERIALS (AIR BARRIER AND WATER-RESISTIVE)

- A. Vapor Retarder Sheet: ASTM D4397 polyethylene film, clear.
 - 1. Thickness: 20 mil.
 - 2. Water Vapor Permeance: As required by referenced standard for thickness specified.
 - 3. Seam and Perimeter Tape: Polyethylene self adhering type, mesh reinforced, 2 inches wide, compatible with sheet material.

2.04 ACCESSORIES

- A. Vapor Retarder Tape: Coated polyester film with acrylic adhesive backing; pressure sensitive.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify that surfaces and conditions are ready to accept the work of this section.

3.02 PREPARATION

- A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

3.03 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
- C. Vapor Retarders: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
- D. Mechanically Fastened Sheets - On Exterior:
 - 1. Install sheets shingle-fashion to shed water, with seams generally horizontal.
 - 2. Overlap seams as recommended by manufacturer but at least 6 inches.
 - 3. Overlap at outside and inside corners as recommended by manufacturer but at least 12 inches.
 - 4. For applications specified to be air tight, seal seams, laps, penetrations, tears, and cuts with self-adhesive tape; use only large-headed, gasketed fasteners recommended by the manufacturer.
 - 5. Install air barrier and vapor retarder UNDER jamb flashings.
 - 6. Install head flashings under weather barrier.
 - 7. At openings to be filled with frames having nailing flanges, wrap excess sheet into opening; at head, seal sheet over flange and flashing.
- E. Mechanically Fastened Sheets - Vapor Retarder On Interior:
 - 1. When insulation is to be installed in assembly, install vapor retarder over insulation.
 - 2. Seal seams, laps, perimeter edges, penetrations, tears, and cuts with self-adhesive tape, making air tight seal.
 - 3. Locate laps at a framing member; at laps fasten one sheet to framing member then tape overlapping sheet to first sheet.
 - 4. Seal entire perimeter to structure, window and door frames, and other penetrations.
 - 5. Where conduit, pipes, wires, ducts, outlet boxes, and other items are installed in insulation cavity, pass vapor retarder sheet behind item but over insulation and maintain air tight seal.

3.04 PROTECTION

- A. Do not leave materials exposed to weather longer than recommended by manufacturer.
- B. Do not leave paper- or felt-based barriers exposed to weather for longer than one week.

END OF SECTION

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**SECTION 07 31 16
METAL SHINGLES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Steel shingles.
- B. Underlayment, including ice dam protection.
- C. Metal roof flashing and counterflashing.
- D. Fasteners and accessories.

1.02 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- B. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2010 (Reapproved 2015).
- C. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.
- D. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2015a.
- E. ASTM D4479/D4479M - Standard Specification for Asphalt Roof Coatings - Asbestos-Free; 2007 (Reapproved 2012)e1.
- F. NRCA MS104 - The NRCA Steep Roofing Manual; National Roofing Contractors Association; 2001, Fifth Edition, with interim updates.
- G. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2012.
- H. UL 580 - Tests for Uplift Resistance of Roof Assemblies; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.
- I. UL 1897 - Uplift Tests for Roof-Covering Systems; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.

1.03 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on shingles and underlayment, indicating material characteristics, installation instructions, and limitations and precautions.

- C. Shop Drawings: For metal flashings and counter flashings, indicate overall configurations and thicknesses, details at complex intersections, jointing methods and locations, and fastening details.
- D. Selection Samples: Submit color chips representing manufacturer's full range of available shingle colors and finishes.
- E. Verification Samples: Set of shingles representing actual product in color, finish, and style.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store materials in manufacturer's unopened packaging, with labels intact, until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.05 WARRANTY

- A. See Section 01 77 00 - Closeout Procedures, for additional warranty requirements.
- B. Manufacturing Warranty: Written, transferable, limited warranty provided by manufacturer, covering manufacturing defects/excessive granule loss.
 - 1. Warranty Period: 50 years from date of Substantial Completion.
 - 2. Wind Warranty: 120 mph winds, full warranty period.
 - 3. Hail Penetration: full warranty period.

PART 2 PRODUCTS

2.01 ROOF SHINGLES

- A. Steel Shingles: Made from ASTM A653/A653M hot-dip galvanized sheet steel or ASTM A792/A792M hot-dip aluminum-zinc alloy coated sheet steel.
 - 1. Basis of Design: DECRA Shingle three course formed interlocking panels resembling dimensional roofing shingles.
 - 2. Finish: Ceramic coated colored stone chip finish.
 - 3. Galvanized Coating: G90/Z275, minimum.
 - 4. Aluminum-Zinc Alloy Coating: AZ50/AZM150, minimum.
 - 5. Fire Rating: UL Class A.
 - 6. Wind Uplift Resistance: 20 psf, ~90 mph, minimum, when tested in accordance with UL 1897 and UL 580.
 - 7. Thickness: Nominal 0.0165 inch.
 - 8. Weight: Nominal 125 lb/square.
 - 9. Profile: Imitation wood shingle/shake.
 - 10. Shingle Size: As selected from manufacturer's standards.
 - 11. Color: As selected by Owner from manufacturer's standard range.

- B. Special Shapes and Fittings: Supply special shapes and fittings of same material and finish as adjacent shingles, factory-formed, as indicated on drawings or as required for specific project conditions, including but not limited to hip caps, ridge caps, rake edges, eave edges, and termination caps.

2.02 SHEET MATERIALS

- A. Underlayment: Synthetic Underlayment: ASTM D226, ASTM E-108 Class A Fire, “Sharkskin-Ultra” weight per roll 45#/10sq. roll; “Titanium-UDL”, weight per roll 45#/10sq. roll or equal.
- B. Eave Protection Membrane and Flexible Flashing: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970/D1970M; minimum thickness of 40 mils; with strippable release paper and slip-resistant embossed polyethylene sheet top surface.

2.03 METAL FLASHING MATERIALS

- A. Provide metal roof flashings as indicated and as required for watertight roofing system, including eave edge, gable edge, and ridge vent flashing.
 - 1. Form flashings to profiles indicated, or as required to shed water and protect building from water damage.
 - 2. Form sections square, flat, and accurate to profile, in maximum possible lengths, free from distortion or other defects detrimental to function or appearance.
 - 3. Hem exposed edges of flashings minimum 1/4 inch on underside.
 - 4. Coat concealed surfaces of flashings with bituminous paint.
- B. Galvanized Steel Flashing: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 0.018 inch thick base metal.
 - 1. Pre-coat with silicone polyester coating system, color as selected by Architect from manufacturer's standard range.
- C. Bituminous Paint: Asphaltic mastic, ASTM D4479, Type I.

2.04 FASTENERS

- A. Underlayment Fasteners: Hot-dip galvanized steel roofing nails, 11 gage, 0.12 inch minimum diameter, sharp pointed with barbed shanks, minimum 3/8 inch diameter head, and of length sufficient to penetrate 3/4 inch into solid substrate or completely through roof sheathing.
- B. Shingle Fasteners: Screws: Minimum No. 9 hex (1/4” diameter) by 1-1/2” long (38.1 mm) minimum, corrosion resistant, black or color coordinated to match the panels where visible.

2.05 ACCESSORIES

- A. Attachment Members:
 - 1. Material: composite deck board
 - 2. Battens: 1 x 2 inch nominal, spaced as required for tile size.
 - 3. Nailers: Nominal 2 inch thick members, height as required for specific conditions.

- B. Sealant: One-part elastomeric polyurethane, sealant as recommended in writing by panel manufacturer. Where sealant will be exposed, provide in color to match panels.
 - 1. Standard: ASTM C920-86.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine structural roof deck for compliance with specified requirements. Verify that roof penetrations and roof openings are correctly installed in proper locations.
- B. Do not begin installation of shingle roofing until substrates have been properly prepared. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Prepare roof deck surfaces using methods recommended by shingle manufacturer for achieving best results under project conditions.
- B. Seal roof deck joints wider than 1/16 inch as recommended by shingle manufacturer.
- C. Install eave edge and gable edge flashings tight with fascia, in accordance with SMACNA (ASMM) recommendations. Lap joints minimum 2 inches and seal with plastic cement.

3.03 INSTALLATION

- A. Install metal shingle roofing system in accordance with recommendations of shingle manufacturer and in accordance with recommendations of NRCA Steep Roofing Manual (MS104).
- B. Eave Protection: Install from eave edge to minimum 2 ft up-slope beyond projected interior face of exterior wall.
 - 1. Install eave protection membrane in accordance with manufacturer's installation instructions for project substrate.
- C. Underlayment:
 - 1. Roof Slopes of 4/12 to 20/12: Install two layers of Synthetic Underlayment over entire roof area, perpendicular to roof slope, with ends and edges weather lapped a minimum of 4 inches. Stagger end laps of each layer, and nail in place.
- D. Metal Valley Flashings:
- E. Sheet Metal Flashing: Install flashing at other locations as indicated and as required by project conditions.
- F. Flexible Flashing: Apply flexible flashing in concealed locations where metal flashing would be difficult or impossible to apply effectively.
- G. Attachment Members:
 - 1. Nailers: Install nailers at ridge and hips, directly over underlayment. Protect with additional layer of underlayment before installing ridge and hip shingles and accessories.

H. Metal Shingles:

1. Install first row of shingles at eaves with minimum projection as recommended by shingle manufacturer.
2. Lay shingles square with building lines and parallel with roof slope. Install filler, closure, and mitered pieces as required.
3. Stagger joints between courses.
4. Cut and fit shingles neatly around vents, pipes, and other projections.
5. Set ridge shingles as recommended by shingle manufacturer.
6. Install accessories in accordance with manufacturer's details and recommendations.

3.04 PROTECTION

- A. Minimize traffic over finished roof surface. Where walking on roof is absolutely necessary, wear soft-soled shoes and walk on butt of shingles to avoid denting, deformation, and other damage.
- B. Remove and replace damaged, dented, or deformed shingles before Date of Substantial Completion.

END OF SECTION

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SECTION 07 46 00
ALUMINUM SOFFIT PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preformed aluminum soffit panels, trim, and accessories for facing exterior roof overhangs, eaves and fascia.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Wood stud framing, furring, and sheathing for support of aluminum panels.
- B. Section 07 62 00 - Sheet Metal Flashing and Trim: Sheet metal gutters and downspouts.
- C. Section 07 92 00 - Joint Sealants: Sealants used in conjunction with aluminum siding installation.

1.03 REFERENCE STANDARDS

- A. American Architectural Manufacturer's Association (AAMA) 1402-86 - Aluminum Siding, Soffit, and Fascia.
- B. American Society for Testing and Materials (ASTM) B209 - Aluminum and Aluminum-Alloy Sheet and Plate.

1.04 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Material descriptions, dimensions, and profiles.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Installation methods.
- C. Shop Drawings: Layout, dimensions, weatherproofing, penetrations, terminations, trim, and installation methods.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two samples, 4 inches (102 mm) long minimum samples of siding and trim in selected finish and color.

1.05 QUALITY ASSURANCE

- A. Fabricator and installer qualifications: Company specializing in aluminum soffit / fascia work with 3 years of experience.
- B. Design: Panel system shall be fabricated and installed to comply with:

1. Aluminum Panels:
 - a. AAMA 1402.
 - b. International Code Council-ES Legacy - Report No. 97-64.
 - c. International Conference of Building Officials (ICBO): Report No. 2027.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver siding in manufacturer's protective cartons and clearly labeled as to specific products contained.
- B. During delivery and storage keep siding cartons flat and supported along entire length.
- C. Store materials off ground, out of weather, in dry place. Provide ventilation. Protect from falling objects and construction activities.

1.07 WARRANTY

- A. Upon Completion, provide a Lifetime limited, transferable warranty. In the case of siding purchased by, or installed upon property owned by or in part by corporations, government entities or agencies, religious organizations, trusts, condominium or corporate housing arrangements, intangible legal entities or any other entity or organization capable of an infinite life, the warranty period will be fifty (50) years following the installation of the siding (prorated as indicated in the Warranty Transfer Schedule).

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturers
 1. Gentek Building Products, Inc.: www.gentekinc.com.
 2. Kaycan Ltd.: www.kaycan.com.
 3. Norandex Building Materials Distribution, Inc.: www.norandex.com.
 4. Ply Gem: www.plygem.com.
 5. Revere Building Products: www.reverebuildingproducts.com.
 6. Rollex: www.rollex.com.

2.02 MATERIALS

- A. Aluminum: Fabricate siding and trim from sheet aluminum complying ASTM B209, AA3000 Alloy with the following properties:
 1. Ultimate strength: 25 KSI (172MPa).
 2. Yield strength: 22 KSI (152 MPa).
 3. Modulus of elasticity: 10,000 KSI (68948 MPa).
 4. Coefficient of linear thermal expansion: 1.31 x 10 to the minus 5 inch/inch/degree F (2.39 x 10 to the minus 5 mm/mm/degree C).
 5. Melting range: 1175 to 1210 degrees F. (635 to 654 degrees C).

2.03 ALUMINUM SOFFIT PANELS

- A. 16-inch center vented soffit panel.
 - 1. Dimensions: 16 inches (406 mm) exposed width by 144 inches (3658 mm) long.
 - 2. Thickness: 0.016 inch (0.41 mm).
 - 3. Profile: V-grooves forming four equal width panels with center panel vented.
 - 4. Net free open area: 7.8 square inches per linear foot (165 square cm per meter).
 - 5. Surface: Smooth.
 - 6. Finish: Polyester thermoset coating cured at 450 degrees F (232 degrees C).
 - 7. Color: As selected by Architect from manufacturer's standard colors.

2.04 TRIM

- A. Standard Accessories:
 - 1. Consistent with shape, size, and properties shown on the drawings and as required for complete installation.
 - 2. Produced from the same compound materials and with comparable properties as the siding.
 - 3. Color: Matching or color coordinated with soffit and fascia.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Confirm that all critical dimensions are as specified on the drawings
- B. Beginning installation indicates Installer's acceptance of substrate as suitable to accept siding and soffits.

3.02 PREPARATION

- A. Repair substrate flaws or defects before applying siding or soffits.
- B. Where necessary, fur surfaces to an even plane and free from obstructions before application.

3.03 INSTALLATION

- A. Install products in accordance with manufacturers printed installation manual.
- B. Install fascia, soffits, and accessories in accordance with best practice, with all joint members plumb and true.

3.04 FIELD QUALITY CONTROL

- A. After installation of siding and soffits, check entire surface for obvious flaws or defects.
- B. Replace and repair any problem areas, paying close attention to the substrate for causes of the problem.

3.05 CLEANING AND PROTECTION

- A. After application of siding and soffits, clean as necessary to remove all fingerprints and soiled areas.
- B. Upon completion of siding application, clean entire area, removing all scrap, packaging, and unused materials related to this work.

END OF SECTION

SECTION 07 92 00 JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nonsag gunnable joint sealants.
- B. Self-leveling pourable joint sealants.
- C. Joint backings and accessories.

1.02 REFERENCE STANDARDS

- A. ASTM C834 - Standard Specification for Latex Sealants; 2010.
- B. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2012.
- C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.
- D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.
- E. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2008 (Reapproved 2012).

1.03 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 4. Substrates the product should not be used on.
 - 5. Sample product warranty.

1.04 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.05 QUALITY ASSURANCE

- A. Maintain one copy of each referenced document covering installation requirements on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.

1.06 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Substantial Completion.
- C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Nonsag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
 - 1. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
 - 2. Dow Corning Corporation: www.dowcorning.com/construction.
 - 3. Tremco Global Sealants: www.tremcosealants.com.
 - 4. Sika Corporation: www.usa-sika.com.
 - 5. W.R. Meadows, Inc: www.wrmeadows.com.
- B. Selfleveling Sealants: Pourable or self-leveling sealant that has sufficient flow to form a smooth, level surface when applied in a horizontal joint.
 - 1. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
 - 2. Dow Corning Corporation: www.dowcorning.com/construction.
 - 3. Tremco Global Sealants: www.tremcosealants.com.
 - 4. Sika Corporation: www.usa-sika.com.
 - 5. W.R. Meadows, Inc: www.wrmeadows.com.

2.02 NONSAG JOINT SEALANTS

- A. Type S5 - Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
 - 1. Movement Capability: Plus and minus 25 percent, minimum.
 - 2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
 - 3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
 - 4. Color: Match adjacent finished surfaces.
 - 5. Cure Type: Single-component, neutral moisture curing.
 - 6. Products:
 - a. Dow Corning Corporation; 790 Silicone building sealant: www.dowcorning.com.
 - b. Tremco Global Sealants; Spectrem 1: www.tremcosealants.com.
- B. Type S6 - Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
 - 1. Color: White.
 - 2. Products:
 - a. Pecora Corporation; 898NST Sanitary Silicone Sealant - Class 50: www.pecora.com.
 - b. Sika Corporation; Sikasil GP: www.usa-sika.com.
 - c. Tremco Global Sealants; Tremsil 200: www.tremcosealants.com.
- C. Type S2 - Polyurethane Sealant for Continuous Water Immersion: ASTM C920, Grade NS, Uses M and A; multicomponent; explicitly approved by manufacturer for continuous water immersion; suitable for traffic exposure when recessed below traffic surface .
 - 1. Movement Capability: Plus and minus 35 percent, minimum.
 - 2. Color: To be selected by Architect from manufacturer's standard range.
 - 3. Products:
 - a. BASF Construction Chemicals-Building Systems; Master Seal NP 2: www.buildingsystems.basf.com.
 - b. Sika Corporation; Sikaflex-2C: www.usa.sika.com.
 - c. Tremco Global Sealants; Dymeric 240: www.tremcosealants.com.
- D. Type S4 - Polyurethane Sealant for Continuous Water Immersion: ASTM C920, Grade NS, Uses M and A; single component; explicitly approved by manufacturer for continuous water immersion; suitable for traffic exposure when recessed below traffic surface .
 - 1. Movement Capability: Plus and minus 35 percent, minimum.

2. Color: To be selected by Architect from manufacturer's standard range.
3. Products:
 - a. BASF Construction Chemicals-Building Systems; MasterSeal NP 1: www.buildingsystems.basf.com.
 - b. Sika Corporation; Sikaflex-1a: www.usa-sika.com.
 - c. Tremco Global Sealants; Vulkem 116: www.tremcosealants.com.
- E. Type S7 - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
 1. Color: To be selected by Architect from manufacturer's standard range.
 2. Grade: ASTM C834; Grade - Minus 18 Degrees C.
 3. Products:
 - a. BASF Construction Chemicals-Building Systems; Sonolac: www.buildingsystems.basf.com.
 - b. Sherwin-Williams Company; 950A Siliconized Acrylic Latex Caulk: www.sherwin-williams.com.
 - c. Tremco Global Sealants; Tremflex 834: www.tremcosealants.com.
- F. Type S8 - Acrylic Emulsion Latex for concealed locations: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
 1. Grade: ASTM C834; Grade - Minus 18 Degrees C.
 2. Products:
 - a. Franklin International, Inc.; GREENchoice Acoustical Smoke & Sound Sealant: www.titebond.com.
 - b. Hilti, Inc.; CP 506 Smoke and Acoustical Sealant: www.us.hilti.com.
 - c. United States Gypsum; Sheetrock Acoustical Sealant: www.usg.com.

2.02 SELF-LEVELING SEALANTS

- A. Type S1 - Self-Leveling Polyurethane Sealant for Continuous Water Immersion: Polyurethane; ASTM C920, Grade P, Uses M and A; multicomponent; explicitly approved by manufacturer for traffic exposure and continuous water immersion.
 1. Movement Capability: Plus and minus 25 percent, minimum.
 2. Color: To be selected by Architect from manufacturer's standard range.
 3. Products:
 - a. BASF Construction Chemicals-Building Systems; Master Seal SL 2: www.buildingsystems.basf.com.
 - b. Tremco Global Sealants: www.tremcosealants.com; Vulkem 245: www.tremcosealants.com.
- B. Type S3 - Self-Leveling Polyurethane Sealant for Continuous Water Immersion: Polyurethane; ASTM C920, Grade P, Uses M and A; single component; explicitly approved by manufacturer for traffic exposure and continuous water immersion.
 1. Movement Capability: Plus and minus 25 percent, minimum.
 2. Color: Match adjacent finished surfaces.
 3. Products:
 - a. BASF Construction Chemicals-Building Systems; MasterSeal SL 1: www.buildingsystems.basf.com.
 - b. Sika Corporation; Sikaflex-1c SL: www.usa-sika.com.
 - c. Tremco Global Sealants; Vulkem 45: www.tremcosealants.com.

2.03 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that substrate surfaces are ready to receive work.
- C. Verify that joint backing and release tapes are compatible with sealant.
- D. Verify that backer rods are of the correct size.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Perform acoustical sealant application work in accordance with ASTM C919.
- D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- E. Install bond breaker backing tape where backer rod cannot be used.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.04 FIELD QUALITY CONTROL

- A. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

3.05 CLEANING

- A. Clean adjacent soiled surfaces.

3.06 POST-OCCUPANCY

- A. Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width; i.e. at the low temperature in the thermal cycle. Report failures immediately and repair.

3.07 PROTECTION

- A. Protect sealants until cured.

3.08 SCHEDULE

- A. Interior Joints:
 - 1. Seal interior perimeters of exterior openings, expansion and control joints on interior of exterior cast-in-place concrete walls, expansion and control joints on interior of exterior precast, architectural wall panels, expansion and control joints on interior of exterior masonry walls, perimeters of interior hollow metal and aluminum frames, Interior masonry vertical control joints and intersecting masonry walls; CMU-to-CMU, CMU-to-concrete and joints at intersection of exterior masonry walls and interior gypsum board partitions.
 - a. Type S2: Multi-part Urethan (Non Sag)
 - b. Type S5: One-part Silicones (for joint between two prefinished materials only)
 - 2. Exposed interior control joints in drywall and concealed joints.
 - a. Type S7: One-part Acrylic Latex, Non-Sag
 - b. Type S8: Acoustical Sealants at Sound Walls
 - 3. Joints of underside of precast planks, at tops of non-load bearing masonry walls at underside of cast-in-place concrete.
 - a. Type S3: One-part Urethane
 - 4. Perimeter of bath fixtures: sinks, tubs, urinals, waterclosets, basins, vanities, etc.
 - a. Type S6: One-part Mildew Resistant Silicone
 - 5. Interior expansion and control joints in floor surfaces exposed to foot traffic, interior saw-cut contraction joints in exposed concrete floors exposed to forklift traffic, Interior non-moving joints, including control, contraction, or construction joints, in interior floor slabs exposed to heavy duty traffic.
 - a. Type S1: Multi-part Urethane (Self Leveling)

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SECTION 08 14 30
PRE-HUNG WOOD INTERIOR DOORS

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Passage Doors.

1.02 RELATED REQUIREMENTS

- A. Section 06 20 00 - Finish Carpentry.
- B. Section 08 71 00 - Door Hardware.
- C. Section 09 90 00 - Painting and Coating: Field painting.

1.03 REFERENCE STANDARDS

- A. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2013.
- B. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association; 2012.
- C. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
- D. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
- E. WDMA I.S. 1A - Interior Architectural Wood Flush Doors; Window and Door Manufacturers Association; 2013. (ANSI/WDMA I.S. 1A)

1.04 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Product Data: Submit door manufacturer current product literature, including installation instruction.
- C. Samples: Provide finish samples for all products.
- D. Quality Assurance Submittals
 - 1. Manufacturer Instructions: Provide manufacturer’s written installation instructions.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of experience.
- B. Installed Fire Rated Door Assembly: Conform to NFPA 80 for fire rated class as indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors, materials and components in manufacturer’s original, unopened, undamaged containers with identification labels intact.
- B. Store doors as recommended by manufacturer.

1.06 WARRANTY

- A. See Section 01 78 00 – Closeout Submittals for additional warranty information.
- B. Manufacturer standard warranty indicating that doors will be free from material and workmanship defects from the date of substantial completion for the time periods indicated below:
- C. Door System: 5 Years.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. Basis of Design: Master Craft - Model No. 4112540.
- B. Approved manufacturers
 - 1. Master Craft: www.midwestmanufacturing.com.

2. JELD-WEN® Custom Wood Interior Doors: www.jeld-wen.com.
3. Reliabil: www.reliabiltdoors.com.

2.02 DOORS

- A. Door Style
 1. Flush, particleboard core, 20-minute rated, positive pressure
 2. Compliance: WDMA I.S.1-A.
- B. Thickness: 1 3/4-inch.
- C. Hardware:
 1. Prep door for lockset.
 2. Face Bore: 2 1/8-inch.
 3. Backset: 2 3/8-inch.
 4. Edge Bore: 1-inch with mortise for 1-inch by 2 1/4-inch latch faceplate with 1/4" radius corners.

2.03 PREHUNG SYSTEMS

- A. Jambs
 1. Profile: Solid flat (standard).
 2. Width: 4 9/16-inch. (field verify)
 3. Stop Profile: Colonial (standard).
 4. Rating: 20 minute.
- B. Hinges: Solid brass concealed-bearing.
 1. Finish: brushed nickel. (Verify with Owner.)
 2. Size: 3.5- by 3.5-inch with 1/4-inch radius (standard) corners.

2.04 DOOR FINISHES

- A. Catalyzed Finish: Permalane finishing system uses an eight-step process that employs quality stains, catalyzed sealers and top coats, hand sanding and hand-rubbing to produce a satin finish.
- B. Wood Species
 1. Oak wood.
- C. Finish as selected by Owner. Choose from manufacturer's standards.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Inspect door prior to installation.
- B. Inspect rough opening for compliance with door manufacturer recommendations. Verify rough opening conditions are within recommended tolerances.

3.02 PREPARATION

- A. Prepare door for installation in accordance with manufacturer's recommendations.

3.03 INSTALLATION

- A. Install doors in accordance with manufacturer's installation guidelines and recommendations. Place door unit into opening and level hinge side of jamb. Use shims fastened through jamb and stop to level and temporarily secure in place.
- B. Level latch side of jamb. Use shims fastened through jamb and stop to level and temporarily secure in place.
- C. Verify spacing between jamb and door is uniform on all sides. Adjust as necessary. D. Shim top of jamb in center of opening and fasten with nail.
- D. Re-check for square, level and even spacing around door. Nail securely in place through stop, jamb, shims and into studs every 12 inches.
- E. Set nails.
- F. Install trim on both sides using nails every 12 to 16 inches.

END OF SECTION

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SECTION 08 71 00
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Door Hardware

1.02 RELATED REQUIREMENTS

- A. Section 08 14 30 – Prehung Wood Interior Doors

1.03 REFERENCE STANDARDS

- A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.
- B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- C. BHMA A156.1 - American National Standard for Butts and Hinges; Builders Hardware Manufacturers Association, Inc.; 2006 (ANSI/BHMA A156.1).
- D. BHMA A156.2 - American National Standard for Bored and Preassembled Locks & Latches; Builders Hardware Manufacturers Association; 2011 (ANSI/BHMA A156.2).
- E. BHMA A156.4 - American National Standard for Door Controls - Closers; Builders Hardware Manufacturers Association, Inc.; 2008 (ANSI/BHMA A156.4).
- F. BHMA A156.7 - American National Standard for Template Hinge Dimensions; Builders Hardware Manufacturers Association; 2003 (ANSI/BHMA A156.7).
- G. BHMA A156.8 - American National Standard for Door Controls - Overhead Stops and Holders; Builders Hardware Manufacturers Association, Inc.; 2010 (ANSI/BHMA A156.8).
- H. BHMA A156.13 - American National Standard for Mortise Locks & Latches Series 1000; Builders Hardware Manufacturers Association; 2012 (ANSI/BHMA A156.13).
- I. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems, Builders Hardware Manufacturers Association; 2012 (ANSI/BHMA A156.22).
- J. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute; 2004.
- K. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors; Door and Hardware Institute; 1993; also in WDHS-1/WDHS-5 Series, 1996.
- L. ICC A117.1 - Accessible and Usable Buildings and Facilities; International Code Council; 2009 (ANSI).
- M. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2013.
- N. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products onto which door hardware will be installed.
- B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware. Check shop drawings of other work to confirm

that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

- C. Convey Owner's keying requirements to manufacturers.

1.05 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project.
- C. Samples:
 - 1. Provide sample for each exposed finish.
- D. Hardware Schedule: Detailed listing of each item of hardware to be installed on each door. Use door numbering scheme as included in the Contract Documents. Identify electrically operated items and include power requirements.
- E. Keying Schedule: Submit for approval of the Owner.
- F. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- G. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.
- H. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- I. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
 - 1. Tools: One set of all special wrenches or tools applicable to each different or special hardware component, whether supplied by the hardware component manufacturer or not.

1.06 QUALITY ASSURANCE

- A. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware with 5 years of experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.08 WARRANTY

- A. See Section 01 77 00 - Closeout Procedures, for additional warranty requirements.
- B. All work in this section shall be guaranteed to be free from defects in materials and workmanship for a period of (1) year from date of substantial completion. In addition, provide factory warranty for locks, closers and exit devices specific for this project. Warranty period shall be (5) years for locks, (3) years for exit devices and (1) year for closures. Factory direct order number shall be provided for each shipment of locks, closers and exit devices with warranty, prior to final payment.

PART 2 PRODUCTS

2.01 DOOR HARDWARE - GENERAL

- A. Provide all hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.

- B. Provide all items of a single type of the same model by the same manufacturer.
- C. Provide products that comply with the following:
 - 1. Applicable provisions of federal, state, and local codes.
 - 2. Accessibility: ADA Standards and ICC A117.1.
- D. Function: Lock and latch function numbers and descriptions of manufactures series as listed in hardware schedule.
- E. Finishes: Match existing door hardware finishes.

2.02 HINGES

- A. Hinges: Provided by prehung wood door Manufacturer.

2.03 LOCKS AND LATCHES

- A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
 - 1. Hardware Sets indicate locking functions required for each door.
 - 2. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
 - 3. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.
- B. Lock Cylinders: Match existing Schlage
 - 1. Provide cams and/or tailpieces as required for locking devices required.
- C. Keying:
 - 1. Grand master keyed. Verify keying with Owner.
 - 2. Provide blank core and (2) key blanks per keyed lockset.
- D. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".

2.04 CYLINDRICAL LOCKSETS

- A. Locking Functions: As defined in BHMA A156.2, and as follows:
 - 1. Match existing Schlage.

2.05 STOPS AND HOLDERS

- A. Stops: Complying with BHMA A156.8; provide a stop for every swinging door, unless otherwise indicated.
 - 1. Provide wall stops, unless otherwise indicated.
- B. Manufacturers - Wall and Floor Stops/holders:
 - 1. Hager Companies: www.hagerco.com.
 - 2. Rockwood Manufacturing: www.rockwoodmfg.com.
 - 3. Triangle Brass Manufacturing Co., Inc.: www.trimcobbw.com.
 - 4. Substitutions: Or equal.

2.08 GASKETING AND THRESHOLDS

- A. Gaskets: Complying with BHMA A156.22.
 - 1. Provide weatherstripping gasket; top and sides where indicated.
 - 2. Provide door bottom sweep where indicated.

- B. Fasteners: Non-corroding.
- C. Manufacturers - Gasketing and Thresholds:
 - 1. Hager Companies: www.hagerco.com.
 - 2. National Guard Products, Inc: www.ngpinc.com.
 - 3. Pemko Manufacturing Co: www.pemko.com.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive work and dimensions are as indicated on shop drawings.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Use templates provided by hardware item manufacturer.

3.03 ADJUSTING

- A. Adjust hardware for smooth operation.
- B. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.04 CLEANING

- A. Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

3.05 PROTECTION

- A. Protect finished Work.
- B. Do not permit adjacent work to damage hardware or finish.

3.06 DOOR HARDWARE GROUPS

- A. See drawings.

END OF SECTION

SECTION 09 21 16
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL**1.01 SCOPE**

- A. Gypsum wallboard.
- B. Joint treatment and accessories.

1.02 RELATED WORK

- A. Section 06 10 00 - Rough Carpentry: Building framing .

1.03 REFERENCE STANDARDS

- A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2015.
- B. ASTM C514 - Standard Specification for Nails for the Application of Gypsum Board; 2004 (Reapproved 2014).
- C. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2014.
- D. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.
- E. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2015.
- F. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.
- G. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2014a.
- H. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.
- I. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.
- J. ASTM E413 - Classification for Rating Sound Insulation; 2010.
- K. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2013.

1.04 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Shop Drawings: Indicate special details associated with fireproofing and acoustic seals.
- C. Test Reports: For stud framing products that do not comply with ASTM C645 or ASTM C754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing gypsum board application and finishing, with minimum 3 years of experience.

PART 2 MATERIALS**2.01 GYPSUM BOARD ASSEMBLIES**

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
 - 1. See PART 3 for finishing requirements.
- B. Interior Partitions, Indicated as Sound-Rated: Provide completed assemblies with the following characteristics:
 - 1. Acoustic Attenuation: STC of 50-54 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
- C. Fire Rated Assemblies: Provide completed assemblies complying with applicable code.

2.02 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
 - 1. Georgia-Pacific Gypsum: www.gpgypsum.com.
 - 2. PABCO Gypsum: www.pabco gypsum.com.
 - 3. USG Corporation: www.usg.com.
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
 - 2. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
 - 3. Thickness:
 - a. Vertical Surfaces: 5/8 inch.
 - b. Ceilings: 5/8 inch.
 - 4. Paper-Faced Products:
 - a. Georgia-Pacific Gypsum; ToughRock.
 - b. PABCO: Regular Gypsum Board
 - c. USG: Sheetrock SW

2.03 ACCESSORIES

- A. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
- B. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless noted otherwise.
 - 1. Types: As detailed or required for finished appearance.
- C. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.

1. Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
- D. Nails for Attachment to Wood Members: ASTM C514.
- E. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.02 BOARD INSTALLATION

- A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
- C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- D. Installation on Wood Framing: For non-rated assemblies, install as follows:
 1. Single-Layer Applications: Screw attachment.

3.03 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
- B. Corner Beads: Install at external corners, using longest practical lengths.

3.04 JOINT TREATMENT

- A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 2. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 1. Feather coats of joint compound so that camber is maximum 1/32 inch.

3.05 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

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**SECTION 09 65 13
RESILIENT WALL BASE**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Resilient base.
- B. Installation accessories.

1.02 REFERENCE STANDARDS

- A. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008 (Reapproved 2012)e1.
- B. FS RR-T-650 - Treads, Metallic and Nonmetallic, Skid Resistant; Federal Specifications and Standards; Revision E, 1994.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by The Manufacturer, but not less than 55 deg F or more than 85 deg F.

1.04 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Selection Samples: Submit manufacturer's complete set of color samples for Owners initial selection.
- C. Verification Samples: Submit two samples of each type of product indicated, in manufacturer's standard-size samples of each resilient product color, texture, and pattern required.
- D. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.05 FIELD CONDITIONS

- A. Install resilient products after other finishing operations, including painting, have been completed.
- B. Maintain ambient temperatures within range recommended by the manufacturer, but not less than 65 deg F or more than 85 deg F in spaces to receive resilient products during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- C. Maintain the ambient relative humidity between 40% and 60% during installation.
- D. Until Substantial Completion, maintain ambient temperatures within range recommended by the Manufacturer, but not less than 55 deg F or more than 85 deg F.

PART 2 PRODUCTS

2.01 RESILIENT BASE

- A. Resilient Base: ASTM F1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove, and as follows:
 - 1. Height: As indicated on drawings.
 - 2. Thickness: 0.125 inch thick.
 - 3. Finish: Satin.

4. Length: Roll.
 5. Color: Johnsonite 63 Burnt Umber
- B. Corners: Provide preformed outside corners.
- C. Exposed ends: Provide premolded units.

2.02 ACCESSORIES

- A. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Prepare substrates according to Manufacturer's written instructions to ensure adhesion of resilient wall base.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- C. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- D. Vacuum clean substrates to be covered by resilient products immediately before installation.

3.03 INSTALLATION

- A. Comply with Manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. Outside corners: Install preformed corners before installing straight pieces.
- G. Inside corners: Butt one piece to corner then scribe next piece to fit.

3.04 CLEANING AND PROTECTION

- A. Comply with Manufacturer's written instructions for cleaning and protection of resilient products.
- B. Perform the following operations immediately after completing resilient product installation:
1. Remove adhesive and other blemishes from exposed surfaces.
 2. Damp-mop surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

END OF SECTION

SECTION 09 65 19
LUXURY VINYL TILE FLOORING

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Luxury vinyl tile flooring.
- B. Installation accessories.

1.02 REFERENCE STANDARDS

- A. ASTM D2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
- B. ASTM D3389 - Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader).
- C. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- D. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
- E. ASTM F137 - Standard Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus.
- F. ASTM F970 - Standard Test Method for Measuring Recovery Properties of Floor Coverings after Static Loading.
- G. ASTM F925 - Standard Test Method for Resistance to Chemicals of Resilient Flooring.
- H. ASTM F1514 - Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color Change.
- I. ASTM F1515 - Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change.
- J. ASTM F1914 - Standard Test Methods for Short-Term Indentation and Residual Indentation of Resilient Floor Covering.
- K. ASTM F2055 - Standard Test Method for Size and Squareness of Resilient Floor Tile by Dial Gage Method.
- L. ASTM F2199 - Standard Test Method for Determining Dimensional Stability of Resilient Floor Tile after Exposure to Heat.
- M. ASTM F2421 - Standard Test Method for Measurement of Resilient Floor Plank by Dial Gage.

1.03 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Material List: Complete materials list of all items proposed to be furnished and installed under this Section.
- C. Product Information: Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.
- D. Verification Samples: Submit two samples of standard size illustrating color and pattern for each resilient flooring product specified.
- E. Installation Instructions: Manufacturers recommended methods of installation.
 - 1. The manufacturer's recommended methods of installation, when approved by the Architect, will become the basis for inspecting and accepting or rejecting actual installation methods used on the work.
- F. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.
- C. Store materials in a clean, dry, enclosed space off the ground, protected from harmful weather conditions and at temperature and humidity conditions recommended by the manufacturer. Protect adhesives from freezing. Store flooring, adhesives and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.

1.05 PROJECT CONDITIONS

- A. Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65°F and a maximum temperature of 85°F for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55°F in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances. Refer to the Manufacturer's for a complete guide on project conditions.

1.06 LIMITED WARRANTY

- A. LVT Resilient Flooring: Manufacturer's standard 15-year warranty

1.07 SEQUENCING

- A. Resilient Flooring: Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.08 MAINTENANCE

- A. Extra Materials: Provide for Owner's use a minimum of 2 percent of the primary sizes and colors. Deliver extra materials to Owner. Furnish extra materials from same production run as products installed. Packaged with protective covering for storage and identified with appropriate labels.

PART 2 PRODUCTS**2.01 LUXURY VINYL TILE FLOORING**

- A. Natural Woodgrains High Performance Luxury Vinyl Tile Flooring manufactured by Interface, Inc. or equal.
 - 1. Product: A002
 - 2. Pattern and Color: Match existing
 - 3. Size and Thickness: Match existing
- B. Approved Equal: Set In Concrete manufactured by Patcraft

2.03 ACCESSORIES

- A. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.
- B. Provide transition/reducing strips tapered to meet abutting materials.
- C. Provide threshold of thickness and width as shown on the drawings.

- D. Provide resilient edge strips of width shown on the drawings, of equal gauge to the flooring, homogeneous vinyl or rubber composition, tapered or bullnose edge, with color to match or contrast with the flooring, or as selected by the Architect from standard colors available.
- E. Provide metal edge strips of width shown on the drawings and of required thickness to protect exposed edges of the flooring. Provide units of maximum available length to minimize the number of joints. Use butt-type metal edge strips for concealed anchorage, or overlap-type metal edge strips for exposed anchorage. Unless otherwise shown, provide strips made of extruded aluminum with a mill finish.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including technical bulletins, product catalog, installation instructions, and product carton instructions for installation and maintenance procedures as needed.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions (i.e. moisture tests, bond test, pH test, etc.).
- B. Visually inspect flooring materials, adhesives and accessories prior to installation. Flooring material with visual defects shall not be installed and shall not be considered as a legitimate claim.
- C. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.
- D. Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds; residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.
- E. Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- F. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.03 PREPARATION

- A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

3.04 INSTALLATION

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install in accordance with manufacturer's instructions.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Fit joints tightly.
- E. Set flooring in place, press with heavy roller to attain full adhesion.
- F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
- H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight

3.05 PROTECTION

- A. Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings.

END OF SECTION

SECTION 09 90 00
PAINTING AND COATING

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints and other coatings.
- C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
 - 1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
 - 2. Mechanical and Electrical:
 - a. In finished areas, paint all insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Floors, unless specifically so indicated.
 - 6. Glass.
 - 7. Concealed pipes, ducts, and conduits.

1.02 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.

1.03 SUBMITTALS

- A. See Section 00 72 00 – General Conditions, for submittal procedures.
- B. Product Data: Provide complete list of all products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. MPI product number (e.g. MPI #47).
 - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
- C. Samples for initial color selection in the form of manufacturer's color charts.
- D. Samples: Submit 1 painted samples, illustrating selected colors for each color and system selected. Submit on tempered hardboard, 4 x 8 inch in size.
- E. Certification: By manufacturer that all paints and coatings comply with VOC limits specified.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
 - 1. Diamond Vogel Paints: www.diamondvogel.com.
 - 2. Duron, Inc: www.duron.com.
 - 3. Glidden Professional, a product of PPG Architectural Coatings: www.gliddenprofessional.com.
 - 4. Benjamin Moore & Co: www.benjaminmoore.com.
 - 5. PPG Architectural Finishes, Inc: www.ppgaf.com.
 - 6. Pratt & Lambert Paints: www.prattandlambert.com.
 - 7. Sherwin-Williams Company: www.sherwin-williams.com.
 - 8. Primer Sealers: Same manufacturer as top coats.
 - 9. Block Fillers: Same manufacturer as top coats.

2.02 PAINTS AND COATINGS - GENERAL

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
 - 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 - 3. Supply each coating material in quantity required to complete entire project's work from a single production run.

4. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Volatile Organic Compound (VOC) Content:
 1. Provide coatings that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- D. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Funktion Design Studio, LLC from the manufacturer's full line.
- E. Colors: As indicated on drawings
 1. Selection to be made by Funktion Design Studio, LLC after award of contract.
 2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

2.03 PAINT SYSTEMS - INTERIOR

- A. Hollow metal doors and frames, misc. metal fabrications, Unprimed, Alkyd, 3 Coat:
 1. One coat of alkyd primer. SW All Surface Enamel Oil Primer, A11W210 (4 mils wet, 2.4 mils dry).
 2. Semi-gloss: Two coats of alkyd enamel; SW ProMar 200 Alkyd Semi-Gloss, B34W200 Series. (4 mils wet, (1.7 mils dry per coat).
- B. Ferrous Metals, Primed or previously painted, Hollow metal doors and frames, Alkyd, 2 Coat:
 1. Touch-up with alkyd primer.
 2. Semi-gloss: Two coats of alkyd enamel; SW ProMar Alkyd Semi Gloss, B34W200 Series. (4 mils wet, 1,7 mils dry per coat).
- C. Wood, Semi Transparent, Varnish, Stain:
 1. One coat of stain; PPG REZ77-460 Semi-Transparent Latex Interior/Exterior Stain.
 2. One coat sealer;
 3. Satin: Two coats of varnish; PPG REZ77-89 Polyurethane Satin Clear Interior Coating.
- D. New Gypsum Board/Plaster, Latex, 3 Coat:
 1. One coat of Latex primer sealer. SW PrepRite200 Latex Primer, B28W200.
 2. Eggshell: Two coats of latex enamel; SW ProMar 200 Latex Eg-Shel, B20W2200 Series. (4 mils wet, 1.6 mils dry per coat).
- E. New Gypsum Board/Plaster Wet Areas, Latex, 3 Coat:
 1. One coat of Latex primer sealer. SW PrepRite200 Latex Primer, B28W200.
 2. Eggshell: Two coats of latex enamel; SW ProMar 200 Latex Semi-gloss, B20W2200 Series. (4 mils wet, 1.6 mils dry per coat).
- F. Previously paint Gypsum Board/Plaster, Latex, 2 Coat:
 1. Touch up with Latex primer sealer. SW PrepRite200 Latex Primer, B28W200.
 2. Eggshell: Two coats of latex enamel; SW ProMar 200 Latex Eg-Shel, B20W2200 Series. (4 mils wet, 1.6 mils dry per coat).
- G. Previously painted Concrete/Masonry, Opaque, Epoxy, 2 Coat:
 1. One coat of block filler. SW Kem Cati-Coat HS N Epoxy Filler/Sealer.
 2. Egg Shell: One coat of epoxy; SW Pro Industrial, Zero VOC Waterbased Catalyzed Epoxy.

2.04 ACCESSORY MATERIALS

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Test shop-applied primer for compatibility with subsequent cover materials.
- D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 - 3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
 - 4. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- F. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- G. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- H. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- I. Corroded Steel and Iron Surfaces to be Painted: Prepare using at least SSPC-SP 2 (hand tool cleaning) or SSPC-SP 3 (power tool cleaning) followed by SSPC-SP 1 (solvent cleaning).
- J. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.
- K. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

- L. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming.
- M. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- N. Interior Wood Surfaces to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.
- O. Exterior Wood Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter.
- P. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after prime coat has been applied. Back prime concealed surfaces before installation.
- Q. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Exterior Wood to Receive Opaque Finish: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 4 weeks.
- C. Apply products in accordance with manufacturer's instructions.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. Apply each coat to uniform appearance.
- F. Sand wood and metal surfaces lightly between coats to achieve required finish.
- G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- H. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

- A. Protect finished coatings until completion of project.
- B. Touch-up damaged coatings after Substantial Completion.

END OF SECTION

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SECTION 21 00 10
FIRE SUPPRESSION GENERAL
PROVISIONS

PART 1 - GENERAL

1.01 GENERAL

- A. Refer to Division 00 – Procurement, Contracting and Warranty Requirements and Division 01 - General Requirements, which all apply to work under this section.

1.02 DESCRIPTION OF WORK

- A. This section applies to all work under the fire suppression contract. This shall include, but not necessarily be limited to, the following:
1. Water Based Fire Suppression Systems
- B. The work shall include all materials, equipment and labor required for complete and properly functioning fire suppression systems.
- C. Drawings for fire suppression work are in part diagrammatic, intended to convey the scope of work and indicate general arrangement of equipment, piping and approximate sizes and locations of equipment and materials.
- D. Where job conditions require reasonable changes in indicated locations and arrangements, make such changes without additional cost to Owner.
- E. Because of the scale of the drawings, certain piping or items such as unions or fittings may not be shown, but where such items are required by other sections of the specifications, or where they are required by the nature of the work, they shall be furnished and installed.
- F. All elements of the construction shall be performed by workmen skilled in the particular craft involved, and regularly employed in that particular craft.
- G. All work shall be performed in a neat, workmanlike manner in keeping with the highest standards of the craft.

1.03 CODES AND STANDARDS

- A. All work shall be done in accordance with the applicable portion of the following codes and standards:
1. International Fire Suppression Code
 2. Wisconsin State Plumbing Code
 3. International Building Code
 4. National Electric Code (NEC)
 5. National Fire Protection Association Standards (NFPA)
 6. Local Utility Company Requirements
 7. Local Codes, all trades
 8. Standards of ASME, ASHRAE, NEMA, IEEE, AGA, SMACNA
 9. Occupational Safety and Health Administration (OSHA)
 10. Underwriters Laboratories, Inc. (U.L.)
 11. Wisconsin Enrolled Commercial Building Code
 12. Americans With Disabilities Act (ADA)
 13. Wisconsin Department of Health Services (DHS)
- B. Contractors shall familiarize themselves with all codes and standards applicable to their work and shall notify Design Professional of any discrepancies between the design and applicable code requirements so that any conflicts can be resolved. Where two or more codes or standards are in conflict, that requiring the highest order of workmanship shall take precedence, but such questions shall be referred to Design Professional for final decision.
- C. Where drawings or specifications call for workmanship or materials in excess of code requirements, a lower grade of construction will not be permitted.

1.04 REQUIREMENTS & FEES OF REGULATORY AGENCIES

- A. Contractor shall comply with the rules and regulations of the authorities having jurisdiction and local utility companies. Contractor shall check with each utility company providing service to this project and determine or verify their requirements regarding incoming services.
- B. Secure all required permits and pay for all inspections, licenses and fees required in connection with the fire suppression work. Contractor shall post all bonds and obtain all licenses required by the State, City, County and Utility.

1.05 FIRE SUPPRESSION DRAWINGS

- A. The fire suppression drawings indicate in general the building arrangement only, Contractor shall examine all construction drawings to familiarize himself with the specific type of building construction, i.e. type of structural system, floors, walls, ceilings, room finishes and elevations.
- B. Drawings for piping are intended to convey the scope of the work and to indicate the general arrangement and locations of piping and equipment.
- C. Contractor shall layout his own work and shall be responsible for determining the exact locations for equipment and rough-ins and the exact routing of piping so as to best fit the layout of the work.
- D. Contractor shall take his own field measurements for verifying locations and dimensions: scaling of the drawings will not be sufficient for laying out the work.
- E. Because of the scale of the drawings, certain basic items such as pipe fittings and valves may not be shown, but where such items are required by code or by other sections of the specifications, such items shall be furnished and installed.

1.06 ACTIVE SERVICES

- A. Contractor shall be responsible for verifying exact location of all existing services prior to beginning work in that area.
- B. Existing active services, i.e., water, gas, sewer, electric, when encountered, shall be protected against damage. Do not prevent or disturb operation of active services which are to remain.
- C. When active services are encountered which require relocation, Contractor shall make request to authorities with jurisdiction for determination of procedures.
- D. Where existing services are to be abandoned, they shall be terminated in conformance with requirements of the authorities having jurisdiction.

1.07 SITE INSPECTION

- A. Contractor shall inspect the site prior to submitting bid for work to familiarize himself with the conditions of the site which will affect his work and shall verify points of connection with utilities, routing of outside piping to include required clearances from any existing structures, trees or other obstacles.
- B. Extra payment will not be allowed for changes in the work required because of the contractor's failure to make this inspection.

1.08 COORDINATION AND COOPERATION

- A. It shall be Contractor's responsibility to schedule and coordinate his work with the schedule of General Contractor so as to progress the work expeditiously, and to avoid unnecessary delays.
- B. Contractor shall fully examine the drawings and specifications for other trades and shall coordinate the installation of his work with the work of the other contractors. Contractor shall consult and cooperate with the other contractors for determining space requirements and for determining that adequate clearance is allowed with respect to his equipment, other equipment and the building. Design Professional reserves the right to determine space priority of the contractors in the event of interference between piping, conduit, ducts and equipment of the various contractors.
- C. Drawings and specifications are intended to be complimentary. Any work shown in either of them, whether in the other or not, shall be executed according to the true intent and meaning thereof, the same as if set forth in all. Conflicts between the drawings and the specifications, or between

the requirements set forth for the various contractors, shall be called to the attention of the Design Professional. If clarification is not asked for prior to the taking of bids, it will be assumed that none is required and that Contractor is in agreement with the drawings and specifications as issued. If clarification is required after the contract is awarded, such clarification will be made by the Design Professional and his decision will be final.

- D. Special care shall be taken for protection for all equipment. All equipment and material shall be completely protected from weather elements, painting and plaster until the project is substantially completed. Damage from rust, paint and scratches shall be repaired as required to restore equipment to original condition.
- E. Protection of all equipment during the painting of the building shall be the responsibility of the painting contractor, but this shall not relieve Contractor of the responsibility for checking to assure that adequate protection is being provided.
- F. Where the final installation or connection of equipment in the building requires Contractor to work in finished areas of the building, Contractor shall be responsible that such areas are protected and are not marred, soiled or otherwise damaged during the course of such work. Contractor shall arrange with General Contractor for patching and refinishing of such areas which may be damaged in this respect.

1.09 OPENINGS, CUTTING AND PATCHING

- A. Refer to Section 00 72 00 General Conditions, for requirements.
- B. Piping and sleeves passing through all fire or smoke rated floors, roofs, walls, and partitions shall be provided with firestopping. Space between wall/floor and pipe or sleeve shall be sealed with UL listed intumescent fire barrier material equivalent to rating of wall/floor. Where piping and sleeves pass through floors, roofs, walls and partitions that are not fire or smoke rated, penetrations shall be sealed with grout or caulk.
- C. New structure:
 - 1. Contractor will coordinate the placing of openings and lintels in the new structure as required for the installation of the fire suppression work with the General Contractor.
 - 2. Contractor shall furnish to General Contractor the accurate locations and sizes for required openings, but this shall not relieve Contractor of the responsibility of checking to assure that proper size openings are provided. When additional cutting and patching is required due to Contractor's failure to coordinate this work, Contractor shall make arrangements for the cutting, patching, and painting required.

1.10 EXCAVATING AND BACKFILLING

- A. Contractor shall do all excavating necessary for fire suppression work and shall backfill trenches and excavations after work has been inspected. Care shall be taken in excavating that walls and footings and adjacent load bearing soils are not disturbed in any way, except where lines must cross under a wall footing. Where a line must pass under a footing, the crossing shall be made by the smallest possible trench to accommodate the pipe. Excavation shall be kept free from water by pumping if necessary.
- B. Backfill about the structure shall be placed, when practical, as the work of construction progresses. Backfilling on or against concrete work shall be done only when directed. Backfilling of trenches shall progress as rapidly as the testing and acceptance of the finished sections of the work will permit. Backfill shall be in accordance with Division 31 Specifications.

1.11 MATERIALS AND EQUIPMENT

- A. Refer to Section 00 72 00 - General Conditions for requirements.
- B. All materials and equipment shall be the standard product of a reputable U.S.A. manufacturer regularly engaged in the manufacture of the specified item. Where two or more units are required of the same item, they shall be furnished by the same manufacturer except where specified otherwise.
- C. All material and equipment shall be installed in strict accordance with the manufacturer's recommendations.
- D. The equipment specifications cannot deal individually with any minute items such as parts,

controls, devices, etc., which may be required to produce the equipment performance and function as specified, or as required to meet the equipment guarantees. Such items, when required, shall be furnished as part of the equipment, whether or not specifically called for.

1.12 SUBMITTALS

- A. Contractor shall furnish to Design Professional, product submittal data. Contractor shall review and sign shop drawings before submittal. Refer to Section 00 72 00 General Conditions, for additional requirements.
- B. Shop drawings shall be bound into sets and cover related items for a complete system as much as practical and shall be identified with symbols or "plan marks" used on drawings. Incomplete, piecemeal or unbound submittals will be rejected.
- C. Submittals required by the various sections of the Project Manual include, but are not necessarily limited to those identified in the submittal schedule below.
- D. After award of contract, Contractor shall provide a completed submittal schedule including dates that the submittals will be to Design Professional for review.
- E. Submit required information on the following items:

SPEC SECTION	EQUIPMENT	DETAIL DWGS	PROD DATA	SAMPLES	INSTALL METHODS	O & M MANUAL	CERTIFICATE OF DEMONSTRATION	OTHER (SEE NOTES)
21 10 00	Water Based Fire Suppression System		X			X	X	

- F. Design Professional will review shop drawings solely to assist contractors in correctly interpreting the plans and specifications.
- G. Contract requirements cannot be changed by shop drawings which differ from contract drawings and specifications.

1.13 OPERATION AND MAINTENANCE MANUALS

- A. Operation and maintenance manuals shall be submitted to Design Professional upon completion of the job. Refer to Section 01 77 00 - Closeout Procedures, for requirements.
- B. Each section shall contain the following information for equipment furnished under this contract:
 - 1. Equipment and system warranties and guarantees.
 - 2. Installation instructions.
 - 3. Operating instructions.
 - 4. Maintenance instructions.
 - 5. Spare parts identification and ordering list.
 - 6. Local service organization, address, contract and phone number.
 - 7. Shop drawings with reviewed stamp of Design Professional and Contractor shall be included, if applicable, along with the items listed above.
 - 8. Reports of all tests and demonstrations including certificate of owner instruction, testing and balancing report, etc.

1.15 SUBSTITUTIONS

- A. Refer to Section 00 72 00 - General Conditions, for requirements.
- B. Where substitutions are approved, Contractor assumes all responsibility for physical dimensions and all other resulting changes. This responsibility extends to cover all extra work necessitated by other trades as a result of the substitution.

1.16 ACCEPTABLE MANUFACTURERS

- A. In most cases, equipment specifications are based on a specific manufacturer's type, style, dimensional data, catalog number, etc. Listed with the base specification, either in the manual or on the plan schedules are acceptable manufacturers approved to bid products of equal quality. These manufacturers are encouraged to submit to Design Professional at least 8 days prior to the bid due date drawings and catalog numbers of products to be bid as equals.

- B. Manufacturers who do not submit prior to bidding, run the risk of having the product rejected at time of shop drawing submittal. Extra costs associated with replacing the rejected product shall be the responsibility of the contractor and/or the manufacturer.
- C. If Contractor chooses to use a manufacturer listed as an equal, it shall be his responsibility to assure that the manufacturer has complied with the requirements in 'A' above. Contractor shall assume all responsibility for physical dimensions (including accessibility for maintenance), operating characteristics, and all other resulting changes. This responsibility extends to cover all extra work necessitated by other trades as a result of using the alternate manufacturer.
- D. Where a model or catalog number is provided, it may not be inclusive of all product requirements. Refer to additional requirements provided on the plans or in the specifications as required. Similarly, there may be additional requirements included in the model or catalog number that are not specifically stated. These requirements shall also be met.

1.17 WARRANTY

- A. Refer to Section 01 77 00 - Closeout Procedures, for information on warranties and correction of work within the warranty period.
 - 1. If a warranty or warranty period are not defined in Division 00 or 01, then the start of all warranty periods shall be the date of Substantial Completion and the length of the warranty shall be for one year.
 - a. If construction is phased with distinct and separate Substantial Completion dates for portions of the building and/or systems, separate warranties shall be provided for each of these phased areas and/or systems.
 - b. The entire Fire Suppression system, including all sub-systems, shall be guaranteed against defect in materials and installation for the duration of the warranty period. Any malfunctions or defects which occur within the warranty period shall be promptly corrected without cost to the Owner. This guarantee shall not limit or void any manufacturer's express or implied warranty.
- B. Refer to other Division 21 sections for systems, equipment, or material requiring extended warranties beyond one year.
- C. The date of systems/equipment startup or equipment/material shipment to the site shall not be considered the notable date with relation to the warranty of that item. All systems, equipment, material, etc., shall have the same start date with respect to the warranty period.
- D. Systems, equipment or material put into use to facilitate construction activities (e.g. testing and balancing, commissioning, temporary conditioning, etc.) prior to the start of the warranty period shall not impact the length of the warranty in any way.

1.18 COMPLETION

- A. Systems, at time of completion, shall be complete, efficiently operating, non-hazardous and ready for normal use by Owner.
- B. Contractor shall clean up and remove from the site all debris, excess material and equipment left during the progress of this contract at job completion.

1.19 CLEANING

- A. At the conclusion of the construction, the entire system of piping and equipment shall be cleaned internally.
- B. All temporary labels, stickers, etc., shall be removed from all fixtures and equipment. Name plates, ratings, instruction plates, etc., shall not be obscured by paint, insulation, or placement of units.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

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**SECTION 31 05 00
COMMON WORK RESULTS FOR EARTHWORK**

PART 1 - DESCRIPTION

1.01 SCOPE

- A. This section provides information common to two or more technical site work specification sections or items that are of a general nature, and not included in other sections. This section applies to ALL site work, as applicable.

1.02 RELATED SECTIONS

- A. 31 22 13 – Rough Grading
- B. 31 22 16 – Fine Grading
- C. 31 23 16– Excavation
- D. 31 23 23 – Fill
- E. 31 25 00 – Erosion and Sedimentation Controls

1.03 REFERENCED ORGANIZATIONS

- A. Abbreviations of organizations referenced in these specifications are as follows:
 - 1. AASHTO American Association of State Highway and Transportation Officials
 - 2. ACPA American Concrete Pipe Association
 - 3. ANSI American National Standards Institute
 - 4. ASCE American Society of Civil Engineers
 - 5. ASME American Society of Mechanical Engineers
 - 6. ASTM American Society for Testing and Materials
 - 7. AWWA American Water Works Association
 - 8. AWS American Welding Society
 - 9. FHWA Federal Highway Administration
 - 10. EPA Environmental Protection Agency
 - 11. NEC National Electric Code
 - 12. NEMA National Electrical Manufacturers Association
 - 13. NFPA National Fire Protection Association
 - 14. NSF National Sanitation Foundation
 - 15. OSHA Occupational Safety and Health Administration
 - 16. STI Steel Tank Institute
 - 17. UL Underwriters Laboratories Inc.
 - 18. WDNR State of Wisconsin Department of Natural Resources
 - 19. WisDOT State of Wisconsin Department of Transportation

1.04 REFERENCED DOCUMENTS

- A. Where reference is made to the "SSHSC," it shall mean the pertinent sections of the State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, latest edition, and all supplemental and interim supplemental specifications. Where reference is made to the "SSAC," it shall mean the pertinent sections of the State of Wisconsin, Bureau of Aeronautics, Standard Specifications for Airport Construction, latest edition, and all supplemental and interim supplemental specifications.
- B. Where reference is made to the "SSSWC," it shall mean pertinent sections of the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition. Where reference is made to the "BMPH," it shall mean the Wisconsin Construction Site Best Management Practice Handbook, latest edition as published by the WDNR. Method of measurement and basis of payment sections in referenced documents shall not apply.

1.05 QUALITY ASSURANCE

- A. Provide materials and products as required by individual specification sections. Refer to Section 01 33 00 – Submittal Procedures. Provide quality assurance testing and reporting as required by all individual specification sections.

1.06 SAFETY

- A. The Contractor is solely responsible for worksite safety. Perform all work in accordance with applicable OSHA, state and local safety standards. Contact Diggers Hotline at 1-800-242-8511 or www.diggershotline.com in accordance with statutory requirements. Request that non-member utilities and private utilities be located by the appropriate parties.

1.07 PERMITS

- A. Unless otherwise noted in the Contract Documents, the Contractor shall be responsible for obtaining and paying for all permits necessary to complete the work.

1.08 CONSTRUCTION LIMITS

- A. Construction Limits are indicated on the drawings. In the absence of such a designation on the drawings, confine work to the minimum area reasonably necessary to undertake the work as determined by the Engineer. In no case shall construction activities extend beyond property lines or construction easements.
- B. The Contractor shall restore all disturbed areas in accordance with the drawings and specifications. If plans and specifications do not address restoration of specific areas, these areas will be restored to pre-construction conditions as approved by the Engineer.

1.09 WORK BY OTHERS

- A. Coordinate work under this project with work by Owner and other contractors on the site.

1.10 SUBMITTALS

- A. See Section 00 72 00 - General Conditions.

1.11 CODES

- A. Comply with the requirements of all applicable, local, state and federal codes.

1.12 CERTIFICATIONS AND INSPECTIONS

- A. Refer to General Conditions. Obtain and pay for all required sampling, testing, inspections, and certifications except those expressly listed as provided by the Engineer or other third party in the Contract Documents. Deliver originals of certificates and documents to the Owner within 3 days; provide copies to the Engineer /Architect. Include copies of the certifications and documents in the O&M Manual.

PART 2 - MATERIALS**2.01 TRAFFIC CONTROL**

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 643, latest edition.
- B. Traffic barricades, traffic signs and warning devices shall meet the requirements of applicable OSHA standards and the FHWA Manual on Uniform Traffic Control Devices (MUTCD), latest edition.

2.02 TEMPORARY PLASTIC BARRIER FENCING

- A. UV stabilized high-density polyethylene barrier fence free of holes, tears and other defects. Provide a 4-foot-tall fence in diamond or rectangular pattern. Fencing shall be “safety orange” color, unless otherwise noted. Posts for temporary plastic barrier fencing shall be 5 feet tall, minimum 12 gauge, painted metal posts.

PART 3 - CONSTRUCTION**3.01 MAINTENANCE OF SITE AND ACCESS/EGRESS**

- A. Unless otherwise shown or directed, maintain existing access and egress to the facility throughout construction. Maintain ANSI A117 compliant access for disabled persons, delivery access, emergency vehicle access, and emergency egress. Do not interrupt access and egress without prior written approval from the Engineer.

3.02 CONTINUITY OF EXISTING TRAFFIC/PARKING AND TRAFFIC CONTROL

- A. Do not interrupt or change existing traffic, delivery, or parking without prior written approval from the Engineer. When interruption is required, coordinate schedule with the Owner and Engineer to minimize disruptions. When working in public right of way, obtain all necessary approvals and permits from applicable municipalities and WisDOT.
- B. When the Contractor’s activities impede or obstruct traffic flow, the Contractor shall provide traffic control devices, signs and flaggers in accordance with other Contract Documents and the current version of the FHWA MUTCD, or as shown on the Drawings.

3.03 PROTECTION AND CONTINUITY OF EXISTING UTILITIES

- A. Verify the locations of any water, drainage, gas, sewer, electric, telephone/communication, fuel, steam lines or other utilities and site features which may be encountered in any excavations or other site work. All lines shall be properly underpinned and supported to avoid disruption of service.
- B. Do not interrupt or change existing utilities without prior written approval from the Owner, affected utilities, Engineer and users. Notify all users impacted by outages a minimum of 48 hours in advance of outage. Notification shall be provided in writing, and describe the nature and duration of outages and provide the name and number of the Contractor's foreman or other designated contact.
- C. Any service connections encountered which is to be removed shall be cut off at the limits of the excavation and capped in accordance with the requirements of applicable codes and any specifications governing such removals.

3.04 PROTECTION OF EXISTING WORK AND FACILITIES

- A. Verify the locations of, and protect, any signs, paved surfaces, buildings, structures, landscaping, streetlights, utilities, and all other such facilities that may be encountered or interfered with during the progress of the work. Take measures necessary to safeguard all existing work and facilities that are outside the limits of the work or items that are within the construction limits but are intended to remain. Report any damage to existing facilities to the Engineer immediately. Correct and pay for all damages.

3.05 STORMWATER/EXCAVATION WATER MANAGEMENT

- A. Control grading around structures, pitch ground to prevent water running into excavated areas.
- B. Pits, trenches within building lines, and other excavations shall be maintained free of water. Provide trenching, pumping, and other facilities required.
- C. Notify the Engineer if springs or running water are encountered in excavation; provide discharge by trenches, drains, or pumping to a point outside of excavation. Provide information to the Engineer of points and areas that water will be discharged. At the Engineer's option, the Contractor shall drain the spring to the storm sewer system by the use of field tile. Be responsible for control measures to prevent damage from flooding, erosion, and sedimentation to on-site and off-site areas.

END OF SECTION

**SECTION 31 05 13
SOILS FOR EARTHWORK**

PART 1 – DESCRIPTION

1.01 SECTION INCLUDES

- A. Subsoil materials.
- B. Topsoil materials.

1.02 RELATED SECTIONS

- A. Section 31 05 16 – Aggregates for Earthwork
- B. Section 31 22 13 – Rough Grading
- C. Section 31 23 16 – Excavation
- D. Section 31 23 23 – Fill

1.03 REFERENCES

- A. ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- B. ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12 inch Drop.
- C. ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- D. ASTM D2487 - Classification of Soils for Engineering Purposes.
- E. ASTM D6938 – Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- F. Wisconsin Department of Transportation, Standard Specifications for Highway and Structure Construction, latest edition.

1.04 SUBMITTALS FOR INFORMATION

- A. See Section 00 72 00 - General Conditions.
- B. Materials Source: Submit name of imported materials source.

PART 2 – MATERIALS

2.01 SUBSOIL MATERIALS

- A. Excavated and re-used material: Dispose of excess material.

- B. Subsoil material shall be free of lumps larger than 1 inch in diameter, rocks larger than 4 inches in diameter and debris or foliage.
- C. Place, compact and grade to plan dimensions and elevations.

2.02 TOPSOIL MATERIALS

- A. Topsoil
- B. Topsoil shall meet the requirements of the Wisconsin Department of Transportation, Standard Specifications for Highway and Structure Construction, latest edition, Section 625.
- C. Topsoil or salvaged topsoil shall be at a minimum depth of six inches or as the plans or Engineer designate.
- D. All topsoil and salvaged topsoil shall be screened.
 - 1. Free of stones or rocks larger than ½ inch in diameter, roots, subsoil, debris, large weeds and foreign matter.
 - 2. Topsoil Source: Reuse surface soil available on-site and supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Verify suitability of stockpiled surface soil to produce topsoil.

2.03 GRANULAR BACKFILL

- A. Clean material meeting the requirements of “Grade 1” Granular Backfill as defined in WisDOT Section 209 of the Standard Specifications for Highway Construction, latest edition.
- B. Granular Fill shall also be used for backfilling footings, foundation walls, concrete sidewalks, and for fill under the first floor slab.

2.04 STRUCTURAL FILL

- A. Clean material meeting the requirements as defined in WisDOT Section 210 of the Standard Specifications for Highway Construction, latest edition.

2.05 SOURCE QUALITY CONTROL

- A. Testing and Analysis of Subsoil Material: Perform in accordance with ASTM D698.
- B. If tests indicate materials do not meet specified requirements, change material, or re-compact and retest.

PART 3 – CONSTRUCTION

3.01 SOIL REMOVAL

- A. Excavate subsoil, place and compact in fill areas. Subsoil shall not be used for fill under sidewalk and building floors or used as backfill against footings and/or foundation walls.
- B. Remove lumped soil, boulders, and rock.

- C. Remove excess material not being used.
- D. Place topsoil in accordance with the Wisconsin Department of Transportation, Standard Specifications for Highway and Structure Construction, latest edition, Section 625.

END OF SECTION

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SECTION 31 05 16
AGGREGATES FOR EARTHWORK

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Aggregate materials.

1.02 RELATED REQUIREMENTS

- A. Section 31 05 13 – Soils for Earthwork
- B. Section 31 22 13 – Rough Grading
- C. Section 31 23 23 – Fill

1.03 REFERENCE STANDARDS

- A. ASTM C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
- C. ASTM D2167 Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- D. ASTM D6938 Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- E. ASTM D4318 - Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- F. State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest edition.

1.04 SUBMITTALS FOR REVIEW

- A. See Section 00 72 00 - General Conditions.
- B. Samples: Submit 25 pound samples of base course, free draining material, if used, and subgrade fill material to testing laboratory.

1.05 SUBMITTALS FOR INFORMATION

- A. See Section 00 72 00 - General Conditions.
- B. Materials Source: Submit name of imported materials suppliers.

1.06 QUALITY ASSURANCE

- A. Perform work in accordance with State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest edition.

PART 2 PRODUCTS**2.01 DENSE GRADED BASE**

- A. Base Aggregate Dense, ¾-Inch, 1 ¼-Inch, 3-Inch, Aggregate Detours and Shaping Shoulders shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 305, latest edition.
- B. Shaping Shoulders shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 305, latest edition.

2.02 SALVAGED ASPHALTIC PAVEMENT BASE

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 306, latest edition.

2.03 OPEN GRADED BASE

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 310, latest edition.

2.04 BREAKER RUN

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 311, latest edition

2.05 SELECT CRUSHED MATERIAL

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 312, latest edition.

2.06 PIT RUN

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 313, latest edition.

2.07 ASPHALTIC BASE

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 315, latest edition.

2.08 CONCRETE BASE

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 320, latest edition.

2.09 PULVERIZED AND RE-LAID PAVEMENT

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 325, latest edition.

2.10 MILLED AND RE-LAID PAVEMENT

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 330, latest edition.

2.11 RUBBLIZED PAVEMENT

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 335, latest edition.

2.12 CRACKED AND SEATED PAVEMENT

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 340, latest edition.

2.13 SUBBASE

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 350, latest edition.

2.14 BASE PATCHING

- A. Shall conform to State of Wisconsin Department of Transportation Standard Specifications, Section 390, latest edition.

2.15 AGGREGATE FOR CONCRETE PAVEMENT

- A. Use fine and course aggregate conforming WisDOT Section 501 of the Standard Specifications for Highway Construction, latest edition.

2.16 SOURCE QUALITY CONTROL

- A. Aggregate Material - Testing and Analysis: Perform in accordance with ASTM D1557.
- B. If tests indicate materials do not meet specified requirements, change material or material source and retest.
- C. Provide materials of each type from the same source throughout the Work.

PART 3 EXECUTION

3.01 GENERAL

- A. Construction guidelines shall follow Sections 305, 306, 310, 311, 312, 313, 315, 320, 325, 330, 335, 340, 350 and/or 390 of the Standard Specifications for Highway Construction, latest edition, where applicable

3.02 EXAMINATION

- A. Verify substrate has been inspected; grades, gradients and elevations are correct; and is dry or of specified moisture content.
- B. Contractor shall verify subgrade cross slope with laser level prior to placing base course.

3.03 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place fill on soft, muddy, or frozen surfaces.

3.04 AGGREGATE PLACEMENT

- A. Spread aggregate over prepared substrate to a total compacted thickness as shown on the plans. Place aggregate in maximum 6-inch layers (or 8-inch layers with Engineer's approval) and compact to specified density.
- B. Level and contour surfaces to elevations and gradients indicated.
- C. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- D. Use mechanical tamping equipment in areas inaccessible to compaction equipment.
- E. Proof roll subgrade prior to placement of the base course.

3.05 TOLERANCES

- A. Flatness: Maximum variation of ¼ inch, measured with a 10 foot straight edge.
- B. Scheduled Compacted Thickness: Within ¼ inch.
- C. Variation From Design Elevation: Within ½ inch.

3.06 FIELD QUALITY CONTROL

- A. Compaction testing will be performed in accordance with ASTM D698 or D1557
- B. If tests indicate Work does not meet specified requirements, re-compact and retest.
- C. Frequency of Tests: 1 per 500 lineal feet of base course placed.
- D. Compact placed aggregate materials to achieve density compaction of 95 percent of maximum dry density (Modified Proctor).

END OF SECTION

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SECTION 31 22 13 ROUGH GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Removal and salvage, disposal or stockpile of suitable topsoil and the removal and disposal of unsuitable and excess subsoil.
- B. Cutting, grading, filling, compacting, and backfilling in unsuitable sub-base areas.
- C. Constructing side slopes with new road and, if applicable, sidewalk construction.
- D. Cutting, grading, filling compacting and backfilling around road and if applicable sidewalk.

1.02 RELATED REQUIREMENTS

- A. Section 31 12 00 – Selective Clearing
- B. Section 31 05 13– Soils for Earthwork
- C. Section 31 05 16– Aggregates for Earthwork
- D. Section 31 23 16 – Excavating
- E. Section 31 23 23 – Fill

1.03 REFERENCE STANDARDS

- A. ASTM C136 – Method For Sieve Analysis of Fine and Coarse Aggregates.
- B. ASTM D1556 – Test Method for Density of Soil in Place by the Sand-Cone Method.
- C. ASTM D698 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12 inch Drop.
- D. ASTM D2167 – Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- E. ASTM D2419 – Test Method For Sand Equivalent Value of Soils and Fine Aggregate.
- F. ASTM D2434 – Test Method For Permeability of Granular Soils (Constant Head).
- G. ASTM D6938 – Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- H. State of Wisconsin Department of Transportation Standard Specifications for Highway and Structures Construction, latest edition.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with ASTM C136 and State of Wisconsin Department of Transportation Standard Specifications for Highway and Structures Construction, latest edition, Section 205 Roadway and Drainage Excavation.

1.05 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01 70 00 – Execution and Closeout Requirements.
- B. Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

PART 2 PRODUCTS

2.01 GENERAL

- A. Topsoil & Fill: As specified in Section 31 05 13 – Soils for Earthwork.
- B. Aggregate: As specified in Section 31 05 16 – Aggregate for Earthwork.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify site conditions.
- B. Verify that the survey bench marks and intended elevations for the Work are as indicated.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect existing utilities from damage.
- D. Protect above and below grade utilities that remain.
- E. Protect plant life, lawns, and other features remaining as a portion of final landscaping.
- F. Protect bench marks, survey control points, existing structures, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.03 SUBSOIL EXCAVATION

- A. Excavate subsoil from roadway and if applicable, sidewalk areas.
- B. Do not excavate wet subsoil.
- C. When excavating through roots, perform work by hand and cut roots with root cutter.
- D. Remove excess subsoil from pavement and if applicable, sidewalk areas.

3.04 FILLING

- A. Install work in accordance with State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction (Latest Edition), Sections 205, 206, 207, 208, 209, 210 and 211.
- B. Fill areas to contours and elevations with acceptable materials.
- C. Place fill material on continuous layers and compact in accordance with the schedule at end of this section.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.
- E. Make grade changes gradual. Blend slope into level areas.
- F. Remove surplus fill materials from immediate area.

3.05 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 0.1 feet from required elevation.

3.06 FIELD QUALITY CONTROL

- A. Testing: In accordance with ASTM D698.
- B. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- C. Frequency of Tests: 1 per 250 cubic yards.

3.07 SCHEDULES

- A. Fill:
 - 1. Maximum 8 inches compacted depth.
 - 2. Compact to minimum 95 percent of maximum density (Standard Proctor).
- B. Topsoil Fill:
 - 1. Maximum 3-4 inches compacted depth.
 - 2. Compact to minimum 80 percent of maximum density.

END OF SECTION

SECTION 31 22 16

FINE GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Provide all work, materials, labor, equipment, and supervision necessary to complete roadway and parking lot fine grading, as required in these specifications, on the drawings and as otherwise deemed necessary to complete the work

1.02 RELATED REQUIREMENTS

- A. Section 31 20 00 – Earth Moving
- B. Section 31 22 13 – Rough Grading
- C. Section 31 25 00 – Erosion and Sedimentation Controls

1.03 QUALITY ASSURANCE

- A. The Contractor shall complete quality assurance testing as outlined below:

Material	Test Required	Test / Sample Frequency
Fill	ASTM D422 - Standard Test for Particle-Size Analysis of Soils.	1 test / 500 cy placed
	ASTM D422 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.	

1.04 PERMITS/FEES

- A. Contractor shall pay all fees associated with obtaining permits. These include, but are not limited to permits for work within public right-of-way, land disturbance permits and building permits.

1.05 SURVEY AND STAKING

- A. Contractor shall be responsible for staking as necessary to complete their work.

PART 2 PRODUCTS

2.01 AGGREGATE MATERIALS

- A. Aggregate materials shall conform to Section 31 05 16 – Aggregates for Earthwork.
- B. Alternate crushed aggregate material blends that are locally available will be considered on a project by project basis for crushed aggregate base courses, and will be subject to Engineer approval. The Construction Representative may require the contractor to furnish a gradation report on the materials.

PART 3 EXECUTION

3.01 PREPARATION

- A. Review plans and prepare work plan and schedule. Coordinate any necessary interruptions in site access with Construction Representative, in accordance with other specification sections.
- B. Contact Diggers Hotline. Locate and protect utilities, structures, pavement, trees, landscaping, benchmarks and other features in the work area.
- C. Layout work. Establish and transfer line and grade as necessary to complete the work.
- D. Remove topsoil from work area. Sawcut and remove pavement from work area.
- E. Grade roadways and parking areas to drain water away.

3.02 EXCAVATION

- A. Excavate to elevations and dimensions as shown on the drawings and as necessary to complete construction. Excavations shall be sufficiently deep to provide for all proposed basecourse, and pavement.

- B. Notify the Construction Representative if a correction of unauthorized excavation or over-excavation is necessary. Said excavations will be corrected based on recommendations of the Construction Representative. The Contractor will be responsible for all costs associated with correcting these excavations, including fees charged by the geotechnical consultant.
- C. Segregate the various materials excavated. Reserve material meeting the requirements of backfill for the location. Excavated material that does not meet the requirements of backfill, and excess excavated material, shall be removed from the site and disposed by the contractor, unless directed otherwise by other specification sections.
- D. Locate spoil piles in accordance with OSHA requirements, and so that it does not interfere with public travel, adjacent landowners or other construction activities.

3.03 FILL AND COMPACTION

- A. Excavation shall be reasonably free of water prior to beginning filling. Do not place material on frozen surfaces or use frozen material.
- B. Fill areas using the material specified in Table below or as shown on the drawings.
- C. Place and compact material to minimize settlement and avoid damage to structures, pipes, utility lines and other features. Hand-place and compact material as necessary.
- D. Place backfill simultaneously on both sides of structures.
- E. Moisture condition backfill material as necessary to achieve density required for given use.
- F. Compact fill material as required below for the given use.
- G. It is the responsibility of the Contractor to provide all necessary compaction equipment and other grading equipment that may be required to obtain the specified density. Vibratory plate or tamping type walk behind compactors will be required whenever backfill is placed adjacent to structures, pipes, utility lines and other features.
 - 1. Minimum relative density as determined by ASTM D4253 for coarse-grained soils with less than 15% by mass passing the No. 200 sieve. Applicable only when minimum proctor compaction cannot be achieved.

	<u>MATERIAL</u>	<u>COMPACTED LIFT THICKNESS</u>	<u>PROCTOR COMPACTION</u>	<u>RELATIVE DENSITY</u>
Areas Beneath Footings, Floor Slabs, or Structures	Structural Fill	8"	95% Modified	70%
Footing, Foundation and Structure Backfill	Structural Fill	8"	95% Modified	70%
Areas within 10' of Existing or Proposed Building or Structure Footing or Slab	Granular Fill	12"	90% Modified	60%
Areas Beneath Existing or Proposed Pavement	Granular Fill	12"	90% Modified	60%
Turf Areas	Earth Fill	12"	85% Modified	50%

- H. Where additional filling or excavation is necessary, or placement of basecourse will be delayed, roll surface of proposed roadway or parking lot with a smooth drum roller to provide a relatively impervious surface and promote drainage.

3.04 SUBGRADE APPROVAL/PROOF-ROLLING

- A. Prior to undercutting or excavating below subgrade (EBS) or placing any basecourse, contact the Construction Representative to schedule inspection of subgrade and proof rolling. Provide a

minimum of 24 hrs confirmed notice. All proof rolling shall be completed in the presence of the Construction Representative.

- B. To complete proof rolling, the entire roadway subgrade shall be provided with a relatively smooth surface, suitable for observing soil reaction during proof rolling.
- C. Contractor shall schedule and provide a fully loaded tri-axle dump truck for proof – rolling. Loaded truck shall have a minimum gross operating weight of 30 tons. Test shall be conducted with “tag” or “pusher” axles retracted from the ground.
- D. Test rolling shall be accomplished in a series of traverses parallel to the centerline of the street or parking area. The truck shall traverse the length of the street or parking area once for each 12’ of width. Additional passes along the traverse shall be completed as directed by the Construction Representative, to further define unsatisfactory subgrade.
- E. Soft areas, yielding areas, cracked areas or areas where rolling or wave action is observed shall be considered indicative of an unsatisfactory subgrade. Such areas shall be undercut as outlined in subsequent subsections of this specification.
- F. Once the subgrade has been proof-rolled and approved, protect the soils from becoming saturated, frozen, or adversely altered.

3.05 EXCAVATION BELOW SUBGRADE (EBS)

- A. EBS shall be completed only when directed by the Engineer. The Contractor shall not be compensated for any unauthorized EBS. Measure and document EBS areas and depths in consultation with the Engineer. EBS shall conform to Section 205 of the State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest edition.
- B. Approved EBS areas shall be to the depth specified using equipment with a smooth cutting edge. Excavated EBS material that does not meet the specifications for fill needed elsewhere on site shall be removed from the site and legally disposed.
- C. EBS areas shall be backfilled with Breaker Run or other Engineer approved materials in maximum of 6” thick lifts (compacted). Material shall be compacted to 90% Modified Proctor dry density. Breaker Run shall conform with Section 31 05 16 – Aggregates for Earthwork.

3.06 RESTORATION

- A. Roll all pavement subgrade surfaces using a smooth drum roller to promote an impervious surface and minimize percolation of water into the subgrade.

END OF SECTION

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**SECTION 31 23 16
EXCAVATION**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavating for subgrade.
- B. Excavating for structures including roadway and if applicable, curb and gutter, sidewalk and drive approaches.

1.02 RELATED REQUIREMENTS

- A. Section 31 22 13 – Rough Grading
- B. Section 31 23 23– Fill

1.03 FIELD MEASUREMENTS

- A. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

2.01 ROADWAY AND DRAINAGE EXCAVATION

- A. Section includes Common Excavation, Rock Excavation, Stone Piles & Stone Fences, Marsh Excavation and Excavation Below Subgrade.
- B. Excavation Below Subgrade (EBS) only when approved by the Engineer/Architect.
- C. Materials shall meet the requirements of Section 205 of the Standard Specifications for Highway Construction, latest edition.

2.02 EXCAVATION FOR STRUCTURES

- A. When the contract specifics, material shall meet the requirements of Section 206 of the Standard Specifications for Highway Construction, latest edition.

2.03 EMBANKMENT

- A. When the contract specifics, material shall meet the requirements of Section 207 of the Standard Specifications for Highway Construction, latest edition.

PART 3 EXECUTION

3.01 GENERAL

- A. Verify site conditions. Construction shall meet the requirements of the applicable Section 205, 206, 207, 208, 209 and/or 210 of the Standard Specifications for Highway Construction, latest edition.
- B. Identify required lines, levels, contours, and datum locations.

3.02 EXCAVATING

- A. Excavate subsoil to accommodate placement of free draining material, if applicable, base course, sidewalk, and drive approaches including sideslopes.
- B. Slope banks with machine to angle of repose or less until shored.
- C. Remove unsuitable materials within the pavement and if applicable the curb and gutter, and sidewalk areas to a depth of three feet.
- D. Hand trim excavation. Remove loose matter.
- E. Remove lumped subsoil, boulders, and rock above one inch diameter.
- F. Notify Owner of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- G. Correct areas over excavated to within 0.5 feet of proposed grade.
- H. Dispose of unsuitable, excavated material.

- I. If shown on the plans excavate subgrade beneath sidewalk for placement of base course.

3.03 QUALITY CONTROL

- A. Section 01 40 00 – Quality Requirements.
- B. Provide for visual inspection of all surfaces.

3.04 PROTECTION

- A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath roadway and if applicable sidewalks from freezing.

END OF SECTION

SECTION 31 23 23

FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Backfilling to subgrade elevation.
- B. Fill for over-excavation.
- C. Consolidation and compaction as scheduled.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 – Cast-in-Place Concrete
- B. Section 31 05 13 – Soils for Earthwork
- C. Section 31 05 16 – Aggregates for Earthwork
- D. Section 31 23 16 – Excavation

1.03 REFERENCE STANDARDS

- A. ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- B. ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12-inch Drop, Standard Proctor.
- C. ASTM D1557 - Test Methods for Moisture-Density Relations of Soils Using 10 lb Rammer and 18-inch Drop, Modified Proctor.
- D. ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- E. ASTM D6938 Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- F. Wisconsin Department of Transportation, Standard Specifications for Highway and Structure Construction, latest edition.

PART 2 PRODUCTS

2.01 FILL SOIL MATERIALS

- A. Fill: As specified in Sections 31 05 13 – Soils for Earthwork.
- B. Aggregate: As specified in Section 31 05 16 – Aggregate for Earthwork.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify structural ability of subgrade soils to support imposed loads by the fill.

3.02 PREPARATION

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with granular fill and compact to density equal to or greater than requirements for subsequent fill material.
- C. Proof roll subgrade surface to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

3.03 TOLERANCES

- A. Top Surface of Backfilling Under Concrete Areas: Plus or minus 0.05 feet from required elevations.
- B. Top Surface of General Backfilling: Plus or minus 0.05 feet from required elevations.

3.04 FIELD QUALITY CONTROL

- A. Compaction testing will be performed in accordance with ASTM D698. If tests indicate Work does not meet specified requirements, remove Work, replace and or re-compact and retest.

- B. Frequency of Tests: Compaction shall be performed in each lift at a frequency of 1 per 250 cubic yards placed.

3.05 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic.

3.06 SCHEDULE

- A. Fill Under Grass Areas:
 - 1. Fill to 3 inches below finish grade, compacted to 80 percent of Standard Proctor.
 - 2. Fill For Berming:
 - a. Fill to 12 inches below finish grade, compacted to 80 percent of Standard Proctor.
 - 3. Fill under drive approaches, roadway, concrete sidewalk, and miscellaneous structures.
 - a. Compact subsoil to 95 percent of its maximum dry density (Standard Proctor).
 - b. Fill to 6 inches below finish paving elevation, compacted to 95 percent (Standard Proctor).
 - 4. Fill to Correct Over-excavation:
 - a. Fill Granular material flush to required elevation, compacted to 95 percent (Standard Proctor).

END OF SECTION

SECTION 31 25 00
EROSION AND SEDIMENTATION CONTROLS

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Contractor shall prepare an Erosion Control Implementation Plan (ECIP) that is coordinated with Contractor’s proposed schedule and submit it to the Owner prior to commencement of work.
- B. Furnish, install and maintain erosion control mats, silt fences, turbidity barrier, screen blankets, ditch bale checks, and other erosion control devices.
 - 1. Provide erosion control devices to prevent pollutants and other materials from exiting the work site and to prevent siltation to lands and waterways adjoining the construction area.
 - 2. Use best management practices that achieve to the maximum extent practicable, a reduction of 80% of the sediment load carried in the runoff, on an average annual basis, as compared with no sediment or erosion controls, until the construction site has undergone final stabilization.
 - 3. Provide as a minimum, erosion control devices installed at the locations designated on the Plans.
 - 4. Provide additional number, type and location of erosion control devices as needed to control erosion.
- C. Install erosion control devices before construction begins.
 - 1. Perform inspection, maintenance and reporting per the requirements of Wisconsin Administrative Code Chapter NR 216.

1.02 EROSION CONTROL REFERENCE

- A. Provide erosion control in accordance with:
 - 1. Section 628 of the Wisconsin Department of Transportation (WisDOT) Standard Specifications for Highway and Structure Construction, latest edition.
 - 2. Section 645 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.
 - 3. WisDOT’s Erosion Control Product Acceptability List for Multi – Modal Applications, latest edition (WisDOT PAL).
 - 4. Provide erosion control in accordance with Wisconsin Administrative Code Chapter NR 216 and the Wisconsin Department of Natural Resources (WisDNR) Storm Water Construction Technical Standards as follows (The WisDNR Technical Standards are available from: www.dnr.wi.gov):

<u>Erosion and Stabilizations Practices</u>	<u>Number</u>
1. Channel Erosion Mat	1053
2. Construction Site Diversion	1066
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PART 2 PRODUCTS

2.01 FILL EROSION BALES

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.01 FILL EROSION BALES

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.02 SILT FENCE AND SILT FENCE MAINTENANCE

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.03 SILT SCREEN

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.04 MOBILIZATIONS & MOBILIZATIONS EMERGENCY EROSION CONTROL

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.05 CLEANING SEDIMENT BASINS

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.06 CLEANING SEDIMENT BASINS

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.
- B. Only WisDOT PAL approved mats will be accepted for use in this standard.
- C. Slope and slope length shall be taken into consideration. This information can be found in the
- D. Slope Erosion Control Matrix located in the PAL.
- E. For mats that use netting, the netting shall be bonded to the parent material to prevent separation of the net for the life of the product.

2.07 POLYETHYLENE SHEETING

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.08 TURBIDITY BARRIERS

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.09 SOIL STABILIZATION

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.10 INLET PROTECTION

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.11 TEMPORARY DITCH CHECKS

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.12 PIPE CHECKS

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.13 TRACKING PADS

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.14 ROCK BAGS

- A. Shall conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

PART 3 EXECUTION

3.01 GENERAL

- A. Conform to Section 628 of the WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

END OF SECTION

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**SECTION 32 92 00
TURF AND GRASSES**

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Preparation of topsoil.
- B. Mulching, fertilizer, agricultural limestone, seeding, and sodding.
- C. Restoration work to provide the quality of landscape equal to or better than that which existed before initiation of the Project.
- D. Maintenance.

1.2 RELATED SECTIONS

- A. Section 31 05 13 - Soils for Earthwork

1.3 SUBMITTALS

- A. Submit seed vendors statement for each seed mixture required, stating botanical and common name, percentage by weight, percentage of quality, germination and weed seed for each species complying with tolerances established by Official Seed Analysts of North America.
- B. Submit a planting schedule indicating anticipated planting dates.

1.2 ANALYSIS AND STANDARDS

- A. Analysis by recognized laboratory in accordance with methods established by the Association of Agricultural Chemists.

1.3 INSTALLER'S FIELD SUPERVISION

- A. Maintain an experienced full-time supervisor on Project site when planting is in progress.

1.4 TOPSOIL ANALYSIS

- A. Furnish soil analysis by a qualified soil-testing laboratory.

1.5 CODES AND STANDARDS

- A. Comply with Sections 625, 627, 629, 630 and 631 Wisconsin Department of Transportation, Standard Specifications for Highway and Structure Construction, as amended here-in.

1.6 FINAL ACCEPTANCE

- A. Final inspection and acceptance will be at the end of the turf establishment period. Acceptance shall be based upon a satisfactory stand of turf defined as 95 percent ground cover of species established.
- B. Reestablish turf in areas that do not have 95 percent ground cover of the established species. Repair rejected areas of turf within acceptable planting dates as directed by Owner's Representative.

PART 2 - PRODUCTS

2.1 TOPSOIL

- A. As specified in Section 31 05 13 – Soils for Earthwork.

2.2 MULCH

- A. Mulches shall follow Section 627, WisDOT Standard Specifications for Highway and Structure Construction, latest edition.

2.3 FERTILIZER AND AGRICULTURAL LIMESTONE

- A. Fertilizer and Agricultural Limestone Treatment shall follow results of soil test recommendations and Section 629, WisDOT Standard Specifications for Highway and Structure Construction, latest edition.
 - 1. Use Fertilizer Type A or as directed by the Engineer.
 - 2. Agricultural Limestone Treatment:
 - a) Conform to Wisconsin Administrative Code Chapter ATCP 41.
 - b) Provide a statement indicating the index zone or grade prior to use.
 - c) Plan Quantity is based upon an index zone of 60-69 (100 pounds per 1,000 square feet).

2.4 SEEDING

- A. Seeding shall follow:
 - 1. Section 630, WisDOT Standard Specifications for Highway and Structure Construction, latest edition.
- B. Nurse crop seeding shall follow Section 630, WisDOT Standard Specifications for Highway and Structure Construction, latest edition.
- C. Lawn Areas shall be Seeding Mixture No. 40 and Non-Lawn Areas shall be Seeding Mixture No. 10 or as designated by the Engineer.

PART 3 - EXECUTION**3.1 GENERAL**

- A. Examine areas to receive lawns and grass for compliance with requirements and for conditions affecting performance of the Work. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Construction activities shall comply with Sections 624, 625, 627, 629, 630 and 631 of the Wisconsin Department of Transportation, Standard Specifications for Highway and Structure Construction, as amended here-in.
- C. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 6 inches (150 mm). Remove stones larger than 1 inch (25 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- D. Unchanged Subgrades: If lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare surface soil as follows:
 - 1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
 - 2. Apply fertilizers or agricultural lime treatment according to planting soil mix proportions and mix thoroughly into the top 6 inches (150 mm) of soil. Till soil to a homogeneous mixture of fine texture.
 - 3. Remove stones larger than 1 inch (25 mm) in any dimension and sticks, roots, trash, and other extraneous matter.

4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.

3.2 FINISH GRADING

- A. Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch (13 mm) of finish elevation.
 1. Eliminate uneven areas and low spots.
 2. Remove debris, roots, branches, stones, in excess of 1/2 inches.
 3. Scarify surface to depth of 3 inches where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading of fill has compacted subsoil.
 4. Grade fill to depth as shown on detail.
 5. Fine grade fill to eliminate rough or low areas. Maintain profiles and contour of subgrade.
 6. Manually spread fill close to trees, sidewalks and fences to prevent damage.
 7. Lightly compact fill.
 8. Remove surplus subsoil.
- B. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- C. Restore areas if eroded or otherwise disturbed after finish grading and before planting.

3.3 SEEDING

- A. Rake the seed lightly into the top 1/8 inch (3 mm) of topsoil, roll lightly, and water with fine spray.
- B. Protect seeded areas with slopes not exceeding 1:6 by spreading mulching. Spread uniformly at a minimum rate as specified to form a continuous blanket 1-1/2 inches (38 mm) in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
- C. Protect seeded areas by applying mulching within 24 hours after completing seeding operations. Soak and scatter uniformly to a depth of 3/16 inch (4.8 mm) and roll to a smooth surface.

3.2 LAWN MAINTENANCE

- A. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:
- B. Seeded Lawns: 60 days from date of Substantial Completion.
- C. Sodded Lawns: 30 days from date of Substantial Completion.
- D. Mow lawn as soon as top growth is tall enough to cut. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings.

3.3 SATISFACTORY SEEDED LAWN

- A. A healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 5 by 5 inches (125 by 125 mm).
- B. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

3.4 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by lawn work from sidewalks and paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto surface of roads, walks, or other paved areas.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period until lawn is established.

END OF SECTION