

**Specifications for the
Pellston Public Schools Athletic Complex
For
Pellston Public Schools
Pellston, Michigan 49769**

February 15, 2021

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PELLSTON PUBLIC SCHOOLS - PELLSTON, MI

INVITATION TO BID

SECTION 00100

Pellston Public Schools requests bids for the remodel of their Athletic Complex. The date of **Substantial Completion** is August 8,2021. Please email Bid proposals to the attention of Pellston Public Schools Superintendent Stephen Seelye at sseelye@pellstonschools.org

1. Bids are due on March 8, 2021 at 3:00pm.

Pellston Public Schools
Contractor Name, Address, Phone Number

Proposals shall be prepared in accordance with the project manual, contract and construction documents prepared by the Architect, FAH Architecture, PLLC.

2. The successful Bidder will organize and direct the complete construction of the project, and, as such, will act as a representative of the Owner in those matters so designated.
3. Bid proposals will be opened by Architect/Owner, who will recommend awards subsequently made by Pellston Public Schools.
4. Bid documents will be available for distribution on or after February 15, 2021. Examination may be made at the FAH Architecture, PLLC, 891 West Conway Road, Unit 16, Harbor Springs, MI 49740, (231) 348-8624.
5. Bid proposals shall be on forms furnished in Section 00400 of this specification manual. Bidders shall agree not to withdraw bid proposals for a period of sixty (60) calendar days after date for receipt of bids.
6. The successful Bidder will be required to enter into a contract with Pellston Public Schools on the Agreement Form identified in the Project Manual.
7. The right to reject any or all bid proposals, either in whole or in part, or to waive any informalities or irregularities therein is reserved by the Owner.

END OF SECTION

PELLSTON PUBLIC SCHOOLS - PELLSTON, MI

INSTRUCTIONS TO BIDDERS

SECTION 00200

PART 1 – DEFINITIONS

- 1.01 Bidding Requirements include the Invitation of Bid, Instructions to Bidders, Description of the Work/Special Provisions, Work Scopes & CPM Schedule including all Addenda relating to the bidding requirements.
- 1.02 The Contract Documents consist of the Agreement, the Conditions of the Contract (General Supplementary Conditions), all Contracting Requirements, Division I – General Requirements, Drawings, Specifications, other documents listed in the Agreement, all Addenda issued prior to and all modifications issued after execution of the agreement.
- 1.03 All definitions not defined in Part 1 of this section and set forth in the General Conditions of the Contract for Construction, AIA Document A201 or in other Contract Documents, are applicable to the Bidding Documents.
- 1.04 A Bidder is a person or legal entity who submits a Bid Proposal. After award of a contract, The Bidder will be known as Contractor. All Contractors on this project are considered prime Contractors.
- 1.05 Bid Packages are units of work performed by a Contractor and his subcontractors, which form part of the total project. The term Bid Package should not be confused with the term Technical Section. Technical Sections of the Specification establish quality and performance criteria, and the Bid Packages designate work scope and assignment.
- 1.06 A Bid Package Description is a written description of the scope of work to be performed by a Bidder for a Bid Package. A description of the work is provided in the Scope of Work for each Bid Package.
- 1.07 Project Safety Program. Each trade Contractor and Subcontractor is responsible for the safety and security of employees and work areas under their control and will therefore provide a written project safety program to Pellston Public Schools.

PART 2 – BIDDERS REPRESENTATIONS

2.01 THE BIDDER BY MAKING HIS BID REPRESENTS THAT:

- A. The bidder has read and understands the Bidding Documents and their Bid is made in accordance therewith.
- B. The bidder's bid is based upon the materials, systems and equipment required by the Bidding Documents without exception.
- C. The bidder shall be held to have examined the premises and site as to compare them with the Contract Drawings and Specifications and to have satisfied themselves as to the condition of the premises, and obstruction, the actual levels, and all excavating, filling in, removal and demolition, measurements and quantities involved in the bid package, and be familiar with weather conditions of the project area, etc., necessary for carrying out the work before the delivery of their proposal. The bidder shall also acquaint themselves with the character and extent of the Owner's and other Contractor's operations in the area of the work, so that they may make their construction plans accordingly. No allowances or extra payment will be made to the contractor for or on account of costs or expenses occasioned by the failure to comply with the provision of the paragraph, or by reason of error or oversight on the part of the contractor, or on account of interferences by the Owner's or other contractor's activities.

PART 3 – BIDDING DOCUMENTS

3.01 COPIES

- A. Bidders can obtain bidding documents per the requirements in the Advertisement to Bid.
- B. Bidders shall use complete sets of Bidding Documents in preparing Bids. Neither the Owner, nor the Architect assume any responsibility for errors, omissions or misinterpretations resulting from the use of partial sets of Bidding Documents.
- C. The Owner or Architect, in making copies of the Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on construction of the Work, and does not confer a license or grant for any other use not warrant their completeness and adequacy.

3.02 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

- A. Bidder shall promptly notify the Architect of all ambiguities, inconsistencies, or errors, which they may discover upon examination of the Bidding Documents or of the site and local conditions. Bidders requesting clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least three (3) days prior to the date for receipt of bids. Direct all questions: Frederick A. Hackl, AIA, 891 West Conway Road, Unit 16, Harbor Springs, MI 49740, (231) 881-8624.
- B. Any interpretation, correction or change of the Bidding Documents will be made by Addendum. Interpretations, corrections, or changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections or changes. Addenda will be emailed, faxed or delivered to all who are known to have received bidding documents.

3.03 SUBSTITUTIONS

- A. Submit all substitution request forms to the Architect.

3.04 ADDENDA

- A. Addenda will be emailed, faxed or delivered to all who are known by Pellston Public Schools to have a complete set of Bidding Documents. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.
- B. No Addenda will be issued later than two (2) days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one, which includes postponement of the date for receipt of Bids.
- C. Each Bidder shall ascertain prior to submitting his bid that he has received all Addenda issued, and he shall acknowledge their receipt in the proper location on the Bid Proposal.

3.05 UNIT PRICES

- A. Each bidder must bid on all unit prices listed in the bid proposal that are applicable to their bid category. They will be fully considered in awarding the contract.
- B. Successful bidders shall perform all work required for complete executive of accepted unit prices, including all overhead and profit for the work required.
- C. The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

3.06 AFFIRMATIVE ACTION

- A. All bidders shall ensure that employees and applicants for employment are not discriminated against because of their race, color, religion, sex, origin, age, marital status, sexual orientation, or disability and in conformance with local, state and federal regulation.
- B. Pellston Public Schools will ensure that, in regard to any contract entered into pursuant to this bid package, minority and women owned business enterprises will be afforded full opportunity to submit bids in response to the Advertisement to Bid and will not be discriminated against on the grounds of race, creed, color, sex, age, non-disqualifying handicap, religion, ancestry, marital status, national origin, place of birth or sexual preference.

3.07 OTHER BID CONSIDERATIONS

- A. PERMITS – Bidders are to include in their bid the permit requirements.

PART 4 – BIDDING PROCEDURE

4.01 FORM AND STYLE OF BIDS

- A. Bids shall be submitted in triplicate on the Bid Proposal Form included in Section 00400 with the Bidding Documents.
- B. All blanks on the bid form shall be filled in by typewriter or manually in ink.
- C. Where so indicated by the makeup of the bid for, sums shall be expressed in both words and figures, and in case of discrepancy between the two, the amount written in words shall govern.
- D. Each copy of the Bid shall include the legal name of the Bidder and a statement that the Bidder is a sole proprietor, a partnership, a corporation, or some other legal entity. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.
- E. The work of an individual bid package described in these documents is the sole responsibility of the trade contractor known herein as "Contractor". Bids will only be accepted on the full scope of work outlined by the bid package.
- F. Each bid received shall abide by all documents that have been prepared for the purpose of bidding, including the Description of the Work/Special Provisions, Work Scopes and Scheduling information.

4.02 SUBMISSION OF BIDS

- A. All copies of the Bid, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notations "SEALED BID ENCLOSED" on the face of the envelope. Emailed Bids are acceptable. Please email to the Architect's office in Harbor Springs at f_hackl@yahoo.com.
- B. Bids shall be deposited at the designated location prior to the time and date for receipt of Bids indicated in the Advertisement to Bid, or any extension thereof made of Addendum. Bids received after the date and time for receipt of bids will be returned unopened.

4.03 MODIFICATION OR WITHDRAWL OF BID

- A. A Bid may not be modified, withdrawn or canceled by the Bidder after the stipulated time period or date designated for the receipt of Bids, and each Bidder so agrees in submitting their Bid.
- B. Prior to the time and date designated for receipt of Bids, any Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder. If by telegram, written confirmation over the signature of Bidder shall be mailed and postmarked on or before the date and time set for receipt of Bids, such written notice shall be so worded as not to reveal the amount of the original Bid.
- C. Withdrawn Bids may be resubmitted up to the time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

PART 5 – CONSIDERATION OF BIDS

5.01 OPENING OF BIDS

- A. The properly identified Bids received on item will be opened privately.
- B. Bids shall be good for sixty (60) calendar days after the date of receipt of bids.

5.02 REJECTION OF BIDS

- A. The Owner will have the right to reject any or all Bids and to reject a Bid not accompanied by information required by the Bidding Documents, or to reject a Bid, which is in anyway incomplete or irregular.
- B. Bids are considered irregular and may be rejected for any of the following reasons unless otherwise provided by law:
 - 1. If Bid Proposal Form furnished is not used or is altered.
 - 2. If there are unauthorized additions, qualified or conditional Bids, or irregularities, of any kind which may make the Bid incomplete, indefinite, or ambiguous as to its meaning.
 - 3. If Bidder adds any provisions reserving right to accept or reject any award, or enter into Contract pursuant to an award.
 - 4. If Unit or Lump Sum prices or Alternates contained in the Bid Proposal are obviously unbalanced either in excess of, or below, reasonable cost analysis values.
 - 5. If Bidder fails to complete Bid form in any other particulars where information is requested so Bid form may be properly evaluated.
 - 6. Bidder is deemed to not be the lowest Responsive, Responsible Bidder by definitions and prevailing statutes.
 - 7. If Bidder is unable to meet Pellston Public Schools Schedule.

5.03 ACCEPTANCE OF BID (AWARD)

- A. It is the intent of the Owner to award a Contract to the lowest most responsive Bidder provided the Bid has been submitted in accordance with the requirement of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive any informality or irregularity in any Bid or Bids.

- B. The Bid Category/Work Scopes should in no way be construed as all-inclusive. It is issued as a guide to aid in the assignment of work. If conflict regarding assignment exists between the drawing notes and these descriptions, the Description of Work and Bid Package/Work Scopes will take precedence. The bid category numbers and the specification section numbers are not, in all cases, identical.
- C. Each bidder is to carefully examine the schedule enclosed in the Bidding Documents. Each bidder shall be prepared to review at the post-bid meetings a schedule for the engineering, fabrication, delivery and installation of their work. This schedule will commence from when an award of Contract is made. This information will be considered in the award recommendation.
- D. All contractors are to coordinate all work with the work of other trades through Pellston Public Schools for proper function and sequence. Furnish approved copies of shop drawings, mock-ups, and technical data to other contractors designated by Pellston Public Schools (diagrams, templates, embedments) in other related work necessary for the coordination of the work. Each phase of the work shall be coordinated with Pellston Public Schools prior to execute work in such manner as not to delay or interfere with the progress of other trades involved. Schedule work so that no other party is delayed in execution of the work. Employ competent supervision on the job throughout the entire period of construction to ensure coordination.
- E. The Contractor shall be alert to any indication or evidence of existing site conditions not indicated on the Drawings. All measurements must be verified from actual observation at the site. The contractor is responsible for all work fitting in place in approved, satisfactory and workmanlike manner in every particular. If the Contractor encounters unexpected existing building conditions, he shall cease operations immediately to minimize damage and notify Pellston Public Schools.
 - 1. The Contractor shall bear the cost of damage resulting from his failure to exercise reasonable care in his work or from continuing operations without notifying Pellston Public Schools.
- F. Additional work required to meet established Contract time limits shall be performed after consultation with Pellston Public Schools.
- G. It is to be noted that, in a number of instances throughout the Project, space for electrical and mechanical lines is limited. Therefore, it is imperative that all trades coordinate work to ensure concealment in space provided. Pellston Public Schools will decide priority of space where conflict exists. If work is not properly coordinated, the Contractor shall remove and relocate work without additional compensation.

PART 6 – POST BID INFORMATION

6.01 POST BID INFORMATION

- A. After the Bids are received, tabulated, and evaluated by the project Team, the apparent low bidders shall meet Pellston Public Schools and other members of the project Team at a post-bid meeting for the purpose of determining completeness of scope and any contract overlaps or omissions. If requested, the Bidder shall submit additional qualification forms or other information as required in the Instructions to Bidders. The bidder will provide the following information at the post-bid meeting:
 - 1. Designation of the work to be performed by the Bidder with his own forces including manpower for the contractor and that of their subcontractors.
 - 2. Detailed cost breakdown of the contractor's bid including labor, equipment and material unit prices.
 - 3. A list of names of the subcontractors or other entitles (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the work.

4. The proprietary names and suppliers or principal items or systems of materials and equipment proposed for the work.
 5. The names and backgrounds of the Contractor's key staff members including superintendent and assistances and establish the reliability and responsibility of the persons or entities proposed to furnish and perform the work described in the Bidding Documents.
 6. Commitment to construction schedules, identification of items requiring long lead deliveries and manpower information.
- B. Prior to award of a contract, Pellston Public Schools will notify the Bidder if either the Architect, or Pellston Public Schools, after due investigation, has reasonable objection to any such proposed person or entity. If the Architect or Pellston Public Schools has reasonable objection to any such proposed person or entity. The Owner may, at their discretion, accept the adjusted bid price or he may disqualify the Bidder.
- C. Upon the Award of Contract, the contractor shall submit to Pellston Public Schools a complete list of all items, products, and layouts for which shop drawings, brochures, or samples are required; name of each subcontractor or supplier; and date of planned submission. Refer to Supplementary General Conditions 1.3 Article No. 3 – Submittal Procedures of the Specification Manual for additional information.
- D. The Bidder will be required to establish to the satisfaction of the Pellston Public Schools and Architect, the reliability and responsibility of the person or entities proposed to furnish and perform the work described in the Bidding Documents.
- E. Before commencement of any work, a Certificate of Insurance executed by bidder's insurance agent or carrier showing evidence of required insurance coverages shall be submitted in accordance with the Project Manual.
- F. The Agreement Form to be used for this project is described in Section 00500 of the Project Manual.
- G. The Owner reserves the right to reject any bid in their sole discretion.
- A. The Owner shall have the right to accept Alternates in any order or combination and to determine the low Bidder on the basis of the sum of the Base Bid, Alternates and Voluntary Alternates accepted.
- B. The Owner shall have the right to accept combination bids from a bidder for more than one bid category.

END OF SECTION

PELLSTON PUBLIC SCHOOLS - PELLSTON, MI

FORM OF PROPOSAL

SECTION 00400

Bid to: Pellston Public Schools
891 West Conway Road, Unit 16
Harbor Springs, MI 49740

BID PACKAGE NO. _____

PACKAGE NAME: _____

Bid from: _____

(Bidders name)

(Bidder's address)

(Telephone Number)

The undersigned:

1. Acknowledges receipt of:

A. Project Specification Manual and Drawings for Pellston Public Schools, dated: February 15, 2021.

B. Has received, read, understands, and accepts the terms and conditions outlined in construction documents, and in compliance with the advertisement to Bid for construction contemplated for bid packages having examined the Contract Documents and the Project Manual and Bidding Documents and all other related documents and being familiar with the site of the proposed project including availability of materials and labor and weather conditions.

C. By acknowledging receipt and review of addenda, bidder hereby agrees to accept these terms and conditions as part of their bid:

Bid Addenda No. _____ Dated: _____, 2021

Bid Addenda No. _____ Dated: _____, 2021

Bid Addenda No. _____ Dated: _____, 2021

Bid Addenda No. _____ Dated: _____, 2021

2. Has examined the site where the Work is to be executed and has become familiar with local conditions as they might in any way affect the cost and/or execution of the Work.

3. Has carefully examined and understands the Contract and Bidding Documents and acknowledges that the bid is in accordance with these documents.

4. Has based the Bid upon the materials, equipment and systems required by the Bidding Documentation without exception.

5. In making this Bid the Bidder represents that:
- A. That this Bid may not be modified, withdrawn or canceled until sixty (60 calendar days after Bid opening date, without consent of the Owner.
 - B. The right is reserved by the Owner to reject any or all Bids to waive any or all informalities in connection therewith.
 - C. The Bidder will enter into and execute a Contract with Pellston Public Schools if awarded on the basis of this bid, and in connection therewith to:
 - 1.) Furnish all insurance required by the Bidding Documents.
 - 2.) Commence with the Work immediately upon issuance of a Notice to Proceed prosecute the Work regularly and diligently and complete the Work within the time specified in the Completion Dates.
 - 3.) Accomplish the Work in accordance with the Contract and agrees to provide all labor, materials, equipment, transportation and other facilities as necessary and/or required for the complete and satisfactory execution of the Work.
6. Has checked all the figures contained in the Bid and further understands that the Owner will not be responsible for any errors or omissions made therein by the undersigned.
7. Has compiled and/or will comply with all requirements concerning licensing and with all other local, state, and national laws, and that no legal requirement has been or will be violated in making or accepting this Bid, in awarding the Contract to him, and/or in the prosecution of the Work required there under.
8. Declares that the person(s) signing this Bid is/are fully authorized to sign on behalf of the named firm and to fully bind the named firm to all the conditions and provisions there.
9. Declares that no person(s) or company other than the firm listed below or as otherwise indicated there matter has any interest whatsoever in this Bid or the Contract that may be entered into as a result thereof, and that in all respects the Bid is legal and fair, submitted in good faith, without collusion or fraud.
10. Will execute said Contract as soon as practical after the date of Notice of Award: or in any event, not later than five (5) days from the date of such notification.
11. Provides the following applicable Base Bids and Alternate Bids (if bidding more than one BID PACKAGE, submit a separate, complete bid for each package):
- | | | |
|------------------------|----|--|
| BASE BID | \$ | |
| BID PACKAGE NO. | | - (insert package number) |

12. All Subcontracts: Overhead & Profit (Maximum Allowable for Work performed by Subcontractors and Sub-subcontractors.
- 1. Change Orders to \$1,000.00 10% total

2. Change Orders over \$1,000.00 10% total

All applicable taxes are included in the above base bid and accompany this proposal in the amount of five (5) percent of bid amount. Bidder agrees that this bid shall be good and may not be withdrawn for a period of sixty (60) calendar days.

13. **SUBSTITUTIONS**

A. Material or equipment substitution sheet: The following is a schedule of substitute materials Bidder proposes to furnish on this Project, with the difference in price being added to or deducted from the Base Bid. The Base and Alternate Bids are understood to include only those items which are definitely specified.

Manufacturer's Name and Product	Add	Deduct
_____	_____	_____
_____	_____	_____

B. Bidder understands that the selection of materials is optional with the Owner and approval or rejection of the substitutions will be indicated prior to execution of the Contract.

C. Consideration of Substitutions:

- 1). Bidder listed items will not be considered in determining the lowest responsible Bidder. Such determination will be made on the basis of the lowest Base and Bids submitted by responsible Bidders, as set forth in the Instructions to Bidders.
- 2). After the lowest responsible Bidder has been determined, only his material or equipment substitutions will be considered.

D. In proposing the material and equipment substitutions herein the Bidder represents that he or she:

- 1). Has personally investigated the proposed substitution and has determined that it is equal or superior in all respects to that specified.
- 2). Will provide the same guarantee for the substitution as for the item specified.
- 3). Will coordinate installation of an accepted substitution into the Work, making all such changes as may be required for the Work to be complete in all respects.
- 4). Waives all claims for additional costs related to the substitution.
- 5). Cost data is complete and includes all related costs under his/her Contract, and will pay all required Architectural/Engineer's re-design costs.

14. **REQUIRED BID SUBMITTALS** (one original and two copies of each)

If bidding more than one package, submit a separate, complete bid for each package.

- A. Bid Form – Pages
- B. Experience and Reference Information

BIDDERS CERTIFICATION

The undersigned hereby understands and agrees:

That the date of beginning and time of completion as specified in the Contract Documents for work to be done hereunder are essential conditions of this Contract.

That said work shall be prosecuted regularly, diligently, and at such rate of progress that will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of work described herein is a reasonable time of completion of the same.

That the Bidder has available the necessary personnel and equipment to complete the work within the specified date and further that the number and amount of other contracts which the bidder is or will become obligated to perform now and during the course of the work on this project will not interfere with or hinder the timely prosecution of the work.

That this Bid is based on providing all material, equipment and labor to complete the project within the specified Contract Time.

That the Bidder has available additional equipment and personnel and will provide same to complete the work in the schedule date. Specifically overtime and additional shifts beyond the schedule contract time if necessary to meet the schedule.

In addition, the Bidder declares that the number and amount of other contracts and awards pending with the Bidder will become obligated to perform now and during the course of the work on this project will not interfere with or hinder the time prosecution of the Work.

Respectfully submitted this _____ day of _____, 2021

(Name of firm)

(Signature)

(Printed Name)

(Title)

Subscribed and sworn before me this _____ day of _____, 2021

Notary Public:

(Commission Expiration Date)

Seal

If Bidder is a corporation, attach a sworn statement signed by an Executive Officer of the corporation, stating that the individual signing and executing this proposal is authorized to bind this corporation thereby and affix corporate seal.

END OF SECTION

DIVISION 1 – GENERAL
SECTION – GENERAL CONDITIONS

PART 1 GENERAL

SCOPE: These Specifications with the accompanying plans are intended to describe and illustrate all material, labor, and equipment for the complete construction of the project entitled "Pellston Public Schools"

END OF SECTION

DIVISION 1 – GENERAL
SECTION – SUPPLEMENTARY GENERAL CONDITIONS

PART 1 GENERAL

1.1 ARTICLE NO. 1 – CONTRACT DOCUMENTS

A. Execution, Correlation, Intent and Interpretations

1. The Intent of the Specifications is to outline or indicate work of both which cannot be readily shown on Drawings and to indicate types and qualities of materials. The only exclusions are those marked on materials. The only exclusions are those marked on drawings generally as “Not in Contract N.I.C.” or “By Others.”
2. Certain portions are written in condensed outline form. Omitted words are to be supplied by inference. Naming of an article or operation shall have the effect of stating, “Construction Manager shall furnish, install and complete said article or operation, “unless it is further qualified in the context in which it appears.”
3. Specifications by Reference: when reference is made to Specifications of Manufacturer, trade association or similar source, such is made a part of these Specifications, having the same force and effect as though reproduced herein, and on entering into a contract, each Construction Manager acknowledges his familiarity with those pertaining to his work.
4. Approved, equal, proper and words of similar meaning are understood to mean in the opinion of the Architect.
5. Where locations are listed in the Specifications, it is for convenience only. Construction Managers shall refer to drawings for the exact locations, sizes and quantities required.
6. Computed dimensions take precedence over scaled dimensions and large-scale details over smaller.
7. Should the Drawings disagree with themselves or with the Specifications, the better quantity or greater quantity of work or materials shall be estimated upon and provided unless directed otherwise by the Architect.

1.2 ARTICLE NO. 2 – ADMINISTRATION OF CONTRACT

- A. The Architect may appoint persons from his organization or others, to represent him in the performance of this obligation and in the exercise of his rights in connection with this Article. These persons will be designated in writing and will have the rights of the Architect with respect to the work.

1.3 ARTICLE NO. 3 – SUBMITTAL PROCEDURES

- A. Labor and Materials After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements of the Specification (Division 1).
- B. Taxes: The Michigan State Sales Tax is not applicable on materials installed in this project.
- C. Shop Drawings and Samples.
- D. Submission of shop drawings shall be to the Construction Manager and / or Engineers.
- E. Submission of shop drawings for distribution shall not be less than:

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1. Architect: One (1) print of drawings and three (3) copies of brochure and/or printed material.
2. Construction Manager: Two (2)
3. Color Selection: (2) Architect, (1) CM, as required for Construction Manager
- F. REVISED AND SEND RECORD COPY” Requiring that the Construction Manager be sent a copy of the revised Shop Drawing in accordance with the noted corrections, at the same time it is issued for work.
- G. The Architect’s approval shall not indicate approval of dimensions, quantities or fabrications processes unless specific notations are made by the Architect regarding same. The Architect will check one of the following notations on the Shop Drawings and Sample Review Stamp.
- H. “APPROVED WITH CORRECTIONS NOTED” Indicating final action by the Architect with the same conditions as “APPROVED.” Unless he takes exception to the corrections noted, the Construction Manager may begin that portion of the work for which the Shop Drawings was required.
- I. “NOT APPROVED – RESUBMIT” Indicating that the Construction Manager shall not begin that portion of the work until the reason indicated for disapproval has been corrected and the revised Shop Drawings submitted, reviewed and approved by the Architect.
- J. Where more than one action has been checked each shall apply to that portion of the Shop Drawings for which the action is indicated.
- K. Refer to Appendix A for summary list of required Shop Drawings and submittals. The Architect will review those submittals on the list and as required in the individual sections. Anything not specifically in the Specification is a substitution and must be called out as such when submitted for the Architect’s consideration.
- L. Cutting and Patching of Work:
 - a. Every Construction Manager shall be responsible for all cutting and patching necessary for completion of his work unless otherwise noted. All patching is to be done by the Construction Manager whose work is damaged and shall be reimbursed by the Construction Manager causing the damage.
 - b. Restrict the cutting of holes to ½” larger than the minimum required to allow the installation of new work. (i.e. one 3” diameter pipe shall have a 4” diameter hole maximum). Exercise care when cutting to minimize damage to existing work.
- M. Do not cut structural members without prior permission of the Architect.

1.4 ARTICLE NO. 4 – TIME

- A. Definitions:
 1. Substantial completion, as used in this and other paragraphs, is defined as that stage of completion at which the Owner can begin beneficial use or occupancy of the building or improvements with minimum of convenience, and the only remaining incomplete items are those stated on a so-called “punch-list” furnished to the Construction Manager by the Architect. A date of Substantial Completion shall be established in writing by the Architect.

1.5 ARTICLE NO. 5 – PAYMENTS AND COMPLETION

A. Application for payments.

1. On or about the 25th day of each month, the Construction Manager shall make application for payment in triplicate based on percentage of completion of items of cost breakdown. Each application after the first one shall be accompanied by partial waivers of lien and sworn-statement that all labor, materials and service included in the previous and prior statements have been paid for, and that all work under the Construction Manager has been paid, less only the retained percentage stated herein, and any disputed amounts, which shall be stated Final payment requests or reductions of retained percentage shall be submitted with waivers of lien from all principal Construction Managers and material suppliers.
2. Application for payments shall be on AIA forms G-702 and G-703.

B. Payments

1. The Owner shall make payments on the account of the contract, as provided therein, as follows: On or about the tenth day of the following month, (or after the Board meets and approves payment) ninety percent (90%) of the value (except as may be modified) based on contract prices including executed Change Orders amending the contract, of labor and materials incorporated in to the work, and materials suitably stored at the site up to the date of the application, as certified by the Architect less the aggregate of the previous payments.
2. There shall be retained ten percent (10%) of estimated amounts until final completion and acceptance of all work covered by the contract. However, the Architect, at any time after fifty percent (50%) of the work has been completed, if he finds that satisfactory progress is being made, and with written consent of surety, may recommend that remaining partial payments be paid in full. The balance of the retained percentage shall be paid thirty (30) days after the Owner's acceptance of the contract are met and financial obligations are discharged.
3. If the period allowed for construction has elapsed, the Owner shall have the right to occupy all or part of the building or use the improvement when such can be reasonably done. It shall be understood that the Owner will not be liable for any inconvenience caused by occupancy or use. Occupancy or use of all or part of the improvement prior to completion shall not be construed as acceptance. Final payment will not constitute acceptance of defective work or material.
4. "Suitably stored in" will be interpreted by the Architect to mean "on site" and such as to not interfere with building operations, being exposed to weather is unsuitable, an invitation to tampering or theft. Such storage shall be at the Construction Manager's risk except as provided under insurance.
5. Final payment, including retainage, will be made upon completion of each Trade Subcontractor's work. Final payment for work of each Construction Manager will be made upon submission of the following documents and conditions:
 - a. Construction Manager to submit a written request for a final inspection at least thirty (30) days in advance of Contract completion. Construction Manager to list all items of work not completed prior to inspection and reason. Construction Manager to state a completion date for incomplete date for incomplete items.
 - b. All work is to be completed to the satisfaction of the Architect and Construction Manager.
 - c. Construction Manager to submit the following documents (if applicable). Obtain verification through Construction Manager.

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- 1.) Final Waiver, Final Invoice, Sworn Statement
- 2.) Final Waiver from Subs
- 3.) Guarantee(s)
- 4.) Construction Manager's Affidavit of Payment of Debts and Claims (AIA Form G-706)
- 5.) Fire Certificate(s) and/or Affidavit(s)
- 6.) As-builts and Manuals
- 7.) Balance Report
- 8.) Valve Chart
- 9.) Punch List Complete (letters stating Punch List items completed)
- 10.) Change Orders complete
- 11.) Items as specified in the Specifications (Project) Manual which pertain to your specific category of work.

d. The Construction Manager agrees in writing to perform corrections to his work in a prompt and workmanship manner up to one year after date of substantial completion or are otherwise outlined in the Contract Documents.

C. MIOSHA Right-To-Know Law: In accordance with the requirements of the Michigan occupational Safety and Health Act (MIOSHA), Right-To-Know Law, the Owner will notify the Construction Manager in writing of any hazardous substance existing in the facilities where work is to be performed under this contract. Included with the notification will be Material Safety Data Sheets (MSDS) for the Construction Manager's information.

D. The Construction Manager will provide to the Owner written evidence that all workmen to be involved in the work provided under this contract have received the necessary notification and training regarding Asbestos: All material entering into the work shall be certified by its manufacturer to free of any amount of asbestos. No material shall be permitted on the site without such certification by the manufacturer. Where certification of the asbestos of the material is not available from the manufacturer, the Construction Manager shall pay the cost of sampling and analyzing the material of asbestos content. Any asbestos containing material shall be removed and replaced with like asbestos-free material, all at the cost of the Construction Manager.

1.6 ARTICLE NO. 6 – PROTECTION OF PERSONS AND PROPERTY

A. In addition, prior to any work being performed on the site, the Construction Manager shall provide the Owner with a list of all hazardous substances that the Construction Manager's employees will bring to the Owner's facility. The Construction Manager shall provide a Material Safety Data Sheet (MSDS) for each substance on the list. All hazardous substances brought into the Owner's facilities shall be labeled to comply with the requirements of the MIOSHA Right-To-Know Law. No hazardous substance shall be permitted on the Owner's property without proper labeling.

1. The hazards of the chemicals to which they may be exposed while in the Owner's facilities.
2. The precautions that the employee may take to lessen the possibilities of exposure by using appropriate protection.

1.7 ARTICLE NO. 7 – INSURANCE

A. The following are the insurance requirements for the Construction Manager. Please read these requirements carefully and provide them to your insurance agent when requesting the certificate of insurance.

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Certificate of Insurance

Required Limits:

General Liability -	\$1,000,000 Each Occurrence
	\$1,000,000 Personal Injury
	\$2,000,000 General Aggregate/ Per Project
	\$2,000,000 Products/Completed Ops Aggregate
Worker's Comp -	Statutory
Employer's Liability -	\$500,000/\$500,000/\$500,000
Automobile Liability -	\$1,000,000 Owned, Non-Owned & Hired
Excess Liability -	\$3,000,000

B. Notice of Cancellation:

Must read as follows on the insurance certificate: "Should any of the above described policies be cancelled before the expiration date, the issuing insurer will mail 30 days written notice to the certificate holder."

C. Waiver of Subrogation:

All policies of insurance secured and maintained by the subcontractor must be endorsed waiving subrogation against Pellston Public Schools and FAH Architecture, PLLC.

D. Additional Insured:

The insurance certificate must name Pellston Public Schools, FAH Architecture, PLLC and such others as may be required under the terms of the Agreement between Pellston Public Schools and its contracting party, as an additional insured(s) on the General Liability policy, any excess liability or umbrella policies and Automobile Liability policy subject to Form CG 20 10 11 85 or a combination of CG 20 10 07004 and CG 20 37 07 04.

E. Certificate Holder:

Pellston Public Schools
172 Park Street.
Pellston, MI 49769

F. All Subcontractors will be required to provide insurance requirements equal to the above with the exception that the Excess Liability will be reduced to \$1,000,000.

G. All insurance shall be carried with companies authorized to do business in the State of Michigan and which are satisfactory to the Owner.

H. Certificate of Insurance shall be Acord 25 (2014/01)

I. The Owner shall effect and maintain builder's risk insurance for completed value coverage, and shall include the interest of the Construction Manager and all tiers of Subcontractors.

J. Construction Manager shall pay \$1,000 deductible for each occurrence under this insurance coverage if said loss results from the negligence of the CM or his Subcontractors.

END OF SECTION

**DIVISION 1 – APPENDIX A
SECTION 00650 – APPENDIX A**

PART 1 - GENERAL

- 1.1 AIA forms required by the Agreement and by 00600 Division 1 – Supplementary General Conditions and 00900 Division 1 Project Closeout.

PART 2 – AIA DOCUMENTS

- 1.1 A133 – 2019
- 1.2 A133 – 2019 Exhibit A
- 1.3 A133 – 2019 Exhibit B
- 1.4 A201 – 2017
- 1.5 G702 - 1992
- 1.6 G703 - 1992
- 1.7 G704 - 2017
- 1.8 G706 – 1994
- 1.9 G706A - 1994
- 1.10 G707 - 1994

END OF SECTION

February 15, 2021

APPENDIX B

Construction Manager's obligation to satisfy the Michigan Construction Lien Act

At the time of each monthly Application for Payment submitted by Construction Manager to the Architect, Construction Manager will concurrently provide to Attorney's Title Agency, Owner's agent for construction disbursements: (1) a Sworn Statement signed under oath by the Construction Manager; (2) a Waiver of Lien from Construction Manager dated as of the date of the Sworn Statement; and, (3) conditional or unconditional Waivers of Lien from all subcontractors identified in the Sworn Statement, or otherwise doing Work on the Project (including but not limited to subcontractors, laborers or materialmen who have filed Notices of Furnishing), all dated as of the date of the Sworn Statement. All Sworn Statements and Waivers of Lien shall be in the form required under the Michigan Construction Lien Act. Attorneys Title Agency will, within five days of presentment, notify Construction Manager of any deficiencies in the documents submitted, which Construction Manager must resolve prior to disbursement of any funds requested by the Application for Payment.

Within five days after receipt of Architect's Certificate of Payment of a specific Application for Payment, and subject to Attorney's Title Agency satisfaction with the Construction Lien Act documents submitted, Attorney's Title Agency shall certify the payment of the periodic billing, and Owner shall, within five days thereafter, pay the amount requested to Attorney's Title Agency, who shall in turn, disburse same to Construction Manager, less retainage as provided in Section 7.17 of the Contract, provided, Attorney's Title Agency may disburse directly to a subcontractor who has filed a conditional Waiver of Lien, or who has filed a Notice of Furnishing, any sum so certified for payment by Architect.

A Notice of Commencement will be prepared, filed and recorded by Attorney's Title Agency.

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

OWNER *(Signature)*

CONSTRUCTION MANAGER *(Signature)*

(Printed name and title)

(Printed name and title)

DIVISION 1 GENERAL
SECTION – SPECIAL CONDITIONS AND TEMPORARY FACILITIES

PART 1 GENERAL

1.1 SCOPE OF THE WORK

- A. The project consists of the renovation and construction of the Pellston Public Schools at 172 N. Park St. Pellston, Michigan 49769.

1.2 CONSTRUCTION MANAGER

- A. This is a construction Management Project. The winning Bidder is the Construction Manager; (Hereinafter referred to as “CM”). There is no General Contractor. All Trade Subcontractors as defined by the proposals are considered Prime Contractors. The “CM” will award separate Contracts for each proposal or combination thereof. The project will be coordinated by the “CM” acting as the Owner’s Agent and directions given by the “CM” shall be considered the same as given by the Owner. References in all Contract Documents to the Construction Manager shall be interpreted to mean the “CM” and/or Owner. The Architect’s status for this project remains the same.
- B. The “CM” shall provide on – site coordination upon the start of construction and shall maintain it to insure timely performance by Subcontractors without hold – ups and delays resulting from the absence of on-site “CM” coordination.
- C. The “CM” shall coordinate the performance of the Subcontractors in the utilization of the site as well as in the actual performance of their contractual obligations to the Owner in the construction of the project.

1.3 CONSTRUCTION SUPPORT

- A. The “CM” will arrange for General Conditions or construction support items such as: temporary supplies, temporary access barricades, bulletin boards, job signs, maintenance of temporary electrical and water services, removal of temporary electrical and water services upon completion of the project, site control, temporary fire extinguishers, project office for use of A/E, Owner, and “CM” and telephone for limited “local” use by Subcontractors.
- B. The “CM” shall arrange for temporary heat as required for construction operations after building exterior enclosure. The “CM” shall receive 72 hour written notice by any Construction Manager who anticipates the need for temporary heat. The “CM” shall then determine its necessity based upon an evaluation of the construction schedule. Temporary heat (or cold weather protection) prior to building enclosure is the responsibility of each Subcontractor.
- C. The “CM” shall arrange for testing and quality control services as necessary. In the event that any material testing fails due to improper installation, the Subcontractor will bear all costs for retesting.

1.4 APPROVAL OF MATERIALS

- A. The Construction Manager shall submit to the Architect for approval of a complete schedule of materials and equipment, with manufacture’s names, prior to purchasing any materials and/or equipment.

1.5 EXECUTION, CORRELATION

- A. The Contract Documents intend to show a finish piece of work of such character and Quality as is reasonably inferable in accordance with accepted construction practices.
- B. The proposal price for the work is to include sufficient allowance to make all work complete and operative. Inadvertent error, omission, lack of detail or failure to repeat figures or notes from Drawings is not cause to claim additional compensation.

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1.6 PROJECT SIGN

- A. The Construction Manager may provide a sign bearing the project name, name of Owner, Architect and Construction Managers. Submit layout for approval. Block letters only. No advertising or other Construction Manager's signs will be permitted on the site.

1.7 TESTING

- A. The Owner will select and pay for a qualified, unbiased testing laboratory to provide control and testing services for the various phases of work specified in the Technical Section of the Specifications.
- B. Where testing is not specifically called for in the Specifications, but is required by the Owner, and Architect, due to questionable workmanship or materials, the Owner shall pay all costs of such testing unless the tests indicate that the workmanship or materials used by the Construction Manager are not in conformance and replace it with work and materials which are in full conformity at no cost to the Owner.

1.8 APPORTIONMENT OF THE WORK

- A. The Construction Manager shall classify and apportion the fabrication and furnishing of materials and the performance of labor to the various trades in accordance with local practice and jurisdiction practice regardless of the classifications appearing in the Specifications.
- B. Should disagreement occur between Subcontractors relative to which trade is to provide certain materials and perform certain labor, the Construction Manager shall decide such disagreements and be responsible for producing a complete job.

1.9 STANDARD SPECIFICATIONS

- A. Where work is specified to be in conformity with Standard Specifications of the American Society for Testing Materials or with Federal Specifications or with Specifications of well-known or recognized technical trade organizations, but no tests are specifically stipulate in connection therewith, the Construction Manager shall, on request, furnish any tests and/or certifications required by the Architect or Construction Manager to show that the proposed materials meet the applicable Specifications.

1.10 PROTECTION OF WORK

- A. Each Subcontractor, in agreement with the Construction Manager, shall maintain and enforce regulations covering all fire hazards, including smoking, and shall provide adequate fire extinguishers and/or other protective measure in proper locations. Additionally, enforcement of all applicable provisions of the latest edition of the Michigan Occupational Safety and Health Act shall be the responsibility of the Construction Manager.

1.11 TEMPORARY HEAT

- A. All heating required during construction period, prior to enclosure of building exterior, shall be classified as, "cold weather protection." Each trade subcontractor shall pay all costs for and shall provide and maintain adequate equipment with flues carried to the outside, labor and materials required for such cold weather protection to properly protect and expedite his own work.

1.12 TEMPORARY LIGHTING AND POWER

- A. The Electrical Subcontractor shall provide all temporary lighting and power to adequately maintain the progress of the work. The Electrical Subcontractor shall provide all service from the existing electrical system and bring temporary electrical service to the building areas. Transform to fused 120 V, single and 240 V. three-phase for use of all subtrades and Subcontractors. The 120-volt service shall be carried into each area and terminated with a receptacle. Extension of service with extension cords from any receptacle shall be provided by each Subcontractor as per their requirements.
- B. The Electrical Subcontractor shall provide all temporary lighting work in and around construction area including all lamps.

- C. The Owner shall pay for all current (KWH's) used in the whole project for temporary light and power during temporary light and power periods.
- D. All secondary temporary wiring shall be removed from premises at completion of Contract Work.

1.15 TEMPORARY OFFICE

- A. The Construction Manager shall furnish and maintain a temporary trailer or shanty office for his own use. Equip the temporary office with a telephone station which may be used by the Trade Subcontractors upon paying telephone call charges. Owner will select the location for this office.

1.16 STORAGE SHED

- A. If required, each prime Trade Subcontractor shall erect and maintain suitable weather-tight storage sheds as necessary for the proper protection of materials and equipment during storage at the site. By mutual agreement, if desired, the prime Trade Subcontractors may construct a common storage shed. Sheds shall be removed from the Owner's property when such sheds are no longer needed.

1.17 TEMPORARY HOISTS, LADDERS, ETC.

- A. Each Trade Subcontractor shall construct and maintain such temporary hoists, scaffolds, runways, ladders, shoring, bracing, etc., as required to expedite the construction work. These facilities shall be constructed in accordance with the requirements of the "Manual of Accident Prevention in Construction" as published by the Associated Construction Managers of America.

1.18 REJECTED WORK

- A. Damaged defective or blemished materials and/or poor workmanship will cause for rejection of work by the Architect and Owner.
- B. Rejected work shall be removed and replaced with new, satisfactory work at no additional cost to the Owner. Rejected materials shall be removed immediately from the premises.

1.19 BROKEN GLASS

- A. The Construction Manager shall be held responsible for all damaged, cracked and broken glass and, at completion, he shall replace, at no additional cost to the Owner, all such glass. Glass scratched through improper cleaning shall be considered damaged and shall be replaced.

1.20 CLEANING UP

- A. In addition to the general "broom cleaning" stipulated in the General Conditions, the Construction Manager shall be responsible for the following special cleaning for all trades just prior to the final completion of the project:
 - 1. Remove putty stains and paint from all glass and polish same.
 - 2. Remove all spots, soil and paint from all walls.
 - 3. Clean and polish all finished floors.
 - 4. Remove all rubbish and debris from the premises.
- B. Each Subcontractor shall clean all fixtures and equipment installed under his contract just prior to final completion of the project.
- C. Burning and burying rubbish and debris on the premises will not be permitted at any time.

1.21 RUBBISH

- A. The Construction Manager shall remove and dispose of all rubbish and debris resulting from the construction. The project and adjacent grounds shall be kept free from accumulations of rubbish. No rubbish or debris shall be burned on the premises.

1.22 CUTTING AND PATCHING

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- A. Each trade shall do all cutting, drilling, and patching of his own work to accommodate work of other trades.

1.24 UNDERGROUND UTILITIES

- A. Prior to beginning any work, the Construction Manager shall call "Miss Dig" and all utilities to locate any and all underground utilities within work area. FAH Architecture, PLLC, shall not be held responsible for any damage caused by any Construction Manager.

1.25 SAFETY PROVISIONS

- A. Every precaution shall be taken so as to protect from injury any child or adult while on construction site or property. Any holes or excavation shall be barricaded and properly marked so as to provide adequate warning to any individual. All state code and/or OSHA safety provisions shall be adhered to.

1.26 TEMPORARY CONSTRUCTION FENCE

- A. Provide temporary construction fence if Code or safety conditions require, setting limits to working areas throughout. Actual locations shall be as later determined as the work progresses through various construction phases. Fencing shall be at minimum 4'-0" high, of sound construction, painted (black), neat and uniform, subject to Architect's and Owner's approval, and to meet municipal requirements.
- B. Install in a rigid manner and provide all bracing and supports required.
- C. Provide gates to allow vehicular passage and pass gates otherwise for workmen. Gates shall have provision for locking.
- D. Remove from the site on completion of the work. Fence shall be provided by the Construction Manager.

1.27 COMPLIANCE WITH ORDINANCES, LAWS, AND REGULATIONS

- A. The Construction Manager and all Subcontractors shall observe all ordinances, laws, any regulations of all authorities having jurisdiction over construction operations, including those applying to noise, timing of deliveries, hours of operations, etc.

1.28 COORDINATION OF WORK

- A. Construction Manager will extend every effort to accommodate Owner's operations. Notify management of impending shut-off of utilities.

1.29 RELATIONS WITH ADJOINING PROPERTY OWNERS

- A. To facilitate his work, the Construction Manager may choose to make necessary arrangements for use and subsequent rehabilitation of the adjoining Owner's property. Such arrangements are solely the Construction Managers responsibility.
- B. If work is required off-site, outside the Contract limit lines, or on property of others, such areas shall be restored by said Subcontractor to their original condition, or as required by local authorities, immediately following completion of the work.

1.30 FIRE REGULATIONS AND EXTINGUISHERS

- A. The Construction Manager is responsible for fire extinguishers and fire protection for all work, equipment, office, sheds, etc., as required by OSHA regulations.
- B. Free access shall be maintained at all times from the street to fire hydrants and to outside connections for standpipes. Fire doors shall be installed and in operation at the earliest possible time.
- C. Where existing exits occur, they shall be fully maintained at all times and shall be kept free from materials, equipment, or other obstructions.

- D. Combustible materials shall not be stored in the building.
- E. The use of wood scaffolding shall be kept to a minimum and entirely eliminated when possible in order to eliminate fire hazards from this source. No part of the building where forms are in place shall be used for the storage of flammable materials of any kind. Temporary structures of combustible material shall be located not less than 30 feet from the building.
 - F. No smoking or use of tobacco in any form shall be permitted within the building or on the roof surfaces.

1.33 HAZARDOUS MATERIALS

- A. The Construction Manager shall comply with all laws concerning hazardous materials. Hazardous material shall be disposed in a legal manner. MSDS sheets for hazardous materials shall be filled at the Subcontractor's job site office and as otherwise required by law

END OF SECTION

**DIVISION 1 GENERAL
SECTION - PROJECT CLOSE-OUT**

1.1 RELATED DOCUMENTS

- A. The General Conditions, Supplementary Conditions and Special Conditions are a part of section. Refer thereto for instructions.

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Submittal of receipts for portable and detached parts and operations and maintenance date.

1.3 FINAL CLEANING

- A. The Construction Manager, except as specifically called for hereinafter, shall prepare the entire project for occupancy by the Owner by cleaning all exposed finished surfaces, when directed by the Architect, using professional cleaning firms or persons skilled in such work, as follows:
 - 1. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from site – exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.
 - 2. Repair, patch and touch-up marred surfaces to specified finish to match adjacent surfaces.
 - 3. Broom-clean paved surfaces; rake clean other surfaces of grounds.
 - 4. Remove snow and ice from access to building.
- B. Each Subcontractor, upon the Construction Manager's notification that the various areas are ready for final cleaning, shall do the following:
 - 1. Mechanical Subcontractor shall
 - a. Replace filters if air handling units were operated during construction
 - b. Clean ducts, blowers and coils, if air handling units were operated without filters during construction.
 - c. Clean plumbing fixtures, trim, and equipment provided under Mechanical Contract.
 - 2. Electrical Subcontractor shall clean lighting fixtures and equipment provided under Electrical Contract.
- C. The intent of this final cleaning is to leave all work under this Contract in such a condition that the building can be occupied without further cleaning of any kind, but the Construction Manager shall not be required to re-clean after cleaning has been reviewed and approved unless he and his Subcontractors again soil the premises.

1.4 SUBSTANTIAL COMPLETION

- A. When each Construction Manager determines that the object or designated portion of project is substantially complete, he shall submit written certification to the Architect that the object is substantially complete and also submit a list of major items to be completed or corrected.
- B. The Architect and Consulting Engineers shall make an inspection within seven (7) days after receipt of Construction Manager's certification of substantial completion, together with the Owner's Representative, and prepare a Punch List as required. Should the Architect consider that the work is substantially complete:
 - 1. The Construction Manager shall prepare and submit to the Architect a list of items to be completed or corrected, as determined by the inspection and Punch List.
 - 2. The Architect will prepare and issue a Certificate of Substantial Completion, American Institute of Architects Document G704, complete with signatures of the Owner and Construction Managers, and accompanied by the Construction Manager's list of items to be completed or corrected, as verified and amended by the Architect.

3. Owner occupancy of project, or designated portion(s) of project provisions: The Construction Manager shall:
 - a. Obtain certificate of occupancy.
 - b. Perform final cleaning as specified herein before the Owner will occupy project under the provisions stated in the Certificate of Substantial completion.
 4. The Construction Manager shall complete work listed for completion or correction within the time stated in the Certificate of Substantial completion.
- C. Should the Architect consider that the work is not substantially complete:
1. The Architect will immediately notify the Construction Manager, in writing, stating reason.
 2. The Construction Manager shall complete the work, and send a second written notice to the Architect, certifying that the project or designated portion(s) of the project is substantially complete.
 3. The Architect will re-inspect the work.

1.5 FINAL INSPECTION

- A. When the work is completed, the Construction Manager shall submit written certification that:
1. Punch list items are completed.
 2. Work has been completed in accordance with the Contract Documents.
 3. Equipment and systems have been tested in the presence of the Owner's Representative and are operational.
 4. Project is complete and ready.
- B. The Architect will make final inspection within seven (7) days after receipt of Construction Manager's certification for final inspection.
- C. Should the Architect consider that the work is finally complete in accordance with the requirements of the Contract documents, he shall request the Construction Manager to make project close-out submittals.
- D. Should the Architect consider that the work is not finally complete:
1. The Architect will notify the Construction Manager, in writing, stating reasons.
 2. The Construction Manager shall take immediate steps to remedy the stated deficiencies and send a second written notice to the Architect certifying that the work is complete.
 3. The Architect will re-inspect the work.

1.6 REINSPECTION COSTS

- A. Should the Architect be required to perform second inspection because of failure to work to comply with the original certifications of the Construction Manager, the Construction Manager will compensate the Architect for additional services.

1.7 CLOSE-OUT SUBMITTALS

- A. Certificate of Occupancy and Inspection of Approval
1. To requirements of Supplementary Conditions.
- B. As-Built Drawings
1. To requirements of Supplementary Conditions.
- C. Operation and Maintenance Data
- D. Maintenance Materials

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- E. Built-Up Roofing Maintenance Agreement
 - 1. Roofing and Sheet Metal, and "Roof Maintenance Contract Form" (RMCF).
- F. Keys and Keying Schedule
 - 1. Finish Hardware.
- G. Special Guarantees
 - 1. To requirements of specific trade sections requiring extended guarantees.
 - 2. Deliver Certificates of Insurance for products, and complete operations.
- 1.8 SPECIAL INSTRUCTIONS
 - A. Instruct Owner's personnel in operation of all systems, mechanical, electrical and other equipment. Arrange for meeting with Owner's Representative
- 1.9 EVIDENCE OF PAYMENTS AND RELEASE OF LIEN
 - A. Construction Manager's Affidavit of Payments of Debt and Claims
 - 1. American Institute of Architects Document G706.
 - B. Construction Manager's Affidavit of Release of Liens
 - 1. American Institute of Architects Documents G706A with Consent of Surety to Final Payment, American Institute of Architect Documents G707, and Waivers of Lien to requirements of General Conditions.
 - 2. All submittals shall be duly executed before delivery to the Architect.
- 1.10 FINAL ADJUSTMENTS OF ACCOUNTS
 - A. Submit "Final Statements of Accounting" to Architect.
 - B. Statements shall indicate:
 - 1. Original Contract sum
 - 2. Additional and deductions resulting from:
 - a. Previous Change Orders
 - b. Cash Allowances
 - c. Unit Prices
 - d. Other Adjustments
 - e. Deductions for uncorrected work
 - 3. Total Contract sum – if adjusted
 - 4. Previous Payments
 - 5. Sum remaining due
 - C. Construction Manager's Affidavit of Release of Liens
 - 1. American Institute of Architects Documents G706A with Consent of Surety to Final Payment, American Institute of Architect Document G707, and Waivers of Lien to requirements of General Conditions.
 - 2. All submittals shall be duly executed before delivery to the Architect.
- 1.11 FINAL ADJUSTMENTS OF ACCOUNTS
 - A. Submit "Final Statements of Accounting" to Architect

- B. Statement shall indicate:
 - 1. Original Contract sum
 - 2. Additional and deductions resulting from:
 - a. Previous Change Orders
 - b. Cash Allowances
 - c. Unit Prices
 - d. Other Adjustments
 - e. Deductions for uncorrected work
 - 3. Total Contract sum – if adjusted
 - 4. Previous payments
 - 5. Sum remaining due
- C. The Architect will prepare final Change Order, reflecting approved adjustments to Contract Sum not previously made by Change Orders.

1.12 FINAL APPLICATION FOR PAYMENT

- A. Each Construction Manager shall submit final application for payment in accordance with the requirements of the General Conditions.

1.13 FINAL CERTIFICATE FOR PAYMENT

- A. The Architect will issue final certification for payment in accordance with the provisions of the General Conditions.
- B. Should final completion of materially delayed through no fault of the Construction Manager, the Architect may issue a Semi-Final Certificate for Payment, in accordance with the provisions of the General Conditions.

END OF SECTION

**DIVISION 1 GENERAL
SECTION – WARRANTIES**

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Submit warranties in accordance with the Supplementary General Conditions and additional requirements specified under the individual Trade Sections.
- B. Required types of warranties and additional services are scheduled and listed in the Trade Sections.
- C. In all cases where “Special Warranties” or “Service Contracts” are required, the request for approval of materials will be accepted by the Owner and the Architect on the understanding that manufacturer agrees to provide the specified warranty or other service unless stated otherwise in the request.
- D. The Owner will not be bound to accept any limitations or variations from the specified warranty which were not filed with the request for acceptance and accepted prior to purchase of materials.
- E. Warranties shall be submitted prior to request for payment for 100% completion in each case, shall acknowledge the responsibilities defined under Supplementary Conditions and shall include:
 - 1 Manufacturer’s warranty that all materials comply with its published standards, comply with the requirements of the Specification and where specified, are adequate for the proposed use.
 - 2 Subcontractor’s warranty that all workmanship complies with the requirements of the Specifications and of the Manufacturer.
 - 3 Construction Manager’s warranty covering the entire work and accepting responsibility for all limitations imposed by the manufacturer or subcontractors except where such limitations have been previously accepted by the Architect.
 - 4 Certification and verification of previously submitted information including statement of all limitations, required maintenance and similar conditions of the warranty.

1.2 STANDARD WARRANTIES

- A. A standard warranty is a warranty whose terms are essentially the same as normally offered by the manufacturer of standard with the industry.
- B. Supplementary General Conditions require that standard warranties apply as a minimum requirement notwithstanding the fact that submittal of a copy of the warranty is not required.
- C. Unless otherwise specified a standard warranty shall be for a period of one (1) year from date of Substantial Completion.
- D. The Construction Manager shall obtain and furnish to the Owner from each manufacturer of materials or equipment incorporated into the Work a warranty at least as favorable to Owner as that customarily given by such manufacturer to others. The Construction Manager shall inform itself as to any conditions precedent to the effectiveness of each manufacturer’s warranty and comply with all such conditions (or obtain waivers thereof from the manufacturer) so that such warranty shall be fully effective. If any event occurs which might invalidate any manufacturer’s warranty, the Construction Manager shall promptly notify the Owner and the Architect.
- E. All warranty periods shall commence on the Date of Submittal Completion except that, if it is discovered after said date that certain work or materials were not in fact in conformance with the requirements of the Contract Documents, the applicable warranty period shall recommence from the completion of the repair or replacement of such Work to make it so conform.

- F. The fact that a manufacturer's warranty differs in its terms from those of the Construction Manager or any Subcontractor, the acceptance by the Owner of any warranty of a manufacturer or Subcontractor, or the fact that the Owner has claimed initially on such warranty, shall not in any way release the Construction Manager from his warranty obligations under the Contract.

1.3 SPECIAL WARRANTIES

- A. A special warranty is one whose terms, in addition to the standard coverage offered by the manufacturer, contain other special provisions, including:
 - 1 Acknowledgment of specified list of terms which shall be specifically noted as being covered by the warranty.
 - 2 Acknowledgment of specific conditions for use of exposure.
 - 3 Extension of warranty to waive standard exceptions or to extend limits including time.
 - 4 Requirements for specific performance by other trades including method of separation and protection from, or assurance of compatibility with, adjacent materials.
 - 5 Assemblies and systems which may include products of other manufacturers.
 - 6 Conditions where certain performance criteria are specified and must be either acknowledged or actual limits are required to be determined by performance testing subject to Owner's review and acceptance.
 - 7 Conditions where manufacturer's continuing involvement such as maintenance or advisory service is required.

1.4 MAINTENANCE SERVICE DURING WARRANTY PERIOD

- A. Reference to routine maintenance required to be performed by the Owner during the warranty period shall be listed in the original submittal of proposed warranty.
- B. All other administration and maintenance service required during the warranty period, including installation of items repaired or replaced under the terms of the warranty shall be included in the original Contract.

1.5 SERVICE CONTRACTS

- A. Required types of Service Contract Proposals are scheduled under schedule or Required Submittals and are listed in the Trade Sections.
- B. Where specified the Subcontractor or Manufacturer originally supplying service and skills required for proper maintenance and agreeing to maintain availability of replacement parts and materials.
- C. The Service Contract is in addition to, and independent of, the Warranty and shall not act to either extend the warranty or to reduce the Construction Manager's responsibilities thereunder.
- D. Unless otherwise specified or agreed, Service Contracts shall be written for a period of five (5) years starting with the termination of similar services including under the warranty and shall include cancellation privilege annually when exercised at least 60 days prior to anniversary date.
- E. The Construction Manager shall:
 - 1 Prior to submittal of Manufacturer or Subcontractor for approval, verify that specified service is available and will be offered.
 - 2 Secure from the Manufacturer or Subcontractor a bona fide proposal to perform the specified service.
 - 3 When so directed, assist the Architect in obtaining proposals for the performance of the specified services by other competent parties.

1.6 ADVISORY AND INSPECTION SERVICE

- A. Advisory and Inspection Service consists of:
1. Periodic inspection on a regular schedule basis. Including schedule of proposed inspections in the agreement.
 2. All necessary information, including special training, where required to adequately instruct Owner's maintenance personnel in preventative maintenance procedures, and periodic inspection to verify that such procedures are adequate.
 3. Providing recommendations for additional preventative maintenance repairs and treatments. If such maintenance work is recommended:
 - Obtain or submit price quotations for recommended work.
 - When so instructed by the Owner, make all necessary arrangements for the performance of the Work.
- B. Parts and Materials Agreement
- 1 Where standard commercially available parts of materials are suitable for maintenance or repair, inform Owner concerning trade name or description or location where they may be obtained.
 - 2 Where parts or materials are not readily available maintain replacement stocks at a location as required to prevent undue delay in repairs or loss of use of equipment pending delivery.

1.7 MAINTENANCE SERVICE

- A. A Maintenance Service Contract is an agreement that in addition to Advisory and Inspection Service, the Manufacturer will provide, or otherwise make available through his agent, a regular maintenance service program schedule during normal working hours.
- B. Proposals shall schedule proposed times for servicing and list the services to be performed.
- C. Maintenance service of equipment shall be performed solely by the original Equipment Subcontractor and shall not be assigned or transferred to any agent or Subcontractor without the approval of the Owner.
- D. Repairs
- 1 Permanent repairs shall be started within seven (7) days after notification by the Owner.
 - 2 In the event that emergency and permanent repairs are not started within the specified time limits, or if the work is stopped without the Owner's consent, the Owner shall have the same options to have repairs performed by others as specified under Warranties without invalidating this agreement.
- E. Equipment maintenance shall include systematic examinations, and adjustments and lubrication of all equipment. The Equipment Maintenance Construction Manager shall repair and replace electrical and mechanical parts whenever required using only genuine standard parts recommended or produced by the manufacturer of the equipment.
- F. Additional work when so directed by the Owner shall be included under the work of the Maintenance Contract and the Construction Manager shall be reimbursed at the then prevailing rate for the cost of materials, labor and services. Such additional work shall include:
- 1 Repairs or replacement required as a result of negligence, abuse, or other actions contrary to the Equipment Construction Manager's operating instructions.
 - 2 Improvement or additional equipment required by the Owner, Insurance Companies, or Governmental Authorities.

3 Except for emergency service, the additional cost for overtime work based on the difference between regular and overtime labor when the Owner requests that such work be performed outside of regular working and so authorized in writing.

G. Additional requirements for specific maintenance contracts are specified in the various Trade Sections.

1.8 EMERGENCY CALL-BACK SERVICE

- A. Emergency Call-Back Service is an agreement to provide rescue and repair service on an emergency basis where required for the protection of life and property.
- B. Owner's agreement to permit Manufacturers to assign agreement to an agent does not relieve Manufacturer of responsibility to verify that service remains available for the specified time. Agreement shall remain in effect for the lifetime of all Warranties, Service Contracts and for such longer time as may be specified or agreed.
- C. Service shall be available on a 24 hour, 7 day basis and shall be performed within the following time limit after notification of emergency unless otherwise specified. Maintain emergency telephone number on file with the Owner for nights and weekends. This can be delegated to a local service provider.

1.9 CERTIFICATION

- A. Workmanship certification is a statement by the applicator or installer that all materials and workmanship in connection with the system, have been furnished and installed in complete conformance with Contract Documents, and with the Manufacturer's Specifications and requirements for the particular type of use specified.
- B. A product certification where specified as a requirement shall be in a form similar to the following:
 - 1 "We, the (Manufacturing Company), certify that the complete system as detailed and specified can be installed and will perform in accordance with the requirements of the specifications and the ASTM Standards reference therein for the guarantee period of one year or such longer period as may be negotiated between the Owner and the (Manufacturing Company).
 - 2 Upon completion of the Project we will inspect the work and certify to the Owner that the system as installed is in accordance with the Manufacturer's requirements or indicated in writing what remedial action is necessary in order that it does so conform.

END OF SECTION

DIVISION 2 – SITE WORK
SECTION – GENERAL CONDITIONS

PART ONE - FIELD ENGINEERING

1.01 CONSTRUCTION SURVEYS

- A. The Owner's surveyor will provide a one-time centerline staking for roads and a one-time line and grade staking for each utility. Additional staking shall be paid for by the contractor, the amount of which will be deducted from the Contract amount. Bench marks will be set by the Owner's surveyor at no less than 1000 foot intervals.
- B. The Contractor shall provide competent, suitably qualified personnel for layout of his own work and to be responsible for all lines, elevations, and measurements of all site improvements, utilities, and other work executed by him under the Contract.
- C. The Contractor shall, immediately upon entering the site for the purpose of beginning Work, locate general reference points and Owner provided stakes, and take such action as is necessary to prevent their destruction.
- D. The Contractor must exercise proper precaution to verify figures on the drawings before laying out work and will be held responsible for any error resulting from his failure to exercise such precaution.
- E. The Contractor shall be responsible for the preservation of survey corners, property line stakes, benchmarks, or datum points. If any are lost, displaced or disturbed through neglect of the Contractor, its agents, or employees, it shall pay the cost of restoration. Any survey corners, stake or points disturbed or destroyed by the contractor shall be replaced by the Owner's surveyor, the total cost of which will be deducted from the contract amount.

PART TWO - SPECIAL REQUIREMENTS, PROCEDURES AND CONTROLS

2.01 PROJECT COORDINATION

- A. All notices, demands, requests, instructions, approvals, proposals and claims must be in writing. Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement or, if deposited in the United States mail or other express mail company, sealed in a postage-prepaid envelope. All papers required to be delivered to the Owner shall, unless otherwise specified in writing to the Contractor, be delivered to Owner and Engineer.
- B. The Contractor shall be responsible for the coordination of any and all utilities and structures which are to be installed simultaneous with the work of this contract, including but not limited to Electrical, Telephone, Cable TV and Natural Gas utility systems. Coordination shall include scheduling the work of this Contract to allow sufficient time for utility & structure installation and to allow for final grading and clean-up required in this contract to include miscellaneous grading and clean-up of utility contractor work.

2.02 PERMITS, FEES AND NOTICES

- A. Permits or Certificates of Approval shall be obtained and paid for by the Contractor for the trade affected. The Contractor shall comply with all state and local rules, ordinances and regulations relating to buildings, employment and the preservation of public health and safety, use of streets, etc. If the Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, it shall bear all costs arising therefrom.
- B. Where the Contract Documents require the Work to be above the standard required by the law, such Work shall be completed according to the Contract Documents.

2.03 SITE CONDITIONS

A. Before submitting proposals, bidders should visit premises, verify site conditions and conditions under which Work under this Contract must be conducted. Submission of proposal verifies that bidder has visited the site, has made said examinations and verifications, and is fully conversant with all said conditions. No claims for additional compensation will be considered or paid to any Contractor due to said Contractor's failure to be so informed.

B. The Contractor, before commencing Work, shall examine all surfaces and areas indicated on drawings to receive its Work, and shall report necessary corrections in writing immediately to Engineer. Do not proceed until corrections (if any required) have been made. Commencing Work verifies this Contractor's acceptance of said surfaces, areas and of job conditions.

C. Information pertaining to preliminary investigations such as location of utilities, existing structures and existing grades appears on drawings. While such data has been collected with reasonable care, there is no expressed or implied guarantee that conditions so indicated are entirely representative of those actually existing or that unforeseen developments may not occur. The Contractor must put its own interpretation of results of such investigation and shall satisfy itself as to materials to be excavated and materials upon which fill or other work may be placed.

D. The Contractor shall determine the exact location of all existing utilities before commencing work. The Contractor agrees to be fully responsible for any and all damages occasioned by it's failure to locate and preserve any and all utilities.

2.04 CONTRACTOR'S USE OF PREMISES

A. The Contractor shall confine all storage of materials, equipment and apparatus to the area within the contract limits or in those additional areas designated by the Owner. The Owner will provide adequate access to such areas.

B. All Work shall be done in accordance with the regulations governing the institution and with minimum possible interferences with the proper functioning of the activities of the same. The Contractor will be held to have visited the site and checked with authorities regarding the working conditions, the methods of carrying out the Work, and to have included all costs for meeting such working conditions.

C. All construction operations, delivery and storage of material, and movement of equipment shall be governed by applicable building codes, traffic regulations, and fire regulations of local authorities.

D. The Contractor shall comply with all the ordinances and codes of the local government regarding access, signs, advertising, traffic, fires, explosives, danger signals and barricades.

2.05 JOB SITE ACCESS

A. The Owner, its authorized representatives and agents shall at all times have access to and be permitted to observe and review all Work, materials, equipment, operations.

2.06 OWNER OCCUPANCY

A. If before the final completion of the Work, any portion of the permanent construction has been satisfactorily completed and the same will be immediately useful to the Owner to use, occupy or gain access to other parts of the site, the Owner may, by written notice, advise the Contractor that it accepts such portion of the Work. Such action by the Owner shall in no way affect the obligations of the Contractor under the terms and provisions of the Contract with respect to any Work not so completed and accepted.

2.07 TRAFFIC REGULATION

A. The Contractor shall be responsible for the provisions, installation and maintenance of all temporary traffic control measures required by the Owner. The Contractor must abide by the Owner's rules and regulations.

B. Where work is performed in public right-of-ways, traffic control maintenance shall be the responsibility of the Contractor and shall conform with MDOT Specification 6.31 "Traffic Maintenance and Control", and local Road Commission requirements. Unless otherwise agreed to, the cost of traffic control shall be incidental to the project. (See the Special Provisions)

2.08 TEMPORARY ACCESS ROADS

A. The Contractor shall construct and maintain adequate temporary access roads to provide uninterrupted access to adjacent buildings, offices, temporary offices, storage areas and work areas. The Owner, all contractors and subcontractors shall be allowed to use the temporary access roads for delivering material and equipment to the project site.

B. The Contractor shall remove all of its temporary roads when directed and the Owner shall restore site areas of same to their original condition or in accordance with Contract Documents.

2.09 SECURITY

A. The Contractor shall provide a secured project site using fencing, locked gates, and other means as necessary to properly and safely secure the site.

2.10 FIRST AID FACILITIES

A. The Contractor shall provide, at the site, such equipment and medical facilities as are necessary to supply first aid service to anyone who may be injured in connection with the Work.

B. The Contractor must promptly report in writing to the Engineer and Owner all accidents whatsoever arising out of, or in connection with, the performance of the Work, whether on or adjacent to the site which caused death, personal injury or property damages, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the Owner.

C. If any claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Owner, giving full details of the claim.

2.11 WATER CONTROL

A. The Contractor shall be responsible for providing and maintaining for the duration of the Work adequate provisions for the prevention of the accumulation of surface water or other fluid (such as fuel oil and the like) in excavations. Should such conditions develop or be encountered, the water or other fluid shall be controlled and suitably disposed of by means of temporary pumps, piping, drainage lines, ditches, dams or other approved means.

2.12 EROSION CONTROL

A. The Contractor shall act as the agent for the Owner for soil erosion/sedimentation and shall be required to obtain from the appropriate enforcing agency the permit as required by Act No. 347, Public Acts of 1972, as amended by Act 197, Public Acts of 1974, Soil Erosion and Sedimentation Control Act, for construction of the project. The Contractor shall include all required fees in its proposal.

2.13 DUST CONTROL

A. When necessary, wet down materials or use other suitable methods to limit the amount of airborne dust and dirt created by site operations or materials. (See the Special Provisions)

2.14 PROTECTION OF THE ENVIRONMENT

A. Protection of the environment is of the essence. It is the responsibility of the Contractor to perform all work in a manner that preserves the environmental integrity of the project site and adjacent areas.

PART THREE - PROJECT MEETINGS

3.01 PRECONSTRUCTION CONFERENCES

A. Prior to commencement of Work, the Contractor shall meet with the Owner and Engineer to review and finalize all procedures relating to the Work. This meeting shall be arranged by the Engineer. Appropriate subcontractors will attend this meeting.

3.02 PROGRESS MEETINGS

A. Meetings of the representatives of the Contractor, subcontractors, various trades engaged upon the Work, and the Owner, shall be held as directed by the Owner.

B. Progress meetings shall be for the purpose of coordinating and expediting the Work. Representatives at these meetings shall be qualified and authorized to act on behalf of the Contractor.

PART FOUR - SUBMITTALS

4.01 CONSTRUCTION SCHEDULES

A. The Contractor, immediately after being awarded the Contract, shall prepare and submit for the Engineer's approval an estimated progress schedule for the Work. The progress schedule shall be related to the entire project to the extent required by the Contract Documents.

B. Submission of this schedule will be a requirement prior to the first payment. Revised schedules shall be submitted with each subsequent pay application.

4.02 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. The Engineer will review and approve shop drawings and samples with reasonable promptness so as to cause no delay, but only for conformance with the design concept of the project and with the information given in the Contract Documents. The Engineer's approval of a separate item shall not indicate approval of an assembly in which the item functions.

B. The Contractor shall make any corrections required by the Engineer and shall resubmit corrected copies of shop drawings or new samples until approved. The Contractor shall direct specific attention in writing or on re-submitted shop drawings to revisions other than the corrections required by the Engineer on previous submissions.

C. The Engineer will review all shop drawings and notate them with one (1) of the following:

1. "APPROVED" - Shop drawings thus marked indicate final action by the Engineer.
2. "APPROVED AS NOTED" - Shop drawings thus marked shall be released for shop work and fabrication in accordance with corrections noted. No re-submittal is required.

3. "REVISE AND RESUBMIT" - Drawings thus marked shall not be released for shop work. They shall be corrected and re-submitted. Correction shall be limited to items marked.

4. "NOT APPROVED - RESUBMIT" - Shop drawings thus marked indicate that the drawings are disapproved and new drawings shall be submitted to conform with requirements of the contract documents. Drawings thus marked shall not be released for any work.

D. "Or approved equal" when indicated in the specifications refers to equipment, apparatus, materials, or workmanship that performs the same function or intent, meets the specified collective operating function, passes the same tests, has the same properties, equals the appearance of, and fits into the mechanics of the construction as specified, all as proved equal by the Contractor to the Engineer. The burden of proof of equality of said materials or equipment shall rest with the Contractor. If substitute materials or equipment are accepted by the Engineer, the Contractor shall pay all extra costs created by the substitution of all trades involved, including the cost of revising the Engineer's drawings.

PART FIVE - QUALITY CONTROL

5.01 GENERAL

A. The Contractor is the primary party responsible for quality control of all construction to ensure that the Work is in complete conformance with the Contract Documents.

B. The Contractor shall establish a quality control program and shall implement and report specific quality control requirements described in the specifications.

5.02 OWNER'S TESTING AGENCY

A. The Owner shall employ and pay the cost of independent inspection and testing agencies to provide the quality control requirements deemed necessary by the Owner.

B. Work will be checked by representatives of the testing agencies as it progresses, but failure to detect any defective Work or product will not in any way prevent later rejection when such defect is discovered, nor will it obligate the Owner to final acceptance. When it appears that the Work or product furnished is in non-conformance with the Contract Documents, the testing agency will direct the attention of the Engineer, Owner and Contractor to such non-conformance.

5.03 CONTRACTOR RESPONSIBILITIES

A. To facilitate the work of the Owner's testing agencies, the Contractor shall:

1. Provide facilities for access to the Work at all times for representatives of each testing agency and the Engineer so that the agency may properly perform its functions and the Engineer may observe these functions.

2. Secure for delivery to the testing agency, without charge, preliminary representative samples of the materials proposed to be used and which are required to be tested.

3. Furnish such casual labor as is necessary to obtain and handle samples at the project site or at the source of the materials to be tested.

4. Advise testing agency sufficiently in advance of operations to allow time for completion of prequalification tests and for the assignment of personnel.

5. Provide and maintain for the sole use of the testing agency for concrete materials, adequate facilities for the safe storage and proper curing of concrete test cylinders for the first 24 hour period of curing at the site.

6. Give the Engineer timely notice of the readiness of Work to be inspected, tested or approved. Failure on the part of the Contractor to give such timely notice will result in the required inspection, test or approval being ordered to be repeated, at no additional cost to the Owner.

B. Test Reports: When submittal of test reports made by an inspection and testing agency hired by the Contractor is called for in the specification sections, such reports shall be complete and factual, citing the methods used for obtaining samples, the test performed, the specified values for the measured characteristics, and values obtained, the parts of the project involved, and similar pertinent data which indicates compliance or non-compliance with the specifications. Each test report shall be identified by name of testing agency, name of Contractor, date of inspection or test, specification section number-letter designation and title, and exact location of test.

PART SIX - CONSTRUCTION FACILITIES

6.01 TEMPORARY FIELD OFFICES - *NOT REQUIRED*

A. The Contractor shall provide temporary offices at the project site for its use to meet its requirements and the limitations of the site. Temporary office, if built-up construction, shall be painted a uniform color; the Contractor has the option of using trailer on wheels or other portable-type field office. Location of field offices, if used, shall be approved by the Owner.

6.02 CONSTRUCTION ELECTRICITY (Not Applicable)

A. The Contractor shall provide and maintain construction service for electric power and light facilities required during construction, as set forth hereinafter.

B. All charges for electrical power energy used for construction lighting, operation of construction hoists and other necessary construction facilities, including lighting and heat in field offices, shall be paid for by the Contractor.

C. All costs of construction electrical services for its use shall be paid for by the Contractor, who shall remove same when no longer required.

D. Construction electrical service shall comply with the regulations and requirements of the local electrical utility company.

6.03 TEMPORARY TELEPHONE SERVICE (Not Applicable)

A. The Contractor shall provide and maintain telephone service to/from the construction field office.

6.04 CONSTRUCTION WATER (Not Applicable)

A. The Contractor shall provide the means of conveying the water from the sources approved by the Owner to the locations requiring it. All costs for construction water shall be paid for by the Contractor.

6.05 SANITARY SERVICE

A. The Contractor shall furnish, install and maintain ample sanitary facilities for the workers. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations, and paid for by the Contractor.

6.06 CONSTRUCTION AIDS

A. The Contractor shall provide and maintain for the duration of its contract all scaffolding, staging, runways, ramps, lifting devices and other construction equipment as may be required for the performance of its Contract. The Contractor shall provide temporary gravel drives.

END OF SECTION

**DIVISION 2 – SITE WORK
SECTION – 02100 SPECIAL PROVISIONS**

SUMMARY OF WORK:

- A. The Work to be done under this Contract and in accordance with these Contract Documents consists of performing all work, supplying all labor, and furnishing and installing all materials and incidentals necessary or convenient for completion of the construction of the site and carrying out all duties and obligations imposed upon the Contractor by the Contract Documents.
- B. The main features of Work include, but are not limited to: Removals, septic construction, water service, sidewalks, associated appurtenances, and are further defined below.
- C. Also included are the following support activities:
1. Agency Coordination
 2. Coordination of and cooperation with utility contractors, including misc. clean-up.
 3. Layout Survey and Staking (Refer to General Requirements, Section 01050)
 4. Protection of Existing Site Conditions
 5. Security of the Site
- D. Unless otherwise noted in the Contract Documents, the Contractor shall precisely follow the recommendations of the manufacturer or supplier for handling and placement of materials and equipment into the project work.
- E. Work and materials needed to complete the project which are not listed shall be considered as incidental to the project.
- F. This contract anticipates first-class workmanship throughout the construction of the project. All labor shall be done by personnel qualified and competent to produce a quality product.
- G. The Drawings and Specifications contemplate a finished piece of Work of such character and quality as is described in and is reasonably inferable from them. Inadvertent discrepancies or the failure to show repeated details on any drawing of the figures or notes given on another shall not be the cause for additional charges or claims.
- H. The Contractor shall consult the Engineer regarding any item which may, through oversight, be omitted from the Drawings or Specifications, or for which no symbol or other designation is given for identification. In the absence of any definite instructions from the Engineer, however, such items shall be furnished to correspond with similar items for which information is given.
- I. All work shall be done in conformance with the 2003 Standard Specifications for Construction published by the Michigan Department of Transportation and the attached specifications and supplemental specifications.
- | | | |
|------|-----|--|
| MDOT | 105 | Mobilization |
| MDOT | 107 | Sediment & Dust Control |
| MDOT | 204 | Removing Sidewalk |
| MDOT | 208 | Soil Erosion and Sedimentation Control |
| MDOT | 803 | Concrete Sidewalk |
| MDOT | 812 | Traffic Maintenance and Control |
| MDOT | 816 | Turf Establishment |
- J. The locations of existing underground utilities as listed below and shown on these plans are shown in an approximate way only. The Contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might

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be occasioned by his failure to exactly locate and preserve any and all underground utilities.

Name of Owner

Kind of Utilities

City of Pellston	Watermain, Sanitary, Storm Sewer
City of Pellston	Electric
ATT	Telephone
Michcon	Gas

K. The Contractor shall be responsible for the location of and the preservation of all survey corners in the construction site area. The Contractor shall not attempt to witness, re-adjust, or reset any survey corner, unless the work is performed by a licensed surveyor, as required in Act 26 of Michigan Public acts of 1988. Any survey corners reported to the Owner as being disturbed or destroyed in the project area shall be replaced by the Owner, and the total cost shall be paid by the Contractor and shall be deducted from payments made by the owner to the Contractor.

SIDEWALK:

A. Sawcutting of the existing concrete where the new concrete matches shall be required and is incidental as part of the associated bid items.

B. **Concrete Sidewalk** shall be constructed in accordance with applicable MDOT specifications for Concrete Sidewalk, section 803. Sidewalk subbase shall meet MDOT Class II specifications, 4" thick, compacted in place.

C. Special emphasis shall be placed on Table 601-1 "Time between Charging the Mixer and Placing Concrete" in the 2003 Standard Specifications for Construction. Redi-Mix trucks will have a maximum of 120 minutes to be totally unloaded when the concrete temperature is less than 60°F. This maximum time is reduced to 90 minutes when the concrete temperature between 60°-85°F and further reduced to 70 minutes when the concrete temperature exceeds 85°F. Failure to meet these delivery times is basis for rejecting the load. Concrete Temperature must be between 45°F and 90°F at the time of placement. All other provisions of Section 601 shall apply.

MISCELLANEOUS:

A. The work for **Sediment & Dust Control** is incidental and shall comply with MDOT section 107.15, Compliance with Laws, Environmental Protection. In addition, the contractor shall be responsible for obtaining a soil & sedimentation permit from the County. The contractor shall comply with all requirements and conditions of the permit.

B. The contractor shall grade & rake all disturbed lawn areas in preparation for placement of topsoil. The Owner shall be responsible for the placement of top soil, Hydro-Seed, and mulch on all disturbed areas.

A. Cart path asphalt restoration by Construction Manager.

CHANGE ORDERS:

Change Orders requiring additional payment or time extension of Work shall be verbally approved by Engineer before proceeding with work and shall be submitted in writing for Engineer's approval within 5 days.

END OF SECTION

**DIVISION 2 – EXISTING CONDITIONS
SECTION 02110 – SITE PREPARATION**

PART 1 - GENERAL

1.01 JOB CONDITIONS

A. General

1. Protect from damage existing items indicated to remain by the erection of barriers or by other means approved by the Owner's representative.
2. All open depressions, excavations, pits and the like shall be barricaded. Adequate barricades shall be provided at all times. Barricades must conform to local safety regulations and must be acceptable to the Owner's representative. Remove barriers and fences when no longer required.
3. The Contractor shall maintain and keep public roads and highways in a condition satisfactory to local and/or state officials. All public roads and highways shall be kept clean of spillage at all times.

B. Utility Protection

1. Particular attention is called to the drawings for the location of the existing utilities. The Contractor shall protect these and all other existing utilities from damage resulting from its operations.
2. Call "Miss Dig" prior to excavation.

C. Shoring and Bracing

1. Shore and brace excavations as required to prevent cave-ins. The Contractor shall assume full responsibility for adequate construction of shoring and bracing, and shall be responsible for the safety of all persons occupying excavated sites.
2. Prior to installation, make every effort to determine the presence of existing underground conditions not indicated. If unknown services or obstructions are discovered, the Contractor shall notify the Engineer before proceeding.
3. Remove all shoring and bracing prior to backfilling.

PART 2 - EXECUTION

2.01 PAVEMENT and STRUCTURE DEMOLITION

A. Pavement and Other Site Work

1. Break up and remove existing hard surface pavements including concrete walks, curbs, slabs and bituminous pavements (roads). Remove all base material within 12 inches of finish grade in areas outside of areas to receive new paving.
2. Saw cut the limits of all concrete paving and curbs to be removed when the pavement or curb does not terminate at an existing expansion joint. Saw cut limits of existing bituminous pavements

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where adjoining pavement is to remain. Protect and preserve all retaining walls adjacent to concrete which is to be removed.

B. Structures, where indicated, shall be removed down to and include basement floor slabs and wall footings. All building debris shall be completely removed from the site.

2.03 UTILITY ADJUSTMENTS or ABANDONMENT

A. General

1. All cutting, blocking and discontinuance of utilities shall be done in a permanent and workmanlike manner to the full satisfaction of utility companies and the Owner's representative.

2. All utility companies involved shall be immediately notified by the Contractor so that demolition operations may proceed without danger to, or interruption of, said services for other property owners or liability to the Owner.

B. Abandonment of Manholes or Inlets

1. Existing manholes and inlets to be abandoned, as indicated on the drawings, shall first have the casting removed and either reused on this project or turned over to the Owner for salvage.

2. The cone shall be demolished and removed, the walls broken and removed to a depth necessary to accommodate new construction. Break up bottom to allow for drainage.

3. Plug all inlets and outlets with a minimum of a 12 inch brick and mortar or concrete plug. Any sewers that are to remain in use shall have correcting pipe placed between inlet and outlet, properly connected.

4. The manhole or inlet shall be backfilled with compacted granular material.

C. Adjustment of Existing Utility Covers

1. Tops of existing utility structures, covers, frames and grates shall be adjusted to meet future finished grade elevations.

2. Existing water valves and gas valves shall be adjusted as necessary to meet future finished grades.

2.04 CLEAN UP and DISPOSAL

A. Remove all debris found on the site or accumulated during performance of the work. Spoil piles and other debris shall be removed from the site *on a daily basis* and will not be allowed to be left overnight. If spoil piles and debris are not removed, the Owner may have it removed with the cost deducted from the contract.

B. Items to be removed shall become the property of the Contractor and shall be legally disposed of off the site, at no cost to the Owner.

C. Debris or other materials shall not be offered for sale on the project site.

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D. Burning of debris, except vegetative debris, will not be permitted on the site. Debris are to be disposed of off-site.

END OF SECTION

DIVISION 2 – SITE WORK
SECTION 02210 – EARTHWORK FOR UTILITIES

PART ONE - GENERAL

1.01 REFERENCES

- A. All work shall comply with requirements of the 1990 Michigan Department of Transportation "Standard Specifications for Construction", referred to as MDOT, unless otherwise specified herein.
- B. Where referenced, work shall conform to American Society of Testing Materials series of Standard Specifications, referred to as ASTM.

1.02 SUBMITTALS

- A. Certified Test Reports: Prior to construction, submit certified test reports for all Contractor-supplied materials.

1.03 SITE CONDITIONS

A. Use of Explosives

1. The use of explosives is not permitted without prior approval of the Owner. When the use of explosives is approved, the Contractor shall be responsible for any and all measures necessary for the protection of people and property. Explosives may be used only by personnel trained and certified in their use and the Contractors insurance shall cover any and all claims. The Owner shall be indemnified and held harmless for any and all losses and damages.
2. Prior to any and all blasts the Contractor shall perform Notification of Blasting procedures per the requirements of the Owner; however, the Owner's requirements will in no way relieve the contractor of total responsibility for safety.

B. Protection of Persons and Property

1. Barricade open excavations occurring as part of this work per Section 31 10 00.
2. Protect utilities, pavements and other facilities from damage which may be caused by settlement, lateral movement, undermining, wash-out and other hazards created by excavation operations.

PART TWO - MATERIALS

2.01 SOIL MATERIALS

- A. Soil materials shall be free of debris, roots, wood, scrap material, vegetative matter, refuse, soft and/or unsound particles, frozen, deleterious or objectionable materials.
- B. Granular bedding and backfill shall be clean natural sand, gravel or crushed stone meeting the requirements of MDOT Class II granular material. Gradation shall be modified as required to comply with the maximum particle sizes as defined in ASTM D2321 and AWWA C605.

2.02 CASING PIPES

- A. 12" Diameter or Larger: Shall be steel pipe, ASTM A53, Type E or S, Grade B, with minimum yield strength of 35,000 psi. All joints shall be full penetration, continuous welds ground smooth inside and outside and shall have a minimum wall thickness of 0.25 inches.

B. 10" Diameter or Smaller: Shall be PVC pipe, ASTM 1785 Schedule 80. All joints shall be solvent welded.

PART THREE - EXECUTION

3.01 SHORING and SHEETING

A. Provide temporary shoring, bracing, cribbing or sheeting as required to prevent undermining of structures, utilities, pavements and slabs, and to provide a safe work area in accordance with OSHA safety regulations. The Contractor is responsible for the design of all shoring and sheeting including utility supports.

3.02 DE-WATERING (IF REQUIRED)

A. Include in de-watering the collection and disposal of all forms of surface and subsurface water that are encountered in the course of construction. The Contractor shall operate the de-watering system continuously, 24 hours per day, 7 days per week, until such a time as construction work below existing water levels is complete, unless otherwise directed. After placement of backfill, the water level may rise, but at no time higher than 1 foot below the prevailing level of backfill. Slope all top of excavations to drain rain water runoff away from excavation.

B. The bid item for de-watering shall include only areas where, *in the opinion of the Engineer*, full-time pumping with a 4" diameter or larger pump or the use of specialized de-watering wells is required. All costs for minor de-watering and/or stone placement for trench stabilization shall be incidental.

3.03 EXCAVATION

A. Shall be to the elevations and dimensions indicated or otherwise specified. Keep excavations free from water while construction is in progress. Notify the Owner immediately if it becomes necessary to remove hard, soft, weak or wet material to a depth greater than indicated.

B. Excavate large rock, boulders or hard material to an overdepth at least 6 inches below the bottom of the pipe, conduit, duct and appurtenances unless otherwise indicated or specified.

C. Refill overdepths to the proper grade and place in 6 inch maximum layers. The excavations must be cut to an overdepth of not less than 6 inches and refilled with bedding material to the required grade as specified.

D. Grade bottom of trenches accurately to provide uniform bearing and support for each section of pipe, conduit, duct or structure on undisturbed soil, or bedding material as indicated or specified at every point along its entire length except for portions where it is necessary to excavate for bell holes and for making proper joints. Dig bell holes and depressions for joints after trench has been graded and dimension as required for properly making the particular type of joint to ensure that the bell does not bear on the bottom of the excavation.

3.04 ROCK EXCAVATION (IF REQUIRED)

A. Definition: Rock excavation is defined as excavation material that requires blasting before it can be removed by generally available excavation equipment.

B. Rock such as boulders or fractured rock pieces 1 cubic yard or less in volume, or weathered rock or hardpan that can be removed by a ripper powered by a D-8 tractor or comparable, 2 cu. yd. backhoe with a rock bucket or other generally available excavation equipment shall not be classified as rock excavation.

C. Blasting, if approved by the Owner, shall be done with explosives of such quantity and power, and fired in such sequence and locations, as not to injure personnel, damage or crack rock against which concrete will be placed, or damage property or adjacent work, or both. Explosives are not to be stored on the Owner's property. Blasting shall be performed by skilled operators in accordance with state and local ordinances. Damage caused by blasting operations shall be the sole responsibility of the Contractor.

D. To the extent possible, when blasting in the vicinity of occupied spaces the area to be blasted shall be covered with sand to minimize the launching of projectiles.

3.05 BEDDING and BACKFILLING

A. Surround pipes, conduits, ducts with bedding and backfill as indicated. Ensure that backfill is placed completely under pipe haunches. No frozen backfill is to be used. Ensure that no damage is done to structures or protective coatings thereon. Provide uniform and continuous support for each section of structure except at bell holes or depressions necessary for making proper joints.

B. Place granular backfill in 6 inch maximum loose lifts to 1 foot above pipe or other utility unless otherwise specified. Bring up evenly on each side and for the full length of the structure.

C. In wet areas, crushed stone shall be required for stabilization purposes. The cost shall be added to the project cost.

D. At 1 foot above the pipe or other utility, place granular backfill in 8 inch maximum loose lifts unless otherwise specified.

E. Compact each loose lift as specified below before placing the next lift.

F. Do not backfill in freezing weather where the material in the trench is already frozen or is muddy, except as authorized.

G. Where unacceptable settlements occur in trenches and pits due to improper compaction, excavate to the depth necessary to rectify the problem, then backfill and compact the excavation as specified herein and restore the surface to the required elevation.

H. Coordinate backfilling with testing of utilities. Testing for water distribution and sanitary sewer systems shall be complete before final backfilling.

3.07 COMPACTION

A. Use hand-operated plate-type vibratory or other suitable hand tampers in areas inaccessible to larger rollers or compactors. Be careful to avoid damaging utilities and protective coatings. Compaction shall be in accordance with the following unless otherwise specified.

1. Compaction of bedding shall be to 95 percent of ASTM D1557 maximum density.

2. Compaction of granular backfill to 1 foot above pipes, cables, conduits or ducts shall be to 95 percent of ASTM D1557 maximum density.

3. Compaction of granular backfill from 1 foot above pipes, cables, conduits or ducts shall be to 90 percent of ASTM D1557 maximum density. If trench is located within a roadway or other paved area, compaction shall be to 95 percent of ASTM D1557 maximum density.

3.08 SPECIAL EARTHWORK REQUIREMENTS

A. Piping or Utilities Under Embankment: Construct the embankment to 6 inches above the elevation of the top of the pipe. Excavate the trench through the constructed embankment as specified in Excavation.

B. Manholes and Other Appurtenances: Provide at least 12 inches clear from outer surfaces to the embankment or shoring. Remove unstable soil that is incapable of supporting the structure to an overdepth of 1 foot and refill with compacted bedding material to the proper elevation.

C. Roads, Streets, Walkways and Other Areas to be Paved: Place backfill in 6 inch maximum loose lifts. Compact bedding and granular backfill surrounding pipes, ducts, conduits and other structures as specified above. Backfill in a manner to permit the rolling and compacting of the completed excavation with the adjoining material to provide the specified density so that paving of the area can proceed immediately after backfilling has been completed.

D. Boring and Jacking: The Contractor shall be allowed to bore and jack casing pipes or conduits under existing roadways. All materials and procedures shall be submitted for review and approval, and shall be in accordance with rules and regulations of the utility company and road owner.

3.09 FINISH OPERATIONS

A. Grading shall conform to Division 2 – Site Preparation. In addition, existing grades which are to remain, but are disturbed by the Contractor's operations, shall be graded as directed.

B. Surplus or unsuitable material for backfill shall be removed and disposed of off-site by the contractor at the contractor's expense.

C. Protect newly graded areas from traffic, erosion and settlements that may occur. Repair or reestablish damaged grades, elevations or slopes.

END OF SECTION

DIVISION 2 – SITE WORK
SECTION 02220 – DEMOLITION

NOTE: The Instructions to Bidders, General, Supplementary General, and Special Conditions bound herein, form a part of this Construction Manager's work and shall be considered a part of this section.

PART 1 - GENERAL

1.1 SCOPE OF THE WORK

- A. Work under this heading shall include the furnishing of all labor and equipment required to provide a complete job. This work consists of the complete demolition and removal of the existing areas as indicated on the Drawings. This work includes the removal from the premises of all debris and the disconnecting and capping of any utilities.
 - 1
 - 2 Removal of exterior facias, etc.
 - 3 Removal of existing walls and partitions.
 - 4 Removal of slabs, finishes, doors, , lockers, fencing, etc.
 - 5 Removal of existing ceilings and floor finishes.
- B. All demolition of existing piping, equipment, fixtures, ductwork, air handling devices, etc., will be done by the Construction Manager unless otherwise indicated. This shall include all existing piping, supports, equipment, etc., in areas where such items are not required for the proper operation of the revised systems. The Mechanical Trades shall coordinate termination of services to areas not included in this Contract.
- C. The following are included in other sections of the specifications:
 - 1 Alterations and new finish work.
 - 2 Removal of existing mechanical work.
 - 3 Removal of existing electrical work.
- D. NOTE: Demotion is indicated on Architectural Demolition Drawings by dotted line indicating existing structure to be removed.

1.2 EXAMINATION AT SITE

- A. All bidders shall examine the site and structure to be modified and assume responsibility as to the existing conditions. Each proposal shall include the complete demolition and removal of the structures, foundations, slabs, disconnecting utilities, etc., based on the bidders' investigation of the structures and site.

1.3 PERMITS

- A. The Contractor shall obtain and pay for all permits and fees in connection with this work.

1.4 WORKMANSHIP

- A. This work shall be done by experienced mechanics under the supervision of an experienced superintendent familiar with demolition and removal operations. All masonry and concrete edges shall be saw cut. All edges, walls, sash members, surfaces, etc., shall be left undamaged when adjoining areas are removed.
- B. Properly shore and brace all existing walls, beams or joists, ceilings, etc., as required if supporting members or walls are removed. Coordinate with other trades to provide installation of new work and removal of shoring as soon as possible.
- C. All existing work to be left in place shall be left broom clean and undamaged at the completion of his trade's work.

- D. This Construction Manager shall be responsible for replacing work damaged under this sub-trade.

1.5 BARRICADES AND PROTECTION

- A. This Construction Manager shall provide all required barricades, enclosures, screens, bulkheads, danger signs, flares, walkways, mufflers, etc., required to satisfactorily separate and segregate the areas of demolition work.
- B. Provide adequate and suitable protection to the Owner's occupancy of the existing building area during the execution and completion of the work required under these Specifications, in such a manner that the Owner's operation may be carried on at the same time as the demolition and removal work is being done, without interference and interruption.

1.6 SCHEDULE OF OPERATIONS

- A. Construction Manager shall obtain from the School a schedule of operations to assist in work scheduling.
- B. Dusty and noisy operations shall be isolated from occupied areas by means of suitable, flame-proofed and sound absorbing barriers to prevent circulation of dust or other debris beyond construction areas and to isolate excessive noise and vibration.

1.7 SALVAGE

- A. All salvageable materials, equipment, electric scoreboard, fixtures, cabinets, doors, hardware, mirrors, shelves, etc., shall be removed by the Construction Manager and remain the property of the Owner. Items noted in the Specifications or on the Drawings as re-used or relocated, other than listed above, shall be carefully removed and stored for the installation by the Construction Manager or trades responsible. All items not selected for reuse shall later be disposed of by the Construction Manager.

1.8 CLEANING

- A. Clean all existing surfaces affected by demolition work which is to be exposed.

PART 2 – EXECUTION

2.1 DEMOLITION

- A. Ceilings: Carefully remove existing ceiling as indicated on the Drawings or required for new work. Coordinate with all trades involved.
- B. Walls: Carefully remove existing masonry and framed walls as indicated on the Drawings or in the Specifications. Mechanical Subcontractor shall remove fixtures, supports and piping. Masonry wall sections shall be cleanly cut in a straight and vertical line. Carefully remove door frames where indicated and saw cut at no more than one-half course back from door frame, vertically and to a point above existing ceiling or to construction that a clean transition between new and existing materials may be accomplished.
- C. Slab: Shall be saw cut at transitions and for new footings with portion to be removed carefully broken into manageable sizes and so as to avoid creating excessive dust.
- D. Building Equipment:
 - 1 All items to be reused or relocated shall be carefully removed and turned over for reinstallation by the trade involved. All other items not to be reused shall be carefully removed and turned over for their disposition.
 - 2 Items which cannot be reused shall be considered debris and must be removed from the premises immediately.

2.2 EXTERIOR DEMOLITION

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- A. Remove existing metal siding and trim where indicated on drawings. Remove existing metal siding and trim and expose exterior wall sheathing for inspection and removal or replacement. Remove various portions of exterior window trim, fascia, etc. Refer to drawings for locations.

2.3 ASBESTOS ABATEMENT

- A. Asbestos: All demolition work including asbestos or other hazardous materials shall be accomplished by the Owner independent of this Contract. Should this Construction Manager encounter material he believes contains asbestos or any other hazardous materials, he shall immediately terminate work on that element and notify Owner, Architect and Engineer in writing.

END OF SECTION

DIVISION 2 – EARTHWORK
SECTION 02230 – EXCAVATION AND FILL

NOTE: The Instructions to Bidders, General, Supplementary General, and Special Conditions bound herein, form a part of this Construction Manager's work and shall be considered a part of this section.

PART 1 - GENERAL

1.01 SCOPE OF THE WORK

- A. Work under this heading shall include furnishings of all materials, labor, equipment, etc., to clear, excavate, and prepare the area for construction. Items described herein, indicated on the Drawings or normally and reasonably required will be provided. The work includes, but is not limited to, the following:

- 1 Providing as directed temporary construction access.
- 2 Protection of trees.

The following are by others:

- 1 Excavating and backfilling for Mechanical and Electrical work.
- 2 Seeding and planting.

1.02 INVESTIGATION AT SITE

- A. All bidders shall examine the site and assume responsibility as to existing contours and character of the area, paving or other matter that may be encountered during the excavation. Each proposal shall include complete excavations based on bidder's investigation at the site. This Trade Subcontractor shall accept site as he finds it. All excavation is unclassified.

1.03 SUITABLE BEARING

- A. In case, at any point, excavations shown do not appear to be at suitable bearing soil, the Construction Manager shall notify the Architect and Owner immediately and, when directed, shall carry the excavations down until suitable bearing is reached. The Owner shall provide testing for verification of same if required.

1.04 SHORING, BRACING AND SHEET METAL

- A. Wood or steel formed thoroughly braced shall be used to protect earth banks, sides of pits, trenches, and other excavations from caving in, erosion, and danger to persons or structures. Wood used for this purpose shall be removed after or as walls are built and properly set; then shall be removed before any backfill is installed.

1.05 DEWATERING

- A. Furnish all hand and power pumps and provide proper attendants and power for same to keep the excavations free from water, including rainwater.

1.06 QUALITY CONTROL

- A. Inspections and testing required by laws, ordinances, rules, regulations or orders of public authorities are specified under General Conditions

PART 2 – PRODUCTS

2.01 FILL AND BACKFILL MATERIALS

- A. Shall be excavated earth free from topsoil, vegetation, debris and rubbish, large stones and rock as approved by the Architect and Owner's testing engineer. Only clean bank run sand free of debris, vegetation, and organic matter shall be used under floor slabs placed on ground and exterior concrete slabs. This Trade Subcontractor shall bring additional fill and backfill materials onto the site as required.

2.02 PERIMETER INSULATION

- A. Shall be Styrofoam SM brand, 2" thick by 24" wide, with a minimum compressive strength of 25 psi.

2.03 COMPACTION REQUIREMENTS

- A. Testing: Reference General and Special Conditions: General: This Trade Subcontractor shall place and compact all fill and back fill to the densities as specified below. All borrow materials used as fill or backfill shall be approved by the Architect and Owner prior to placement.

2.04 TEST PROCEDURES:

- A. Modified Proctor Method: ASTM Designation D1557-70.
- B. Cohesive Fill and Backfill: Cohesive material shall be that with more than 12 percent (12%) passing the No. 200 sieve. All cohesive fill and backfill shall be spread in lifts of 8 inch (8") maximum dry density obtained by the Modified Proctor Method; "Test for Moisture-Density Relations of Soil Using 10-pound Rammer and 18 Inch Drop, ASTM Designation D1557-70, Method A".

Upon placement and compaction to a lift of cohesive material, the surface should be sacrificed to a depth of two inches (2") prior to the placement of a subsequent lift. Cohesive earth material should be compacted at a water content, as determined by the Modified Proctor Method. The Construction Manager shall anticipate drying or wetting operations, depending on the field conditions and the conditions of the backfill material. Compact to 88% of maximum density.

PART 3 - EXECUTION

3.01 GRADING

- A. Cut and fill to proper levels and grades for building work and out to include all new contours.
- B. Strip top soil from areas to be filled to grade for building work to depth sufficient to expose compatible subgrade, remove all vegetation and other unsuitable soil materials. Compact top twelve inches (12") of subgrade in areas to receive additional work or structures as specified below.
- C. Where fill is required, distribute material in layers of not more than 8", each layer shall be thoroughly compacted by mechanical means to 95% of maximum density.
- D. All excavation earth not suitable or required for backfill or filling shall be removed from the site and legally disposed of. This Subcontractor shall bring in additional clean fill material as required.
- E. Compact all fill to an average of 98% of maximum density at optimum moisture content with maximum density of at least 95% in accordance with current ASTM D-1557 in areas to receive additional work or structures.
- F. The Owner will employ and pay for the services of a qualified independent Testing Laboratory. The Test Laboratory will test fill materials to determine their suitability for compaction, determine water contents, and perform compaction tests on fill materials as required.

3.02 EXCAVATION

- A. This Subcontractor shall include all excavation to levels shown on the Drawings regardless of soil conditions and subgrade structures encountered, and no extra compensation shall be requested or allowed. Bidders shall base their bids accordingly.
- B. Excavate to proper levels and subgrades for foundation walls, column or pier footings and floor slabs.
- C. Excavations shall be carried to elevations indicated, unless directed otherwise by the Construction Manager or Architect. Should excavations for foundations be carried deeper than design depths through error, additional depth shall be filled with concrete of same type as footing or wall at no additional cost. Footings shall not be placed on earth or fill.

- D. Sloping surfaces under foundation shall be stepped down in level steps. Trenches for external masonry or concrete wall will not be less than 4' below finished grade or less than 2' below natural grade, deeper as required, if firm soil is not encountered.
- E. Excavated earth suitable for backfill, free from perishable rubbish, large stones and clay in amounts required for backfill shall be stored on site for reuse. All excavated earth not required for backfill shall be removed from the site and legally disposed of.
- F. Excavations shall be cut to required depths to allow for the following compacted bank run sand or gravel fill: Allow for 4" bank run sand fill under interior and exterior concrete slabs and walks.

3.03 SHORING, BRACING AND SHEETING

- A. Wood or steel forms thoroughly braced shall be used to protect earth banks, side of pits, trenches, and other excavations from caving in, erosion, and danger to persons or structure. Wood used for this purpose shall be removed after or as walls are built and properly set. Shoring necessary to remain in place until the floors and interior walls are placed, shall remain until floors and walls have set; then shall be removed before any backfill is installed.

3.04 BACKFILL

- A. Excavations shall be backfilled, with borrow materials approved by the Architect or Owner. Use bank run sand brought onto site if such backfill is not available on site. Backfill shall be deposited in layers not over 8" in depth, and each layer shall be thoroughly tamped mechanically to 95% modified proctor.
- B. Backfill shall not be placed until foundation walls, footings, waterproofing and drainage tile have been inspected and approved. All temporary planking and debris shall be removed before backfilling.
- C. Install perimeter insulation during backfilling operation. Closely butt joints and adhere insulation to walls with mastic as recommended by insulation manufacturer. Backfill carefully against insulation to avoid dislocation and damage.
- D. Where excavations are wider than necessary inside the building area, they shall be backfilled with clean bank run sand and compacted in 8" layers. Do not backfill over frozen earth and do not use frozen earth for backfill. All excess excavated material shall be removed from the site and legally disposed of.

3.05 FILLING

- A. The Excavation Contractor is to bring additional and sufficient fill earth into the site to build grades up to levels shown on Drawings where required. Where such fill is required under floors placed on ground, only clean bank run sand free of debris, vegetation, and organic matter shall be used. Where such fill is needed outside of building area, clay-bearing fill free of debris, vegetation, and organic matter may be used and shall be compacted as specified for backfill. Heavy blue clay shall not be used.

3.06 TESTING

- A. Due to the difficulty of obtaining soil boring's prior to construction at building additions, testing will be required at new footing levels for verification of soil bearing capacities before actual construction begins.
- B. Tests shall be made by an approved independent laboratory at the expense of the Owner.
- C. Construction Manager shall coordinate the service of a soil testing engineer, selected by the Owner, who shall test all excavations with a House Penetrometer to ascertain that the soil bearing power is correct, and report these findings direct to the Architect for design verification before pouring concrete.

3.07 INSPECTION AND TESTING SERVICES

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- A. Cost of inspections, test approvals required by the Architect for quality control and compliance with the Specifications shall be charged against the allowance for Testing and Inspection. Inspection and Testing shall be performed by an Independent Testing Laboratory as selected by Architect and Owner. The Construction Manager shall notify the Architect and Testing Laboratory in time to perform tests in accordance with the Specifications.
- B. Testing services required by the Construction Manager for compliance with Specifications, such as extra concrete test cylinders for early removal of form work and other testing work, "Construction Manager's Responsibilities," shall be paid for by the Construction Manager and not be charged to the Testing Allowance. Also, additional testing and inspection required as a result of negligence or poor workmanship of the Construction Manager, in the opinion of the Architect, shall be paid by the Construction Manager and not charged against the Testing Allowance.

3.08 TESTING AGENCIES' RESPONSIBILITIES

- A. Each inspection and testing agency will provide test-taking equipment as required to accomplish the specified quality control program.
- B. Unless specifically agreed upon by the Architect, sampling and testing methods shall be as called for in the Specifications. Testing agency personnel shall be qualified and completely familiar with the required test methods.
- C. Two copies of each test report will be submitted to the Architect and two copies to the Construction Manager. Such submittals shall be as specified for test reports.
- D. Work shall be checked by representatives of the testing agencies as it progresses, but failure to detect any defective work or materials shall not in any way prevent later rejection by the Architect or Owner, when such defect is discovered. When it appears that the work or material furnished is in nonconformance with the Contract Documents, the representative of the testing agency involved shall direct the attention of the Architect and Construction Manager to such non-conformance.
- E. The inspection and testing agency and its representatives are not authorized to revoke, alter, relax, enlarge or release any requirement of the Contract Documents, nor to approve or accept any portion of the work.

3.09 CONSTRUCTION MANAGER'S RESPONSIBILITIES

- A. Provide facilities for access to the work at all times of representatives of the testing agencies in order that the agency may properly perform its function.
- B. Secure and deliver to the testing agency preliminary representative materials of the material he proposes to use and which are required to be tested.
- C. Furnish such casual labor as is necessary to obtain and handle samples at the Project site or at the source of the materials to be tested.
- D. Advise each testing agency sufficiently in advance of operations to allow time for completion of pre-qualification tests and for the assignments of personnel.
- E. Provide and maintain for the sole use of the testing agency for concrete materials, adequate facilities for the safe storage and proper curing of concrete test cylinders for the first 24-hour period of curing at the site, in accordance with ASTM C31.
- F. Arrange with testing agency, pay for, additional samples and tests required for Construction Manager's convenience. Upon consent of the Architect, the Construction Manager may arrange, and pay for, services of a separate, equally qualified independent inspection and testing agency, to perform additional inspections, sampling and testing agency, to perform additional inspections, sampling and testing required when initial tests indicate work does not comply with Contract Documents.

END OF SECTION

DIVISION 2 – SITE WORK
SECTION 02800 - SOIL EROSION CONTROL

PART ONE - GENERAL

1.01 REFERENCES

A. All work shall comply with requirements of the 2003 Michigan Department of Transportation "Standard Specifications for Construction", section 208 Soil Erosion and Sedimentation Control, and the County's soil erosion & sedimentation control permit.

B. The soil erosion & sedimentation control permit is required to be obtained from the Emmet County planning & zoning office.

C. Where referenced, work shall conform to American Society of Testing Materials series of Standard Specifications, referred to as ASTM.

1.02 SUBMITTALS

A. Certified Test Reports: Prior to construction, submit certified test reports for all Contractor-supplied materials such as silt fence, erosion control netting/blankets, etc.

PART TWO - TEMPORARY EROSION CONTROL MEASURES

2.01 SILT FENCE

2.02 SEDIMENT BASINS

2.03 TOPSOIL, SEED, MULCH

2.04 EROSION CONTROL NETTING, MULCH BLANKETS

PART THREE - EXECUTION

3.01 SILT FENCE

A. Provide silt fence as required to prevent sedimentation of on-site soils off-site and into sediment basins. Silt fence shall be placed as shown on the Soil Erosion Control Plan, and additional silt fence shall be placed as deemed necessary by the Engineer or the soil erosion control officer at no additional cost to the Owner. The Contractor shall be responsible for the maintenance and/or replacement of all silt fences as directed by the Engineer or erosion control Officer.

B. Silt fabric shall be placed under all existing and new catch basin castings and shall be maintained as needed, or as directed by the County's inspector. The silt fabric shall remain until paving & restoration is complete.

3.02 SEDIMENT BASINS

A. Sediment basins shall be constructed as necessary to collect sediment on-site. Proposed permanent retention basins may be used as sediment basins during site construction. Refer to the Soil Erosion Control Plan for required sediment basins.

3.03 TOPSOIL, SEED, MULCH

A. Excavator to stage top soil on site.

3.04 EROSION CONTROL NETTING/MULCH BLANKETS

A. Provide erosion control netting/mulch blankets as required to prevent erosion of areas in excess of 25% slope. The blankets shall be secured as recommended by the manufacturer. Erosion control netting/blankets shall be placed as shown on the plans, and additional netting/blankets shall be placed as deemed necessary by the Engineer or the soil erosion control officer at no additional cost to the Owner. The Contractor shall be responsible for the maintenance and/or replacement of all erosion control netting/blankets as directed by the Engineer or erosion control Officer.

3.05 MAINTENANCE:

A. The contractor shall inspect the erosion control measures weekly and after all rainfalls of 1 inch in a 24 hour period.

B. Maintenance of erosion control measures shall be scheduled immediately when maintenance is required. The Engineer may require that work cease on other areas of the site in order to correct erosion control deficiencies.

C. Sediment shall be removed from behind silt fence when the depth reaches 1/3 of the height of the silt fence. The fence shall be restored to an upright position and re-anchored if necessary.

D. Sediment basins shall be cleaned out upon having filled halfway, or upon the Engineer's direction.

E. Erosion control netting/blankets shall be replaced and/or re-anchored if they become dislodged or torn away during a rainfall event.

F. The Engineer shall have the authority to require additional erosion control measures at his discretion to prevent possible erosion or sedimentation. Any additional measures required shall be at no additional cost to the Owner.

3.06 FINISH OPERATIONS

A. Temporary erosion control measures shall not be removed until the site has been stabilized in the opinion of the Engineer and/or the County's inspector.

B. The grading & utility contractor shall be released from his obligation of soil erosion control & maintenance when the areas disturbed by construction for this contract have been stabilized in the opinion of the Engineer and/or inspector, at which time, the obligation will transfer to the Owner for any continued maintenance or additional measures required on-site.

END OF SECTION 02800

DIVISION 3- CONCRETE
SECTION 03300 – CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Polypropylene fibers used as concrete secondary reinforcement.
- B. Stamped concrete. 8" Hexagonal pattern to be stamped into concrete at entrance to complex.

1.2 REFERENCES

- A. ASTM C 94 - Standard Specification for Ready-Mixed Concrete.
- B. ASTM C 1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.

1.3 SUBMITTALS

- A. Comply with Division 1 - Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, including application rate and mixing instructions.
- C. Manufacturer's Certification:
 - 1. Submit manufacturer's certification that synthetic fiber reinforcement complies with specified requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver synthetic fiber reinforcement in manufacturer's original, unopened, undamaged containers and packaging, with labels clearly identifying product name, unique identification number, code approvals, directions for use, manufacturer, and weight of fibers.
- B. Storage:
 - 1. Store synthetic fiber reinforcement in clean, dry area indoors in accordance with manufacturer's instructions.
 - 2. Keep packaging sealed until ready for use.
- C. Handling: Protect synthetic fiber reinforcement during handling to prevent contamination.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Propex Operating Company, LLC. PO Box 22788, Chattanooga, Tennessee 37422.
Toll Free 800-621-1273. Website www.fibermesh.com. E-mail fibermesh@propexglobal.com.

2.2 SYNTHETIC FIBER REINFORCEMENT

- A. Synthetic Fiber Reinforcement: Fibermesh 300.
 - 1. Material: 100 percent virgin homopolymer polypropylene fibrillated fibers, containing no reprocessed olefin materials.
 - 2. Conformance: ASTM C 1116, Type III.
 - 3. Fire Classifications:
 - a. UL Report File No. R8534-11
 - 4. Fiber Length: Single-cut lengths.
 - 5. Alkali Resistance: Alkali proof.
 - 6. Absorption: Nil.
 - 7. Specific Gravity: 0.91.
 - 8. Melt Point: 324 degrees F (162 degrees C).

PART 3 EXECUTION

3.1 MIXING

- A. Add synthetic fiber reinforcement to concrete mixture in accordance with manufacturer's instructions.
- B. Add synthetic fiber reinforcement into concrete mixer before, during, or after batching other concrete materials.
- C. Application Rate: Add synthetic fiber reinforcement at minimum application rate of 1.5 pounds per cubic yard (0.9 kg/m³) of concrete.
- D. Mix synthetic fiber reinforcement in concrete mixer in accordance with mixing time and speed of ASTM C 94 to ensure uniform distribution and random orientation of fibers throughout concrete.
- E. Concrete shall be as specified in Section 03301.

3.2 PLACING AND FINISHING

- A. Placing and finishing concrete shall be noted on the drawings.

END OF SECTION

DIVISION 4 – MASONRY
SECTION 04200 – UNIT MASONRY

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Masonry work includes concrete unit masonry and brick masonry.

1.02 QUALITY ASSURANCE

- A. All work shall conform to the standards of the Brick Institute of America, ACI 530.1-95/ASCE 6-95/TMS 602-95 and to codes having jurisdiction.
- B. Do not lay units that are wet or frozen.

PART 2 - PRODUCTS

2.01 CONCRETE MASONRY UNITS (CMU): Provide hollow load bearing block complying with ASTM C-90, normal weight. Size: Nominal 16" long x 8" high Grade: N Type: 1

2.03 MORTAR AND GROUT: Mortar shall conform to ASTM C-270, based upon mix by proportion. Use Type S mortar for composite, reinforced and bearing walls.

A. Mortar materials:

- Portland Cement; ASTM C-150, Type I.
- Masonry Cement; ASTM C-91.
- Hydrated Lime; ASTM C-207, Type S.
- Mortar Color Pigment; none.

B. Grout shall conform to ASTM C-476, measurement by proportions.

C. Sand shall conform to ASTM C-144.

D. Water shall be clean and potable.

E. Use no admixtures in mortar and/or grout. Anti-freeze compounds are prohibited.

2.04 REINFORCING:

A. Provide zinc coated (hot dipped galvanized) steel wire, ASTM C-641.

1. Horizontal Reinforcing:

- Composite/cavity walls: 3-wire Ladder-type to tie the two wythes together, #9 gauge
- Single wythe walls: 2-wire Ladder type, #9 ga.

B. Reinforcing bars shall conform to ASTM A-615, Grade 60.

1. Re-bar positioners shall be hot dipped galvanized, equal to Wire Bond Series #3400 or #3401.

2.05 MISCELLANEOUS MATERIALS:

A. Dampcourse flashing shall be 40 mil rubberized asphalt self-adhering sheet. Provide prefabricated corners and ends.

B. Brick vents and weeps shall be equal to Hohmann & Barnard #343, color to match mortar.

C. Collar/cavity filter material shall be pea gravel.

D. Grout retainer shall be equal to "Mortar/Grout Screen" by Hohmann & Bernard.

- E. Control/expansion joint strips at CMU walls shall be equal to “Weatherite ‘R’” or “Slot Seal” by Williams Products.
- F. Masonry cleaners shall be mild detergent and water.

PART III - EXECUTION

3.01 INSTALLATION

- A. Cut masonry units using motor-driven saws to provide clean, sharp, un-chipped edges. Cut units as required to provide continuous pattern and to fit adjoining work. Use full-size units without cutting where possible.

3.02 CONSTRUCTION TOLERANCES

- A. Variation from Plumb: Vertical lines, surfaces or columns, walls do not exceed 1/4" in 10' nor 1/2" up to 40'. For external corners, expansion joints, control joints and other conspicuous lines, do not exceed 1/4" in any story of 20' maximum. Vertical alignment of head joints shall not exceed 1/4" in 10'.
- B. Variation from Level: For bed joints, parapets, horizontal grooves and other conspicuous lines, do not exceed 1/4" in any bay or 20' maximum.
- C. Variation of Linear Building Line: Do not exceed 1/2" in any bay or 20" maximum, nor 3/4" in 40' or more.
- D. Variation in Mortar Joint Thickness: Do not exceed joint thickness indicated by more than plus or minus 1/8".

3.03 LAYING MASONRY UNITS

A. CONCRETE MASONRY UNITS:

1. CMU shall be laid in a full mortar bed for first course and those above dampcourse flashings.
 - a. Dampcourse flashings shall be embedded at least 4 inches into CMU head joint.
 - i. Lap dampcourse flashings at least 4 inches and seal tight with sealant.
 - ii. Set prefabricated corners and ends on at least 4-inch laps and seal tight with sealant.
2. CMU shall be laid in running bond pattern. Do not use units with less than 4 inches nominal horizontal face dimension at corners or jambs. Face units shall be fully bonded. Webs shall be fully mortared at vertically grouted cores.
3. Tool joints slightly concave.
4. Set horizontal reinforcing in mid-width of wythe.
5. Build in all items required to be and so noted including reinforcing, bearing plates, lintels, anchors, clips, etc. Vertical reinforcing bars shall be set thru rebar positioners to hold bar at mid-width position unless noted otherwise on structural drawings.
6. Place grout retainer in course below horizontally grouted cores where cores below need not be grouted.
7. At control/expansion joints, use slotted jamb type units. Horizontal reinforcing shall be discontinuous at joint. Apply sealant and backer rod at both sides of joint.

B. BRICK MASONRY UNITS:

1. Brick shall be laid in full mortar bed. (Hollow brick units shall be laid as CMU described above.) Do not furrow joints. Joints shall be pyramid type so that mortar will ooze out the exposed face and not into the cavity. Keep cavity free of mortar droppings and debris.
2. Head joints shall be full and without voids. Collar joints immediately below dampcourse flashing shall be filled down to foundation wall/footing.
3. Extend dampcourse flashing down 8 inches minimum from CMU wall, then horizontally thru the cavity and under the base of the brick composite course plus ¼" beyond the face of the exposed brick.
4. Place cavity filter (pea gravel) into base of cavity and extend up at least 4 inches.
5. Construct open head joint weep at top of damp course flashing. Construct with temporary wood plug, 3/8" thick by course height or brick vent height by depth of wythe and cavity. Remove plugs when mortar sets; set brick vent in place. Space brick weeps at 24 inches on center maximum with minimum of two per opening uniformly spaced.
 - a. Construct end dams in flashings over doors, windows and other openings above the base course.
6. Construct brick vents in brick walls using prefabricated brick vents similar to weep construction. Space vents at 48 inches on center maximum in the top exposed course head joints.
7. Lay utility size brick in 1/3 running bond, unless noted otherwise on the Drawings. Do not use units with less than 4 inches horizontal dimensions at corners or jambs.
8. Tool exposed joints slightly concave after mortar is thumbprint hard but before it is set.

C. GROUTING:

1. Do not place grout until wall area to be grouted has attained sufficient strength to resist grout pressure.
2. Inspect grout cores prior to placing grout. Remove excess mortar protrusions over ½" and clean out cores of debris.
3. Install reinforcing bars using positioners and locate bars as indicated on the Drawings and in notes.
4. Provide core clean outs for high lift grouting methods (over 5 feet) in the bottom course.
5. Place grouting using either high-lift or low-lift methods. Consolidate grout at initial placement. Reconsolidate by mechanical vibration after initial water loss and settlement has occurred.
6. Remove clean out plugs and patch CMU to match adjacent surfaces.

3.04 PRODUCTS

A. FIELD STONE OR STONE VENEER:

1. Furnish and install all stone work as indicated or called for on the Drawings and as per Architect's details. All stone veneer to be field stone with square cut split face to match existing Clubhouse entrance. Submit sample of material and coursing design before starting. Submit sample for all stone for verification of color range.
2. Mortar: Mortar to match existing.

3.05 CLEANING:

1. After mortar is thoroughly set and cured, clean masonry completely using the least harsh method possible with a solution of mild detergent and water. Use of power washers is prohibited.

END OF SECTION

DIVISION 5 – METALS
SECTION 05120 – STRUCTURAL STEEL

PART 1 - GENERAL

- A. Structural Performance: Engineer structural steel connections required by the Contract Documents to be selected or completed by the fabricator to withstand design loadings indicated.
- B. Engineering Responsibility: Engage a fabricator who utilizes a qualified professional engineer to prepare calculations, Shop Drawings, and other structural data for structural steel connections.
- C. Submittals: In addition to Product Data and mill test reports on structural steel and bolts, submit Shop Drawings detailing fabrication of structural steel components, including connections, splices, holes, welds, and bolts.
 - 1. Include Shop Drawings signed and sealed by a professional engineer responsible for their preparation who is legally authorized to practice in the jurisdiction where Project is located and who is experienced in providing structural steel engineering services.
- D. Comply with applicable provisions of the following specifications and documents:
 - 1. AISC's "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design."
 - 2. ASTM A 6 "Specification for General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use."
 - 3. Research Council on Structural Connections' (RCSC) "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- E. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code--Steel."
 - 1. Present evidence that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.
- F. Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration.
 - 1. Store fasteners in a protected place. Clean and relubricate bolts and nuts that become dry or rusty before use.

PART 2 - PRODUCTS

- A. Structural Steel as follows.
 - 1. Angles, Plates and Bars: ASTM A 36.
 - 2. Cold-Formed Structural Steel Tubing: ASTM A 500, Grade B.
 - 3. Steel Pipe: ASTM A53, Type E or S, Grade B.
 - 4. Anchor Rods, Bolts, Nuts: ASTM F1554 Grade 36, rods.
 - 5. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy hex steel structural bolts, heavy hex carbon-steel nuts, and hardened carbon-steel washers, uncoated.
- H. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer.
- I. Nonmetallic, Shrinkage-Resistant Grout: Premixed, ASTM C 1107, of consistency suitable for application.
- J. Fabrication: Fabricate and assemble structural steel in shop to greatest extent possible. Fabricate structural steel according to AISC specifications referenced in this Section and in Shop Drawings.

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1. Comply with fabrication tolerance limits of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for structural steel.
 2. Shop install and tighten nonhigh-strength bolts, except where high-strength bolts are indicated.
 3. Shop installs and tightens high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490" as indicated on drawings.
 - a. Connection Type: Snug tightened, unless indicated as slip-critical, direct-tension, or tensioned shear/bearing connections.
 4. Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.
- K. Shop Priming: Shop prime steel, except surfaces embedded in concrete or mortar, surfaces to be field welded, surfaces to be high-strength bolted with slip-critical connections, and surfaces to receive sprayed-on fireproofing.
- 1 Surface Preparation: SSPC-SP 3 "Power Tool Cleaning."
 - 2 Priming: Immediately after surface preparation, apply primer according to manufacturer's instructions and at rate recommended by SSPC to provide a dry film thickness of not less than 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

PART 3 - EXECUTION

- A. Erect structural steel accurately in locations and to elevations indicated and according to AISC specifications referenced in this Section.
- B. Base and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen surfaces prior to setting base and bearing plates. Clean bottom surface of base and bearing plates and set on wedges, shims, or setting nuts as required.
 1. Tighten anchor bolts, cut off wedges or shims flush with edge of base or bearing plate, and pack grout solidly between bearing surfaces and plates.
- C. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- D. Install and tighten non-high-strength bolts, except where high-strength bolts are indicated.
- E. Install and tighten high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 1. Connection Type: Snug tightened, unless indicated as slip-critical, direct-tension, or tensioned shear/bearing connections.
- F. Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.
- G. Shop and Field Quality Control: Owner will engage an independent testing and inspecting agency to perform shop and field inspections and tests and to prepare test reports.
 - 1 Correct deficiencies in or remove and replace structural steel that inspections and test reports indicate do not comply with specified requirements.
 - 2 Additional testing, at Construction Manager's expense, will be performed to determine compliance of corrected Work with specified requirements.
 - 3 High-strength bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - 4 In addition to visual inspection, welded connections will be inspected and tested according to AWS D1.1 procedures.

END OF SECTION

**DIVISION 5 – METAL
SECTION 05220 - 150F CERTAINTEED METAL PLANK CEILING & WALL SYSTEM**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Perforated and non-perforated metal ceiling panels
2. Suspension systems
3. Accessories; provide other necessary items including devices for attachment overhead construction, secondary members, splines, splices, connecting clips, wall connectors, wall angles, and other devices required for a complete installation.
4. Supplemental support framing: Provide fully engineered secondary framing as required to meet code, conforming to layout shown in drawings, to support direct-hung metal ceilings suspension system.

- B. This Section covers the general requirements only for Metal Ceilings as shown on the drawings. The supplying and installation of additional accessory features and other items not specifically mentioned herein, but which are necessary to make a complete installation, shall also be included or clarified accordingly.

C. Qualification Data:

1. Test Reports: Certified reports from independent agency substantiating structural compliance to windloads and other governing requirements.
2. Certificates:
 - a. Data substantiating manufacturer and installer qualifications.
 - b. Manufacturer's Instructions: Detailed installation instructions and maintenance data.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. E 84 – “Standard Test Method for Surface Burning Characteristics of Building Materials”
2. C 635 – “Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings”
3. C 636 – “Recommended Practice for Installation of Metal Ceiling Suspensions Systems for Acoustical and Lay-in Panels”
4. A 641 – “Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire”
5. D 1044 – “Practice for Abrasion Resistance”

6. D 1002 – “Practice for Adhesion Resistance”

1.4 SUBMITTALS

- A. Product Data: Manufacturer’s published literature, including specifications.
- B. Product Certification: Manufacturer’s certifications that products comply with specified requirements and governing codes including product data, laboratory test reports and research reports showing compliance with specified standards.
- C. Shop Drawings: Submit shop drawings for reflected ceiling plans (RCP’s), drawn to scale, and indicating penetrations and ceiling mounted items. Show the following details:
 - 1. Reflected Ceiling Plan(s): Indicating metal ceiling layout, ceiling mounted items and penetrations.
 - 2. Suspension System, Carrier and Component Layout.
 - 3. Details of system assembly and connections to building components.
- D. Samples for Verification: Full-size units (or as specified below) of each type of ceiling assembly indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics. Submit samples for each type specified.
 - 1. 11" square metal panel units.
 - 2. 11" long samples of each exposed molding or trim.
 - 3. 11" long samples of each suspension component.

1.5 QUALITY ASSURANCE

- A. Manufacturer/Installer Qualifications:
 - 1. Provide metal ceiling system components produced by a single manufacturer with a minimum 10 years’ experience in actual production of specified products and with resources to provide consistent quality in appearance and physical properties, including production in an environmentally controlled indoor factory facility and having previously certified Miami-Dade County NOA certifications.
 - 2. Provide suspension system components produced by a single manufacturer to provide compatible components for a complete metal ceiling system installation.
 - 3. Perform installations using a firm with installers having no less than 3 years of successful experience on projects of similar size and requirements.
- B. Regulatory Requirements:
 - 1. Fire Rating Performance Characteristics: Install system to provide a flame spread of 0 - 25, complying with certified testing to ASTM E 84.
 - 2. Structural Criteria: Install and certify system to comply with structural and wind load requirements of governing codes.
 - 3. Installation Standard for Suspension System: Comply with ASTM C 636.

- C. Mock-Up: Prior to beginning installation erect a mock-up section, where directed, using all system components.
- D. Pre-installation Conference: Conduct a conference, prior to start of installation, to review system requirements, shop drawings, and all coordination needs.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver system components in manufacturer's original unopened packages, clearly labeled.
- B. Store components in fully enclosed dry space. Carefully place on skids, to prevent damage from moisture and other construction activities.
- C. Handle components to prevent damage to surfaces and edges, and to prevent distortion and other physical damage.

1.7 PROJECT CONDITIONS

- A. Begin system installations only after spaces are enclosed and weather-tight, and after all wet work and overhead work have been completed.
- B. Prior to starting installations, allow materials to reach ambient room temperature and humidity intended to be maintained for occupancy.

1.8 WARRANTY

- A. Provide specified manufacturer's warranty against defects in workmanship, discoloration, or other defect considered undesirable by the Architect or Employer.
- B. This warranty shall remain in effect for a minimum period of one (1) year from date of initial acceptance.

1.9 MAINTENANCE & EXTRA MATERIALS

- A. Maintenance Instructions: Provide manufacturer's standard maintenance and cleaning instructions for finishes provided.
- B. Extra Materials: Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents. Only typical system components are included with attic stock.
 - 1. Metal Ceiling Pan Units: Full-size units equal to two percent (2%) of amount installed.
 - 2. Ceiling Suspension System Components: Quantity of each grid and exposed component equal to two percent (2%) of amount installed.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Provide 150F metal plank ceiling system manufactured by Hunter Douglas Ceilings & Walls exclusively from CertainTeed, Inc., 5015 Oakbrook Parkway, Suite 100, Norcross, GA 30093. Tel: (800) 366-4327; www.CTSpecialtyCeilings.com
 - 1. [Local Rep: Mark Deacon - mark@mauinc.com - 248-550-7074](mailto:mark@mauinc.com)
- B. Substitutions not permitted

2.2 SYSTEM MATERIALS

- A. Linear metal plank soffit system for exterior installations:
 - 1. Miami-Dade County, Florida Notice of Acceptance No. 17-0807.10
- B. Panel Profile Type: 150F, roll formed .025" thick aluminum; 5-29/32" (150 mm) wide, 3/4" deep, with square interlocking, integral reveal closure edges.
 - 1. Length: Standard 12'
- C. Suspension System (Concealed):
 - 1. Carrier: V-shaped roll-formed aluminum section with hook-shaped tabs spaced to receive panels. Finish is factory applied black enamel.
 - 2. Hanger Wire: 12 Ga. galvanized carbon steel.
 - 3. Seismic/Wind Uplift Compression Struts: Verify and insert proper sizes required to comply with governing codes, as designed by registered structural engineer.
- D. Perforations for ventilation only
 - 1. Pattern: Non-perforated #160
 - 2. Percentage of soffit (10% max): _____
- E. Panel Finish: Paint; color to be selected by architect
 - 1. Decorated Wood-Look Powder Coat

2.3 ACCESSORY MATERIALS

- A. Panel Splice: Formed aluminum finished in matching.
- B. Edge trim: Manufacturer's standard edge trim moldings.
- C. Air Distribution Devices: Provide distribution devices that are independently suspended, relocatable, adjustable from below finished ceiling, and capable of being concealed behind (invisible to view) and fully integrated with ceiling system so as to allow no interruption of ceiling components.
- D. Lighting Fixtures: Provide fixtures capable of being fully integrated with ceiling system and requiring no interruption of ceiling components, that are independently suspended, and as selected to conform to lighting criteria specified in Division 16.

PART 3- EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

- A. Coordination: Furnish layouts for cast-in-place anchors, clips, and other ceiling anchors whose installation is specified in other Sections.
- B. Measure each ceiling area and establish layout of acoustical metal pan units to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width units at borders, and comply with layout shown on reflected ceiling plans.
- C. Survey substrate for wall attachment to assure squareness and proper elevation for wall panel installation.

3.3 INSTALLATION

- A. General: Install metal pan ceilings, per manufacturers shop drawings provided, per manufacturer's written instructions and to comply with publications referenced below.
 - 1. CISCA "Ceiling Systems Handbook"
 - 2. Standard for Ceiling Suspension System Installations - ASTM C 636
- B. Suspend ceiling hangers from building's approved structural substrates and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produce hanger spacings that interfere with location of hangers at spacing required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Utilize supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
 - 4. Where used secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure; that are appropriate for substrate; and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 5. Space hangers not more than 48" on-center, along each member supported directly from hangers, unless otherwise indicated; and provide hangers not more than 12" from ends of each member. Supply supporting calculations from licensed Structural Engineer verifying hanger spacing meets all requirements, when spacing exceeds those recommended.
 - 6. Level grid to 1/8" in 10' from specified elevation(s), square and true.
 - 7. Adjust suspension system runners so they are square (within .5 degree from 90 degrees) and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- C. Secure bracing wires to ceiling suspension members and to supports acceptable to Architect/Engineer and/or inspector. Suspend bracing from building's structural members and/or structural deck, as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs (unless directed otherwise).

- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical metal pan. Method of edge trim attachment and design of edge trims to be approved by Architect.
 - 1. Screw fasten moldings to substrate at intervals not more than 18" on-center and not more than 6" from ends, leveling with ceiling suspension system to a tolerance of 1/8" in 10'. Miter corners accurately and connect securely.
 - 2. Do not use exposed fasteners, including pop rivets, on moldings and trim without prior written approval, or unless detailed otherwise.
- E. Scribe and cut metal panel units for accurate fit at penetrations by other work through ceilings. Stiffen edges of cut units as required to eliminate evidence of buckling or variations in flatness exceeding referenced standards for stretcher-leveled metal sheet.
- F. Install metal panel units in coordination with suspension system. Fit adjoining units to form flush, tight joints. Scribe and cut units for accurate fit at borders and around construction penetrating ceiling.

3.4 ADJUST AND CLEAN

- A. Adjust components to provide uniform tolerances.
- B. Replace all ceiling panels that are scratched, dented or otherwise damaged.
- C. Clean exposed surfaces with non-solvent, non-abrasive commercial type cleaner.

END OF SECTION

**DIVISION 6 – WOOD AND PLASTIC
SECTION 06100 – ROUGH CARPENTRY**

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

- 1 Rough construction wood and plywood framing.
- 2 Wood blocking, grounds, backing, stripping, cants, and nailers as indicated, specified to be furnished under other Sections.
- 3 Hardware incidental to the work.
- 4 Wood preservative and fire-retardant treatments.
- 5 Prefabricated wood members.
- 6 Backboards for equipment.
- 7 Exterior sheathing.

1.02 RELATED DIVISIONS:

- 1 Division 6 - Finish Carpentry.
- 2 Division 6 - Architectural Woodwork.
4. Division 9 – Finishes Painting.

1.03 REFERENCES

- A. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
- B. APA - Plywood Construction Guide.
- C. AWPA (American Wood Preservers Association) C20 - Structural Lumber Fire Retardant Treatment by Pressure Process.
- D. PS 1-74 (U.S. Department of Commerce): Plywood.
- E. PS 20 (U.S. Department of Commerce): American Softwood Lumber.
- F. WCLIB - Standard Grading Rules 16.
- G. WWPA - Grading Rules.

1.04 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies: Conform to Building Code requirements for construction, nailing and connections.
- B. Perform rough carpentry under the direction of a competent and experienced foreman.

1.05 SUBMITTALS

- A. Shop Drawings: Plans and details, showing locations and extent of Work.
- B. Product Data: Submit for lumber, fasteners, accessories and treatments.
- C. Submit Samples of all exposed hardware.

1.06 PRODUCT DELIVERY AND STORAGE

- A. Store lumber materials, plywood and metal items off the ground, protected from rain and dampness.

1.07 JOB CONDITIONS

- A. Coordinate with related trades and plan the framing and furring to accommodate structural members, finish materials, piping, conduits, duct work, mechanical and electrical equipment, accessories, and fixtures.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Rough Hardware: Provide all rough hardware and fastenings necessary for the proper erection of rough carpentry. Nails, spikes, screws, bolts, hangers, clips, ties, anchors, clip angles and items not specifically shown shall be of sizes and types to secure members. Use cadmium plated bolts, nuts, and screws.
- B. Rough Lumber: Provide lumber of 2" nominal width for nailers, joists, studs, and other framing of kiln-dried Douglas Fir or Hem-Fir, No. 2 grade (West Coast Lumber Inspection Bureau) with 1200 psi unit stress in bending. E-1600000 psi.
- C. Preservative Treated Lumber: The following items of carpentry shall be pressure-treated in accordance with the American Wood Preservers Institution (A.W.P.I) Standard LP-2. Field cut surfaces of treated members shall be brushed with two (2) coats of one-to-one mixture of same.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS

- A. Fabricate, size, install, connect and fasten, bore, notch, and cut wood and plywood framing with joints true, tight, and well nailed, screwed, or bolted as required, all members with solid bearing without being shimmed. Set horizontal members subject to bending with crown up. Install framing plumb, square, true, and cut for full bearing. Splices are not permitted between bearings. Perform cutting for other trades under direction of trade involved. Wherever necessary to avoid splitting, sub-drill for nails and screws with diameter of hole smaller than that of nails or screws.
- B. Prefabricated wood members shall be designed by a professional Engineer licensed in the state where this work is located.
- C. Provide framing members of sizes, and with spacing and anchorage, as required and in accordance with recognized standards. Do not splice structural members between supports.
- D. Backboards for equipment: Install as recommended by American Plywood Association for types of substrates involved in the work.

3.02 NAILING

- A. Use nails or spikes of such lengths that penetration into second piece of wood is not less than one-half nail or spike length, except 16d nails may connect pieces of 2" nominal thickness. Set nails no closer together than 1/2 nail length, and no closer to wood edges than 1/4 the nail length. Sub drill holes where necessary to prevent splitting. Demonstrate satisfactory installation of machine nailing at the site and obtain approval before using machine applied nails; such approval is subject to continued satisfactory performance.

3.03 LAG SCREWS

- A. Place by screwing; do not hammer drive into place. Install screws with anchorage embedment into piece lagged of not less than 60% of screw length of 8 diameters. Provide standard malleable iron or steel plate washers under heads. Bore a hole of same diameter and depth as the shank. For threaded portion of screw, bore the hole with a bit not larger than base of thread.

3.04 BOLTS

- A. Clamp wood members together and bore holes true to line and 1/32" larger than the bolt diameter. Provide standard malleable iron or steel washers under heads and nuts when bearing

on wood. Draw nuts up tight as installed and again just prior to being enclosed with other materials or at completion.

3.05 ERECTION OF PREFABRICATED WOOD MEMBERS

- A. Lift members only at designed lift points. Distortion or loads which cause member stresses exceeding design limits are not allowed. Provide erection bracing in addition to permanent bridging to keep the members straight and plumb as required to assure adequate lateral support for individual members and entire system until sheathing is applied. Give notice prior to enclosing members to allow inspection of the installation.

3.06 MISCELLANEOUS

- A. Provide any other items of carpentry not specified herein, but which are shown and required to complete the project.

END OF SECTION

DIVISION 6 - WOODS AND PLASTIC
SECTION 06200 - FINISH CARPENTRY

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Finish carpentry items.
- B. Wood casings and moldings.
- C. Door and Door Hardware installation.
- D. Install storage shelving
- E. Quote installation of architectural woodwork.

1.02 RELATED DIVISIONS

- A. Division 6 - Rough Carpentry: Grounds and support framing.
- B. Division 9 - Painting: Painting and finishing of finish carpentry items.

1.03 REFERENCES

- A. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- B. AWI (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute.
- C. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with AWI Architectural Woodwork Quality Standards Illustrated, Custom grade.

1.05 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire retardant requirements.

1.06 DELIVERY, STORAGE, AND PROTECTION

- A. Protect work from moisture damage.

PART 2 - PRODUCTS

2.01 LUMBER MATERIALS

- A. Softwood Lumber: Clear poplar, maximum moisture content of 6 to 11 percent; with flat grain.

2.02 FASTENERS

- A. Fasteners: Of size and type to suit application.

2.03 ACCESSORIES

- A. Lumber for Shimming and Blocking: Softwood lumber of pine species.
- B. Primer: Alkyd primer sealer type.
- C. Wood Filler: Solvent base, tinted to match surface finish color.

2.04 WOOD TREATMENT

- A. Fire Retardant Treatment (FR-S Type): Chemically treated and pressure impregnated; capable of providing flame spread index of 25, maximum, and smoke developed index of 450, maximum, in accordance with ASTM E84.
- B. Wood Preservative by Pressure Treatment (PT Type): AWWA Treatment C2 using water borne preservative with 0.25 percent retainage.
 - 1. Copper Azole, CBA-A or CA-B, Wolmanized Natural Select.
- D. Provide identification on fire retardant treated material.
- E. Deliver fire retardant treated materials cut to required sizes. Minimize field cutting.
- F. Redry wood after pressure treatment to maximum 15 percent moisture content.

2.05 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.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.
- C. See Section 06100 - Rough Carpentry for installation of recessed wood blocking.

3.02 INSTALLATION

- A. Set and secure materials and components in place, plumb and level.
- B. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- C. Install trim with nails at 6 inches on center.

3.03 PREPARATION FOR SITE FINISHING

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
- B. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.04 ERECTION 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

**DIVISION 6 – WOOD AND PLASTIC
SECTION 06400 – ARCHITECTURAL WOODWORK**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes: Shop fabricated cabinetwork, architectural woodwork, accessories and finishes.

1.02 RELATED DIVISIONS

- A. Division 6 - Rough Carpentry: Shims and blocking.
- B. Division 8 - Composite Doors: Matching door and woodwork finishes.

1.03 REFERENCES

- A. ANSI 1-M-3 - Specifications for particle board.
- B. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- C. NEMA LD-3 - Specifications for plastic laminates.
- D. Architectural Woodwork Institute (AWI) - Architectural Woodwork Quality Standards.

1.04 QUALITY ASSURANCE

- A. Reference specifications and standards: Comply with the recommendations of the Architectural Woodwork Institute (AWI) "Architectural Woodwork Quality Standards", unless otherwise specified in this Section. In case of conflict, comply with the most stringent.
- B. Fabricator's qualifications: A firm with not less than five years' experience in the specified unit responsibility with a background of not less than three installations of comparable size and scope to that herein specified.
- C. Field measurements: Field measure prior to preparation of Shop Drawings and fabrication; do not delay job progress. Provide full size templates as required.

1.05 SUBMITTALS

- A. Shop Drawings:
 - 1. Materials and wood species, components, profiles, fastening, jointing details, finishes, and accessories.
 - 2. Wood blocking locations required for anchoring or supporting Work in this section.
 - 3. Locations of cabinet locks and hardware.
 - 4. Indicate all items from other trades that affect millwork, including but not limited to hardware supplied by others, electrical devices, HVAC devices, plumbing devices, fire alarms, horns, strobes, granite countertops, etc.
- B. Samples:
 - 1. Submit samples of each required finish, 8 inches x 11 inches.
 - 2. Submit samples of laminate countertop.
- C. Maintenance instructions:
 - 1. Cleaning procedures, adjustments, touch-up for shop finishes. Field touch-up of shop applied finishes will not be allowed unless reviewed and agreed by the Architect.
 - 2. Manufacturer's recommended cleaning materials and application methods.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Do not deliver items until site conditions are adequate to receive the Work. Protect items from weather while in transit, and against moisture and abrasion after delivery.
- B. Store indoors, in ventilated areas with constant but minimum temperature of 60 degrees F and maximum relative humidity of 25 percent to 55 percent. At least seven days prior to installation and during installation, maintain 70 degrees F and relative humidity of 50 percent to 55 percent.
- C. Protect items hereunder through substantial completion.

1.07 WARRANTY

- A. Warranty term: 2 years.
- B. Include coverage for repair or replacement of cabinetwork and architectural woodwork items which exhibit defects in material and workmanship within a minimum period of two years from date of substantial completion.

PART 2 - PRODUCTS

1.01 ALTERNATES

- A. Casework ordered by Local Company (by Owner).

2.02 MATERIALS

- A. Moisture content of lumber and plywood (at time of installation): In accordance with requirements of referenced standards as applicable to geographic location of project; the most restrictive requirements shall apply.
- B. Lumber and plywood:
 - 1. Graded in accordance with referenced standard for quality assurance; thicknesses as specified herein and shown on Drawings.
 - 2. Fire treated material:
 - Fire-retardant treated core with flame spread rating of maximum 25 in accordance with ASTM E84.
 - Fire retardant shall not cause stains in finished system.
 - 3. Species for transparent finish on Bar Counter Top:
 - Premium Grade per referenced standards. Finish shall match Architect's control sample, with continuity of grain characteristics.
 - Species and cut as noted on Drawings.
 - 4. Species for opaque finish:
 - Paint Grade per referenced standards. Finish shall match Architect's control sample.
 - Species as noted on Drawings.
 - 5. Species for granite, plastic laminate and solid surface countertop finish:
 - a. Finish shall match Architect's control sample.
 - 6. Industrial grade, ANSI 1-M-3, minimum 45 pounds per square foot density, for plastic laminate finish; sanded faces.
- C. Plastic laminate finished casework:
 - 1. Custom Grade per referenced standards, Type II.
 - 2. Construction style A, raised-panel type, unless otherwise indicated on the Drawings

3. Veneer:

- Fire retardant treated where required by code. Willamette Industries, or equal.
 - "Duracoat FR" for painted and opaque lacquer finishes.
 - Horizontal surfaces: General purpose type, PL NEMA LD-3, nominal 0.050 inch thick.
 - Vertical surfaces: Vertical surface type, PL NEMA LD-3, nominal 0.032 inch thick.
 - Base: Specific purpose type, PL NEMA LD-3, nominal 0.125 inch thick.
 - Backing sheet: High-pressure paper-base-laminate without a decorative finish; minimum 0.020 inch thick.
 - Cabinet liner: Low-pressure polyester overlay; minimum 0.020 inch thick. At Construction Manager's option use Kortron acrylic coated panels as manufactured by Willamette Industries, or equal. Color as selected by Architect.
4. Interior of cabinet doors: Cabinet liner; minimum 0.020 inch thick. Color as selected by Architect.

E. Plastic laminate:

1. In accordance with reference standards.
2. Conform to NEMA LD-3.
3. Manufacturer, finish and color of plastic laminates as indicated on Drawings and in accordance with Architect's control samples.

F. Plastic laminate shelving:

1. In accordance with reference standards.
2. Conform to NEMA LD-3.
3. Manufacturer, finish and color of plastic laminates as indicated on Drawings and in accordance with Architect's control samples.
4. Thickness of material:
 - 3/4 inch for spans up to 30 inches.
 - 1 inch for spans up to 42 inches.
 - Spans shall not exceed 42 inches unsupported.

G. Adhesive: Contact type, FS MM-A-130; as recommended by referenced standards to suit application. Provide non-pigmented adhesive with solid-color type plastic laminates. Comply with all local, state, and federal air quality control requirements.

H. Anchors, nails and screws: In accordance with referenced standards. Select material, type, size and finish required by each substrate for secure anchorage; provide toothed steel or lead expansion bolt screws for drilled-in-place anchors.

I. Wood filler: Filler compatible with finish system specified, color to match wood being filled.

J. If required by Code comply with Class I fire rating when tested in accordance with ASTM E84.

2.03 HARDWARE

A. Provide hardware items as required for a complete installation. Provide types as listed in the referenced standards, but no less than the following types:

1. Drawer slides for Custom Grade cabinetry or equivalent per Architect approval:
 - Drawers and box drawers, up to 24 inches wide: Accuride 3832A.

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2. Drawer slides for Premium Grade cabinetry:
 - Drawers and box drawers, up to 24 inches wide: Accuride 7432.
 3. Flipper door slides for Premium and Custom Grade cabinetry:
 - a. For vertically mounted retracting cabinet doors up to 75 lbs. and 72 inches tall: Accuride 1432 with hinge carrier strip.
 4. Mutes: Rubber, approximately 1/4 inch diameter, color to match adjacent finish.
 5. Plastic grommets: Doug Mockett, color as selected by Architect.
 6. Adjustable shelves with clips: Adjustable shelf supports (EDP type, unless otherwise noted) set in 5 mm holes spaced 32 mm on center:
 - Hafele America, Co., No. 282.04.711.
 - Hafele America, Co., No. 282.24.13.
 7. Cabinet hinges: Concealed type, minimum 170 degree opening, self-closing:
 - Hafele America, Co., No. 326.05.
 - Julius Blum, Inc., No. B71650.
 - Mepla, No. MD61-253-Z00.
 8. Cabinet door and drawer pulls: Pull style; size and finish as selected by Architect:
 - Baldwin.
 - Stanley Hardware.
 9. Cabinet locks:
 - Pin and tumbler slide bolt lock, two keys each.
 - Key all locks inside one room alike and provide master key for all locks in project.
 - Finish to match adjacent pull, or as selected by Architect. 1) National Lock Hardware: No. C8133/5 drawer, C8139 door lock.2) Schlage Lock Co.: No. 46-002 cabinet locks.3) Best Lock Corp., Series 5L.
 10. Shelving standards and brackets:
 - Standards: Knappe and Vogt 87ANO Extra Heavy Duty 87-187 Series; 24 inch, 36 inch, 48 inch, 60 inch, 72 inch, 84 inch, 96 inch, 144 inch lengths.
 - Brackets: Knappe and Vogt 186LL ANO for 8 inch and 10 inch deep shelves, 187LL ANO for 12 inch to 24 inch deep shelves.
- 2.04 MILLWORK FABRICATION
- A. Fabricate cabinetwork and architectural woodwork items in accordance with recommendations of the referenced standards for each grade indicated.
 1. Transparent and opaque finished Work: Premium Grade.
 2. Plastic laminate finished Work: Custom Grade.
 3. Solid plastic finished Work: Premium Grade.
 - B. Plastic laminate:
 1. Apply finishing materials in full uninterrupted sheets consistent with manufactured sizes. Use minimum 1/2 inch thickness solid plastic material, and build up layers as required for profile indicated on Drawings.

2. Provide hairline corners and joints.
 3. Where applicable, locate counter butt joints at least 2 feet from cut-outs. Joint locations shall be reviewed by the Architect.
 4. Cap exposed plastic laminate edges with material of same finish and pattern.
 5. Mechanically fasten backsplash to countertops with steel brackets at 16 inches on center.
 6. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
 7. Plastic laminate cabinet bases: Scribe plastic laminate base to fit tightly against floor finish.
 8. Plastic laminate countertops: Square butt joints and self-edging; applied plastic or metal edging will not be acceptable unless detailed on Drawings.
 9. Seal joints in solid plastic materials with joint adhesive recommended by manufacturer, and formulated to weld materials with a permanent molecular bond.
- C. Seal concealed and semi-concealed wood surfaces. Brush apply only, using lacquer or varnish.
- D. Prime paint surfaces to be in contact with cementitious material, using clear material on members having transparent finishes.
- E. Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes, and other fixtures and fittings.
1. Verify locations of cutouts from on-site dimensions.
 2. Prime paint contact surfaces of cutouts, use clear material on members having transparent finish.
- F. Shop assemble cabinetwork and architectural woodwork for delivery to site in sizes easily handled and to ensure passage through building openings.
- G. Reveals cut into hardwood veneers: Reveals 1/8 inch x 1/8 inch or greater backed by solid hardwood, no core materials exposed.
- H. Where two or more wood types are adjacent: Two or more, separate color and finishing processes may be required.
- I. Where solid lumber is adjacent to veneer faces: Color and character shall match veneer.
- J. Veneer faces shall be glue spliced; stitched faces will not be acceptable.

2.05 FINISHES

- A. Finishes shall conform to Architect's control samples.
- B. Shop finish:
1. To maximum extent possible.
 2. Coordinate field and shop finishing to assure identical match.
- C. Plastic laminate: As specified under "Materials" above and as scheduled on Drawings.
- D. Transparent finish:
1. Finish: AWI Premium Quality clear finish with U.V. inhibitor, as reviewed and accepted by the Architect.
 - Finish: AWI Finish System TR-4.
 - Finish: AWI Finish System TR-2.
 - Finish: AWI Finish System TR-1.
 - Stain: Color to match Architect's control sample.

- Effect: Open pore.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Set and secure cabinetwork and architectural woodwork items in place, rigid, plumb and square, and in compliance with the referenced standards.
 - 1. Shim as required, using concealed shims.
 - 2. Use purpose-designed fixture attachments for wall-mounted components.
 - 3. Use threaded steel concealed joint fasteners to align and secure adjoining units.
 - 4. Permanently fix cabinet and counter bases to floor using appropriate angles and anchorages.
 - 5. Countersink semi-concealed anchorage devices used to wall mount components, and conceal with solid plugs of species to match surrounding wood. Place flush with surrounding surfaces.
 - 6. Carefully scribe cabinetwork which is against other building materials, leaving gaps of 1/32 inch maximum. Do not use additional overlay trim for this purpose.
 - 7. Caulk all exposed edges of opaque finished trim and millwork, at intersection with gypsum board finishes.
- B. Install and adjust cabinet hardware to ensure smooth and correct operation.
- C. Ensure mechanical and electrical items affecting architectural woodwork are properly placed, complete, and have been reviewed by Architect prior to commencement of installation.
- D. Attach architectural woodwork securely in place with uniform joints providing for thermal and building movements.
- E. Wood base:
 - 1. Use long lengths. Fit joints tightly together, mitered at inside and outside corners.
 - 2. Provide attachment to wall with finishing nails or other fastenings, recessed for putty-stopping.
 - 3. Where wood base abuts hard floor surface, provide 1/4 inch paintable sealant joint.
- F. Secure Work to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation.
- G. Cleaning and touch-up:
 - 1. Clean millwork on exposed and semi-exposed surfaces.
 - 2. When acceptable to the Architect, touch-up shop and factory applied finishes to restore damaged and soiled areas.
- H. Acceptable tolerances:
 - 1. Variation from true position: Maximum 1/16 inch at any position and maximum 1/8 inch in any 10 feet length.
 - 2. Adjoining surfaces of same material: No variation permitted.
 - 3. Offset with abutting materials: Maximum 1/32 inch.

3.02 PREPARATION FOR FIELD FINISHING

- A. Sand smooth and set exposed nails and screws. Remove any material on surface which will adversely affect the final finish.

- B. Apply wood filler in exposed nail and screw indentations and leave ready to receive site-applied finishes. Use only filler that is compatible with the final finish system.
- C. Seal concealed and semi-concealed surfaces; brush apply only, using primer consistent with finish coats.

3.03 WORKMANSHIP

- A. Comply with the requirements of the referenced standards.
- B. Completed Work shall be rigid, plumb or level, as appropriate.
- C. Work shall be free from damage, flaws, blemishes or other defects.
- D. Work shall be uniform in color and finish.

3.04 STANDING AND RUNNING TRIM

- A. The standing and running trim includes all interior castings, stops, mullions, door jambs and heads and their liners, facias, valances, stopes, etc. All such trim shall be of AWI Custom quality grade, of Clear Poplar when stained or medium dense fiber (MDF) when painted, to match existing plain sawn trim, for standard interior, and shall conform to the design and details shown. Where applicable, work shall be shop assembled.

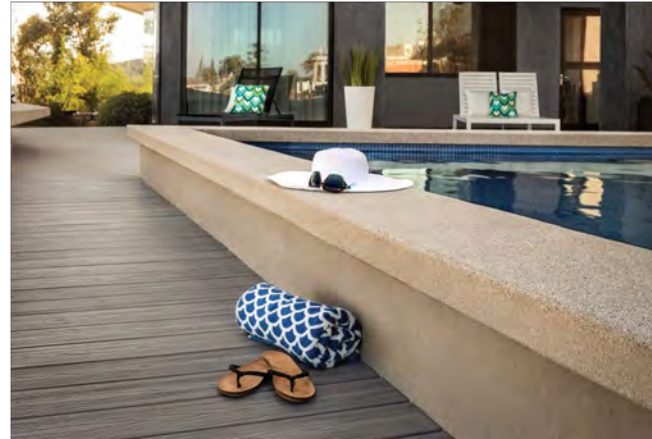
3.05 INTERIOR TRIM

- A. See Architectural Drawings.

END OF SECTION

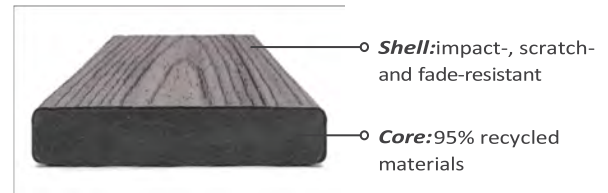
**DIVISION 6 – WOOD AND PLASTIC
SECTION 06400 – TREX TRANSCEND DECK AND RAILING**

Trex Transcend®



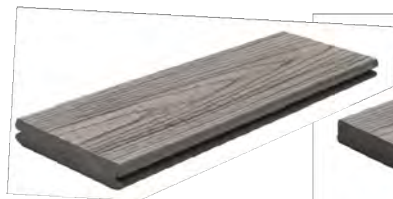
PREMIUM HIGH-PERFORMANCE DECKING & FASCIA

Trex Transcend® decking and Trex® Fascia are wood thermoplastic composite lumber (WTCL) boards with an integrated shell that covers the boards on the top surface and sides. The integrated shell consists of a proprietary surface formulation that produces a natural, wood-like grain pattern finish. An alternative to naturally durable hardwood lumber, Transcend Decking and Fascia are ICC-ES SAVE-certified to be a minimum of 95.4% recycled content of wood fiber and polyethylene by weight.



DECKING

FASCIA



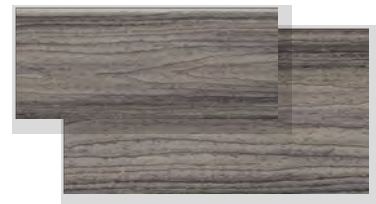
1" Grooved edge



1" Square edge



2" Square edge



8" or 12" Widths

FEATURES	DECKING BOARDS		FASCIA BOARDS	
	1" x 6"	2" x 6"	8"	12"
Actual Dimensions - Standard	.94" x 5.5"	1.3" x 5.5"	.56" x 7.25"	.56" x 11.375"
Actual Dimensions - Metric	24 mm x 140 mm	33 mm x 140 mm	14 mm x 184 mm	14 mm x 288 mm

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Available Lengths - Standard	12', 16', 20'	12', 16', 20'	12'	12'
Available Lengths - Metric	365 cm, 487 cm, 609 cm	365 cm, 487 cm, 609 cm	365 cm	365 cm
Grooved Edge	X			
Square Edge	X	X	X	X
Transcend Tropicals	X	X	X	X
Transcend Earth Tones	X		X	X
Weight per Lineal Foot	2.4 lbs	3.6 lbs	2.0 lbs	3.3 lbs

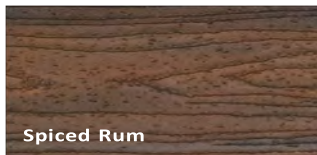
PHYSICAL & MECHANICAL PROPERTIES

TEST	TEST METHOD	VALUE	
Flame Spread	ASTM E 84	70	
Thermal Expansion	ASTM D 1037	1.9 x 10 ⁻⁵ in/in/degreeF	
Moisture Absorption	ASTM D 1037	< 1%	
Screw Withdrawal	ASTM D1761	558 lbs/in	
Fungus Resistance	ASTM D1413	Rating – no decay	
Termite Resistance	AWPAE1-72	Rating = 9.6	
		ULTIMATE (TYPICAL) VALUES*	DESIGN VALUES
Compression Parallel	ASTM D198	1588 psi	540 psi
Compression Perpendicular	ASTM D143	1437 psi	540 psi
Bending Strength	ASTM D198	3280 psi	500 psi
Shear Strength	ASTM D143	1761 psi	360 psi
Modulus of Elasticity	ASTM D4761	412,000 psi	200,000 psi
Modulus of Rupture	ASTM D4716	3280 psi	500 psi

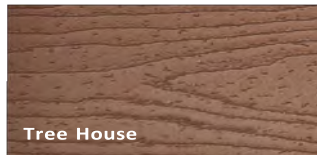
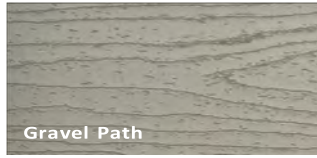
*Ultimate strength values are not meant for design analysis. Design values are for temperatures up to 125°F (52°C).

COLORS

Tropicals (multi-tonal)



Earth Tones (monochromatic)



FASTENERS



Trex Hideaway® Hidden Fastening System

Self-gapping, glass-filled nylon fastener with your choice of preset screws:



304 grade stainless steel, sharp point screw for wood framing



410 grade stainless steel, drill point screw for steel framing or 304 grade stainless steel drill point screw for aluminum framing



Other Approved Fasteners

Color-matched composite deck screw or matching composite plug

Color-coordinated fascia screw

Uncoated stainless steel fascia screw

For a full list of approved fasteners, download our Installation Guide at trex.com/literature

END OF SECTION

DIVISION 6 – WOOD AND PLASTIC
SECTION 06600 – METAL-PLATE-CONNECTED WOOD TRUSSES

1.1 GENERAL

- A. Structural Performance: Provide metal-plate-connected wood trusses capable of withstanding design loads indicated without exceeding TPI 1 deflection limits.
- B. Submittals:
- 1 Product Data: For metal-plate connectors, metal framing anchors, bolts, and fasteners.
 - 2 Shop Drawings: Show location, pitch, span, camber, configuration, and spacing for each type of truss required; species, sizes, and stress grades of lumber; splice details; type, size, material, finish, design values, orientation, and location of metal connector plates; and bearing details.
 - a. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with TPI quality-control procedures for manufacture of connector plates published in TPI 1.
1. Manufacturer's responsibilities include preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
- D. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program that involves inspection by SPIB, Timber Products Inspection, TPI, or other independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.
- E. Comply with TP1 1, "National Design Standard for Metal Plate Connected Wood Truss Construction," and TPI HIB, "Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses."
- F. Wood Structural Design Standard: Comply with applicable requirements in AFPA's "National Design Specifications for Wood Construction" and its "Supplement."

1.2 PRODUCTS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Metal Connector Plates:
 - Alpine Engineered Products, Inc.
 - CompuTrus, Inc.
 - Eagle Metal Products.
 - Jager Industries, Inc.
 - Mitek Industries, Inc.
 - Robbins Engineering, Inc.
 - TEE-LOK Corporation.
 - Truswal Systems Corporation.
 2. Metal Framing Anchors:
 - Alpine Engineered Products, Inc.
 - Cleveland Steel Specialty Co.

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- Harlen Metal Products, Inc.
 - KC Metals Products, Inc.
 - Silver Metal Products, Inc.
 - Simpson Strong-Tie Company, Inc.
 - Southeastern Metals Manufacturing Co., Inc.
 - United Steel Products Company, Inc.
- B. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
1. Grade and Species: Provide dimension lumber of any indicated species for truss chord and web members, graded visually or mechanically, and capable of supporting required loads without exceeding allowable design values according to AFPA's "National Design Specifications for Wood Construction" and its "Supplement."
- C. Metal Connector Plates: Fabricate connector plates to comply with TPI 1 from hot-dip galvanized steel sheet complying with ASTM A 653, G60 coating designation; Designation SS, Grade 33, and not less than 0.036 inch thick.
- D. Fasteners: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture. Where trusses are exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153.
- 1 Nails, Wire, Brads, and Staples: FS FF-N-105.
 - 2 Power-Driven Fasteners: CABO NER-272.
 - 3 Wood Screws: ASME B18.6.1.
 - 4 Lag Bolts: ASME B18.2.1.
 - 5 Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- E. Metal Framing Anchors: Provide framing anchors made from hot-dip, zinc-coated steel sheet complying with ASTM A 653, G60 coating designation, of structural capacity, type, and size indicated, and as follows:
1. Allowable Design Loads: Provide products with allowable design loads, as published by the manufacturer, to meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
- F. Fabrication: Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.
- 1.3. EXECUTION
- A. Install and brace trusses according to TPI recommendations and as indicated. Install trusses plumb, square, and true to line and securely fasten to supporting construction.
 - B. Anchor trusses securely at bearing points; use metal framing anchors. Install fasteners through each fastener hole in metal framing anchor according to manufacturer's fastening schedules and written instructions.
 - C. Securely connect each truss ply required for forming built-up girder trusses in accordance with truss shop drawings. Anchor trusses to girder trusses as indicated.

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- D. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.
- E. Install wood trusses within installation tolerances in TPI 1.
- F. Do not cut or remove truss members.
- G. Replace wood trusses that are damaged or do not meet requirements

END OF SECTION

DIVISION 7 – THERMAL AND MOISTURE PROTECTION
SECTION 07210 – SLAB INSULATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 QUALITY ASSURANCE

- A. Perimeter Foundation Insulation shall not be produced with, or contain, any of the United States EPA regulated CFC compounds listed in the Montreal protocol of the United Nations Environmental Program.

1.03 SUBMITTALS

- A. Insulation manufacturer's product literature including specified physical properties.
- B. Installation instructions.
- C. Certification that product complies with specification requirements and is suitable for the use indicated.
- D. Manufacturer's Thermal Performance Warranty.

1.04 PRODUCT HANDLING

- A. Protect insulation from physical damage.
- B. Comply with manufacturer's recommendations for handling, storage and protection.
- C. Handle boards carefully so corners are not broken off or boards otherwise damaged.

1.05 SCOPE OF WORK

- A. All areas of new concrete slab construction. It shall be under the Mech. Contractors work scope to supply and install insulation.

1.06 WARRANTY

- A. Provide written warranty that the actual thermal resistance of the extruded polystyrene insulation will not vary by more than 10% from its published thermal resistance.
- B. Warranty period is 15 years after date insulation is purchased.

PART 2 - PRODUCTS

2.01 INSULATION

- A. Material Properties:
 - 1. Rigid closed-cell extruded polystyrene thermal board insulation.

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2. Comply with ASTM C 578-92, Type IV, density 1.6 lb/cu. ft. min. compressive strength 25 psi (ASTM D 1621-73). Acceptable manufacturer's product: Dow Chemical Company "STYROFOAM® Brand Square Edge (SE)" material (infloor applications).
3. Comply with ASTM C 578-92, Type VI, density 1.8 lb/cu. ft. min. compressive strength 40 psi (ASTM D 1621-73). Acceptable manufacturer's product: Dow Chemical Company "STYROFOAM® Brand High Load (HI-40)" material (snowmelt applications).
4. Thermal resistance: 5-year aged R-values of 5.4 and 5.0 min., EF-ft²-h/Btu²/inch at 40EF and 75EF respectively (ASTM C 518-91).
5. Water absorption: Max. 0.3% by volume (ASTM C 272-91).

B. Thickness: 2" unless otherwise indicated.

2.02 ADHESIVE

A. Adhesive: type recommended by insulation manufacturer.

B. Acceptable manufacturer's products:

1. ChemRex, Inc. "Contech Brand PL300 Foam Board Adhesive".
2. Dakar Products, inc. "Foamgrab PS".

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Verify that all masonry joints are struck flush and that other conditions are satisfactory for proper installation.
- B. Remove concrete fins and mortar projections that interfere with placement of insulation boards.

3.02 INSTALLATION

A. Vertical insulation:

1. Apply insulation boards to outside face of exterior foundation walls except where otherwise indicated.
2. Extend insulation at least 24" down from immediately under floor slabs-on-grade.
3. Adhere insulation to wall by applying 2" diameter spots of adhesive to insulation boards 16" o.c. both ways.

B. Horizontal insulation:

1. Apply insulation boards under and in contact with floor slab-on-grade where vertical perimeter insulation is not feasible and elsewhere as indicated.
2. Extend horizontal insulation in from exterior wall 24" unless otherwise indicated.
3. Install insulation so it is firmly supported with edges in moderate contact.

C. Cut insulation to fit snugly around pilasters, projections, curves and irregularities on the wall

surface. Fill voids with insulation. It is the intent of this insulation to provide a vapor barrier. All joints are to be close fitting and taped to make a continuous vapor barrier.

3.03 CLEAN UP

- A. Remove and dispose of excess insulation, wrappings and other waste materials.

END OF SECTION

DIVISION 7 – THERMAL AND MOISTURE PROTECTION
SECTION 07220 – THERMAL INSULATION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
- 1 Insulation under slabs-on-grade.
 - 2 Board-type building insulation, concealed.
 - 3 Blanket-type building insulation.

1.02 RELATED DIVISIONS

1. Division 5 - Metal Ceilings: Insulation above ceiling.
2. Division 6 - Rough Carpentry.
3. Division 7 – Asphalt Shingle Roofing.
4. Division 9 - Gypsum Board Systems: Acoustical insulation in partitions and ceilings.

1.03 REFERENCES

- A. ASTM C552 - Standard Specification for Cellular Glass Thermal Insulation.
- B. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
- C. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
- D. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
- E. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- F. ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
- G. ASTM D1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics.
- H. ASTM D2126 - Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
- I. ASTM E84 - Standard Specification for Surface Burning Characteristics of Building Materials.
- J. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- K. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C degrees C.

1.04 QUALITY ASSURANCE

- A. Thermal Resistivity: Where thermal resistivity properties of insulation materials are designated by R-values they represent the rate of heat flow through a homogenous material exactly 1" thick, measured by test method included in referenced material standard or otherwise indicated. They are expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.
- B. Fire Performance Characteristics: Provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per methods indicated below, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.

1.05 SUBMITTALS

- A. Product Data: Submit manufacturer's product literature and installation instructions for each type of insulation and vapor retarder material required.
- B. Certified Test Reports: With product data, submit copies of certified test reports showing compliance with specified performance values, including R-values (aged values for plastic insulations), densities, compression strengths, fire performance characteristics, perm ratings, water absorption ratings and similar properties.
- C. Written indemnification, by the manufacturer, to the Owner and Architect, for fiberglass and glass wool fiber products.

1.06 QUALITY ASSURANCE

- A. Thermal Resistivity: Where thermal resistivity properties of insulation materials are designated by R-values they represent the rate of heat flow through a homogenous material exactly 1" thick, measured by test method included in referenced material standard or otherwise indicated. They are expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.
- B. Fire Performance Characteristics: Provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per methods indicated below, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1 Surface Burning Characteristics: ASTM E84.
 - 2 Fire Resistance Ratings: ASTM E119.
 - 3 Combustion Characteristics: ASTM E136.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. General Protection: Protect insulations from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.
- B. Protection for Plastic Insulation:
 - 1 Do not expose to sunlight, except to extent necessary for period of installation and concealment.
 - 2 Protect against ignition at all times. Do not deliver plastic insulating materials to project site ahead of installation time. Complete installation and concealment of plastic materials as rapidly as possible in each area of Work.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Owens-Corning Fiberglass Corp. (OCF).
- B. Johns Manville.
- C. U.S. Gypsum Co.
- D. Manufacturers of Polyisocyanurate Board Insulation:
 - Celotex Corp.
 - Johns Manville.
- E. Manufacturers of Glass Fiber Insulation:
 - CertainTeed Corp.
 - Knauf Fiber Glass GmbH.

- Johns Manville.
- Owens-Corning Fiberglas Corp.

2.02 BATT INSULATION MATERIALS

- A. Thermal insulation: For concealed spaces, ASTM C553 incombustible fiberglass or mineral fiber batts or blankets, equivalent to unfaced or kraft paper faced insulation. Material shall be of sufficient thickness to provide R-19 insulation value for exterior walls and soffits and R-30 at roof, unless otherwise noted on drawings.
- B. Thermal insulation: For exposed spaces, including areas above finished ceilings used as return air plenums, ASTM C553 incombustible fiberglass or mineral fiber batts or blankets, with flame spread of 25 or less and smoke developed rating of 50 or less, equivalent to foil faced OCF FS-25 building insulation. Material shall be of sufficient thickness to provide R-19 insulation value for exterior walls and soffits and R-30 at roof, unless otherwise noted on drawings.
- C. Miscellaneous materials: Metal clips, zinc coated wires, adhesives or other devices for anchoring insulation to framing shall be types as recommended by insulation manufacturer or as required by building code.
- D. Unfaced Mineral Fiber Blanket/Batt Insulation: Thermal insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C665 for Type I (blankets without membrane facing); and as follows: Mineral Fiber Type: Fibers manufactured from glass or slag.
- E. Faced Mineral Fiber Blanket/Batt Insulation: Thermal insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C665 for Type III, Class A (blankets with reflective vapor-retarder membrane facing with flame spread of 25 or less); foil-scrim-kraft vapor-retarder membrane on one face, respectively; and as follows: Mineral Fiber Type: Fibers manufactured from glass or slag.

2.03 RIGID AND SEMI-RIGID BOARD INSULATING MATERIALS

- A. General: Provide insulating materials which comply with requirements indicated for materials, compliance with referenced standards, and other characteristics.
 - 1. Preformed Units: Sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths and lengths.
- B. Polyisocyanurate Board Insulation: Rigid, cellular thermal insulation with glass-fiber-reinforced polyisocyanurate closed-cell foam core and aluminum foil facing laminated to both sides; complying with FS HH-I-1972/1, Class 2; aged R-values of 7.2 and 8 at 40 degrees and 75 degrees F (4.4 degrees and 23.9 degrees C), respectively; and as follows: Surface Burning Characteristics: Maximum values for flame spread and smoke developed of 20 and 150, respectively, R-6 insulation value for exterior walls.

2.04 AUXILIARY INSULATING MATERIALS

- A. Polyethylene Vapor Retarder: 6-mil polyethylene film, with laboratory-tested vapor transmission rating of 0.2 perms, natural color.
- B. Adhesive for Bonding Insulation: Type recommended by insulation manufacturer, and complying with requirements for fire performance characteristics.
- C. Mechanical Anchors: Type and size indicated or, if not indicated, as recommended by insulation manufacturer for type of application and condition of substrate.
- D. Mastic Sealer: Type recommended by insulation manufacturer for bonding edge joints between units and filling voids in work.
- E. Protection Board: Pre-molded, semi-rigid asphalt/fiber composition board, 1/4" thick, formed under heat and pressure, standard sizes.

- F. Eave Ventilation Troughs: Preformed rigid fiberboard or plastic sheet designed and sized to fit between roof framing members and to provide cross ventilation between insulated attic spaces and vented eaves.
- G. Crack Sealer for Board Insulation: Provide polymeric insulating foam in aerosol dispenser designed for filling voids in board insulation.
 - 1. Product: Subject to compliance with requirements, provide "Polycel 100" by Construction Products Div., W.R. Grace & Co.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions under which insulation Work is to be performed.
- B. Clean substrates of substances harmful to insulation or vapor retarders, including removal of projections which might puncture vapor retarders.

3.02 INSTALLATION, GENERAL

- A. Comply with manufacturer's instructions for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with work.
- B. Extend insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections which interfere with placement.
- C. Apply a single layer of insulation of required thickness, unless otherwise shown or required to make up total thickness.

3.03 INSTALLATION OF PERIMETER AND UNDER-SLAB INSULATION

- A. On vertical surfaces, set units in adhesive applied in accordance with manufacturer's instructions. Use type of adhesive recommended by manufacturer of insulation.
- B. Protect insulation on vertical surfaces (from damage during backfilling) by application of protection board. Set in adhesive in accordance with recommendations of manufacturer of insulation.
- C. Protect top surface of horizontal insulation (from damage during concrete work) by application of protection board.

3.04 INSTALLATION OF GENERAL BUILDING INSULATION

- A. Apply insulation units to substrate by method indicated, complying with manufacturer's recommendations.

If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

- B. All workmanship and handling shall be in accordance with all applicable federal and state safety standards, and in accordance with the manufacturer's recommendations for safe handling.
- C. Seal joints between closed-cell (non-breathing) insulation units by applying mastic or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with Masticor sealant.
- D. Set vapor retarder faced units with vapor retarder to warm side of construction, except as otherwise indicated. Do not obstruct ventilation spaces, except for firestopping.
 - 1. Tape joints and ruptures in vapor retarder and seal each continuous area of insulation to surrounding construction to ensure air-tight installation.

- E. Set reflective foil-faced units accurately with air space in front of foil as shown. Provide not less than 0.75" air space where possible.
- F. Place loose glass fiber insulation into spaces and onto surfaces as shown, either by pouring or by machine-blowing. Level horizontal applications to uniform thickness as indicated, lightly settled to uniform density, but not excessively compacted.
- G. Stuff loose glass fiber insulation into miscellaneous voids and cavity spaces where shown. Compact to approximately 40% of normal maximum volume (to a density of approximately 2.5 lbs. per cu. ft.).

3.05 INSTALLATION OF VAPOR RETARDERS

- A. General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those which have been stuffed with loose fiber-type insulation.
- B. Seal vertical joints in vapor retarders over framing by lapping not less than two wall studs. Fasten vapor retarders to framing at top, end and bottom edges, at perimeter of wall openings and at lap joints; space fasteners 16" o.c.
- C. Seal overlapping joints in vapor retarders with adhesives per vapor retarder manufacturer's printed directions. Seal butt joints and fastener penetrations with tape of type recommended by vapor retarder manufacturer. Locate all joints over framing members or other solid substrates. Firmly attach vapor retarders to substrates with mechanical fasteners or adhesives as recommended by vapor retarder manufacturer.
- D. Seal joints caused by pipes, conduits, electrical boxes and similar items penetrating vapor retarders with cloth or aluminized tape of type recommended by vapor retarder manufacturer to create an air-tight seal between penetrating objects and vapor retarder.
- E. Repair any tears or punctures in vapor retarders immediately before concealment by other work. Cover with tape or another layer of vapor retarder.

3.06 PROTECTION

- A. General: Protect installed insulation and vapor retarders from harmful weather exposures and from possible physical abuses, where possible by non-delayed installation of concealing work or, where that is not possible, by temporary covering or enclosure.

END OF SECTION

DIVISION 7 – THERMAL AND MOISTURE PROTECTION
SECTION 07300 - SHINGLES

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

- A. Provide materials conforming to: ASTM D-3018 Class A, UL Class A Wind Resistance

1.2 JOB CONDITIONS

- A. Proceed with shingle work only when weather conditions comply with manufacturer's recommendations and substrate is completely dry.

1.3 WARRANTY

- A. Provide manufacturer's 30-year warranty.

PART 2 - PRODUCTS

2.1 SHINGLE MATERIALS

- A. Shingles: CertainTeed Carriage House Shingles 355 lbs. per square 50 yr. Weather wood Fiberglass Roofing Shingles, Color: match existing with random laminated tabs, 12" X 36".
- B. Underlayment: No. 20 unperforated organic asphalt saturated roofing felt complying with ASTM D-226, 36" wide.
- C. Valley Flashing: Certaineed's winter guard waterproofing underlayment, ASTM D4869 or ASTM D6757.
- D. Started Course: Manufacturers standard, color to match field shingles.
- E. Ridge Shingles: CertainTeed Shanlge Ridge
- F. Asphalt Plastic Cement: Comply with ASTM D-2822.

2.2 MISCELLANEOUS MATERIALS

- A. Nails: Hot-dip galvanized 11 or 12-gauge sharp pointed conventional roofing nails with barbed shanks, minimum 3/8" diameter head, length to penetrate minimum 3/4" into solid decking or to penetrate through plywood sheathing

Staples are prohibited.

- B. Metal Drip Edge: Minimum .024" pre-finish aluminum sheet, brake-formed to provide 3" roof deck flange, and 1-1/2" fascia flange with 3/8" drip at lower edge. Furnish in 8' or 10' lengths. Color Brown (to match existing clubhouse).
- C. Metal Flashing: 0.24" mill finish sheet aluminum. Job-cut to sizes and configurations required. If used in open valley, provide SMACNA plate 61, 1" "V" crimp profile, pre-finished color to match shingles.

PART 3 -EXECUTION

- A. Install in strict conformance with manufacturer's instructions.

**DIVISION 7 – THERMAL AND MOISTURE PROTECTION
SECTION 07500 – THERMOPLASTIC MEMBRANE ROOFING**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Adhered membrane roofing system.
- B. Roof insulation related to thermoplastic membrane roofing.

1.02 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.03 PERFORMANCE REQUIREMENTS

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

Retain paragraph and subparagraphs below if Project is FMG insured or if FMG requirements will set a minimum quality standard. Coordinate requirements of FMG classification with other requirements in this Section. Loosely laid and ballasted membrane roofing systems cannot be FMG approved but may be accepted by FMG on a project-by-project basis.

- C. FMG Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system and that are listed in FMG's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FMG markings.

Select one option in first subparagraph below based on windstorm classification of Project. FMG Loss Prevention Data Sheet 1-28 multiplies the actual field-of-roof uplift pressure by a factor of 2 to obtain the factored pressure, the number that establishes the minimum FMG approval rating. Verify availability of roofing systems that meet these classifications. Other options for classifications increase in increments of 15, e.g., Class 1A-135, 1A-150, 1A-165, and higher. "Class 1A" signifies meeting ASTM E 108, Class A fire performance for FMG-approved Class 1 roof covers. For areas having three or more hailstorms annually, FMG recommends roofing systems rated SH (severe hail) instead of MH (moderate hail).

- 1. Fire/Windstorm Classification: Class 1A-60.

1.04 SUBMITTALS

- A. See Division 1 – Supplementary General Conditions, for submittal procedures.
- B. Product Data: For each type of product indicated. Provide installation instructions and general recommendations from manufacturer of thermoplastic membrane roofing system for types of roofing materials required.
- C. Shop Drawings: Submit shop drawings for roofing system showing roof configuration, sheet layout, seam locations, colors (as applicable), details at perimeter, penetration and flashing

details, attachments to adjacent Work, and special conditions. Customized detail sheets shall be prepared, showing each condition and approved installation method conforming with the construction drawing constraints and details.

Adjust list below to suit Project.

1. Base flashings and membrane terminations.
2. Layout of tapered insulation and cricket materials, including slopes.
3. Insulation fastening patterns.

D. Samples for Verification: For the following products:

Adjust list below to suit Project.

1. 12-by-12-inch square of sheet roofing, of color to match existing roof.

Retain paragraph below if Installer certification is required in "Quality Assurance" Article or a special warranty is required.

E. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

Retain paragraph and subparagraph below if "Performance Requirements" Article and either "Roofing System Design" or "FMG Listing" Paragraph are retained.

Coordinate first paragraph below with qualification requirements in Division 1 Section "Quality Requirements" and as supplemented in "Quality Assurance" Article.

F. Qualification Data: For Installer.

G. Maintenance Data: For roofing system to include in maintenance manuals.

Retain paragraph below if desired. Submittal of sample warranty provides Architect or Owner an opportunity to further verify that warranty coverage meets requirements.

H. Warranties: Special warranties specified in this Section.

Retain below if manufacturer's final roof inspection report is required.

I. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.05 QUALITY ASSURANCE

FMG is launching a certified roofing installer program. Add certification requirements to first paragraph below if Project is FMG insured and a certified roofing installer is required.

A. Installer Qualifications: A qualified firm that is approved, authorized, factory trained, and licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty. Contractor shall have a minimum of 3 years experience installing system, shall have installed a minimum of 500,000 square feet and shall employ personnel experienced and skilled in application of manufacturer's roofing system.

1. Work associated with TPO membrane roofing, including (but not limited to) insulation, flashing, and membrane sheet joint sealers, shall be performed by Installer of this Work.

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- B. Manufacturer Qualifications: A qualified manufacturer that has UL listing and FMG approval for membrane roofing system identical to that used for this Project.

Retain first paragraph below if required to meet provisions of special manufacturer's warranty. Consult manufacturer's literature for requirements because they vary.

- C. Source Limitations for Roofing Products: Obtain components for membrane roofing system from or approved by roofing membrane manufacturer.
- D. Source Limitations for Insulation Products: Obtain each type of roof insulation from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- E. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

Retain one of three options in subparagraph below based on fire classification of roof assembly and roof covering. Delete subparagraph if exterior fire-test exposure is included in FMG class designation in "Performance Requirements" Article above.

- 1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
- F. Insulation Fire Performance Characteristics: Provide insulation and related materials with fire-test- response characteristics specified elsewhere in this Section as determined by testing identical products per test method indicated below 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. Surface Burning Characteristic: ASTM E 84.
 - 2. Fire Resistance Ratings: ASTM E 119.
 - 3. Combustion Characteristics: ASTM E 136.
- G. Upon completion of installation, an inspection shall be made by system manufacturer to ascertain that roofing system has been installed according to applicable manufacturer's specifications and details. No warranty issued before the inspection made by system manufacturer will be accepted. Results of the warranty inspection shall be submitted in writing to Owner and Architect for their review and records.

Preinstallation conference below is recommended with or without preliminary roofing conference above.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components. Comply with manufacturer's written instructions for proper material storage.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

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1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Insulation board shall be stored on pallets, at least 4 inches off ground and tightly covered with waterproof, "breathable" materials. Insulation shall be protected from direct sunlight.
- E. Materials, which are damaged, shall be removed and replaced at Installer's expense.
- F. Materials shall be delivered in sufficient quantity to allow continuity of Work.

1.07 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Proceed with work so new roofing materials are not subject to construction traffic. When construction traffic is necessary, new roof sections shall be protected and inspected upon completion for possible damage.
- C. Substrate Conditions: Do not begin roofing installation until substrates have been inspected and are determined to be in satisfactory condition. All surfaces shall be smooth, dry, clean, free of fins or sharp edges, loose or foreign materials, oil or grease. No work shall proceed when moisture is present on roof or in substrate materials.
- D. Temporary waterstops shall be installed at end of each workday and shall be removed before proceeding with next day's work.
- E. Protect against fire and flame spread. Maintain proper and adequate fire extinguishers.
- F. Coordinate work with that of other trades effecting or effected by Work of this Section. Cooperate with such trades to ensure steady progress of all work under this contract.

1.08 WARRANTY

- A. General: Special Warranties specified in this Section shall not deprive Owner of other rights Owner may have under other provisions of Contract Documents and will be in addition to and run concurrent with other warranties made by Contractor under requirements of Contract Documents.
- B. Special Warranty: Roofing Contractor shall furnish to Owner the manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks. Warrantor shall be the manufacturer of the roofing membrane. Warranty shall be written to building Owner.
 1. Special warranty includes roofing membrane, base flashings, roofing membrane accessories, roof insulation, fasteners, and other components of membrane roofing system.
 2. Warranty Period: 10 years from date of Project Substantial Completion.
- C. When the Warrantor is notified that there is a problem (leak or damage) with warranted roofing system and/or accessories by telephone, and/or in writing (fax or mail), the response time to

physically start repairs shall be within twenty-four hours from time of telephone or date of written notification.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
1. Products: Subject to compliance with requirements, provide one of the products specified.
 2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.02 ROOF SYSTEM ASSEMBLIES

- A. Adhered TPO Roof System Assembly: Adhered roof membrane over mechanically attached, approved roof insulation to roof deck. Provide where existing roof is penetrated by new construction.

2.03 THERMOPLASTIC POLYOLEFIN ROOFING MEMBRANE

- A. Fabric-Reinforced Thermoplastic Polyolefin Sheet: Uniform, flexible sheet formed from a thermoplastic polyolefin, internally fabric or scrim reinforced, and as follows:
1. Products:
 - a. Sure-Weld Roofing System; Carlisle SynTec Incorporated.
 - b. UltraPly TPO Roofing System; Firestone Building Products Company.

Select thickness from options in subparagraph below.

2. Thickness: 60 mils, nominal.
3. Physical Properties:
 - a. Breaking Strength: 225 lbf; ASTM D 751, grab method.
 - b. Elongation at Break: 15 percent; ASTM D 751.
 - c. Tearing Strength: 55 lbf minimum; ASTM D 751, Procedure B.
 - d. Brittleness Point: Minus 22 deg F.
 - e. Ozone Resistance: No cracks after sample, wrapped around a 3-inch- diameter mandrel, is exposed for 166 hours to a temperature of 104 deg F and an ozone level of 100 pphm; ASTM D 1149.
 - f. Resistance to Heat Aging: 90 percent minimum retention of breaking strength, elongation at break, and tearing strength after 166 hours at 240 deg F; ASTM D 573.
 - g. Water Absorption: Less than 4 percent mass change after 166 hours' immersion at 158 deg F; ASTM D 471.
 - h. Linear Dimension Change: Plus or minus 2 percent; ASTM D 1204.

2.04 AUXILIARY MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: Manufacturer's standard un-reinforced thermoplastic polyolefin sheet flashing, 55 mils thick, minimum, of same color as sheet membrane.
- C. Bonding Adhesive: Manufacturer's standard solvent-based bonding adhesive for membrane, and solvent-based bonding adhesive for base flashings. Provide adhesives that will withstand Project wind uplift requirements.
- D. Crickets and Flashing Accessories: Types recommended by membrane manufacturer, including adhesive tapes, flashing cements, and sealants.
- E. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
- F. Adhesives and Cleaners: Provide bonding adhesive, edge sealant, water cut-off mastic, splicing cement, sealer, and membrane cleaner specifically formulated by the roofing manufacturer for the intended purpose and as required for a complete roof system. Provide adhesives that comply with project requirements to withstand 60-psf uplift force.
- G. Miscellaneous Accessories: Provide flashings, preformed inside and outside corner sheet flashings, T-joint covers, termination reglets, cover strips, and other accessories.

2.05 ROOF INSULATION

Coordinate insulation with adjoining construction as well as HVAC design.

- A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of existing thicknesses.
 1. Provide roofing manufacturer's required insulation for total system warranty.
 2. Thickness: As indicated by manufacturer and building code.

2.06 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
- B. Cold Fluid-Applied Adhesive: Manufacturer's standard cold fluid-applied adhesive formulated to adhere roof insulation to substrate.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 1. Verify that roof openings and penetrations are in place and set and braced.
 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations.
 3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. General: Comply with manufacturer's instructions to prepare substrate to receive TPO membrane roof system.
- B. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- C. Prevent materials from entering and clogging drains and conductors and from spilling or migrating onto surfaces of other construction.
- D. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- E. Prime substrate where recommended by manufacturer of materials being installed.

3.03 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.
- C. Do not install more insulation in a day than can be covered with membrane before end of day or before start of inclement weather.

3.04 ADHERED ROOFING MEMBRANE INSTALLATION

Retain this Article for adhered roofing membrane installations.

- A. Install roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.
- B. Bonding Adhesive: Apply bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.
- C. Mechanically or adhesively fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.
- D. Apply roofing membrane with side laps shingled with slope of roof deck where possible.
- E. Seams: Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.
 - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane.
 - 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
 - 3. Repair tears, voids, and lapped seams in roofing membrane that do not meet requirements.

3.05 BASE FLASHING INSTALLATION

- A. Flashing of parapets, curbs, expansion joints and other parts of the roof must be performed using reinforced membrane. TPO non-reinforced membrane can be used for flashing pipe penetrations, as well as inside and outside corners when the use of pre-fabricated accessories is not feasible. Sealant pockets are not permitted.
- B. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions and approved Shop Drawings.
- C. At parapets, flashing shall run under coping, over roof blocking, and lapping over building paper for full length and width. Membrane shall extend down wall at least 1-inch past bottom of wood nailer.
- D. Base Flashing: Tops of elastomeric base flashing shall be secured with a continuous aluminum termination bar and counter-flashed.
- E. All vertical flashings and membranes shall be adhered to substrates regardless of height.
- F. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- G. Flash penetrations and field-formed inside and outside corners with sheet flashing conforming to manufacturer's requirements. A minimum overlap of 3 inches is required.
- H. Clean seam areas and overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.

3.06 FIELD QUALITY CONTROL

A roof inspection is required by manufacturer before warranty issue. Revise scope of inspection and source of report to a qualified roofing consultant or an independent testing and inspecting agency if preferred.

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report.
 - 1. Notify all parties 48 hours in advance of date and time of inspection.
- B. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.
- C. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.07 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates, and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

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- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

DIVISION 7 – THERMAL & MOISTURE PROECTION
SECTION 07600 – FIRESTOPPING

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Firestopping penetrations through fire rated assemblies, such as fire rated walls, floors and roof assemblies:
 - Voids around pipes, ducts, conduits, cable trays, cables and wires, and structural members.
 - Construction joints between curtain walls and floor or roof assemblies.
 - Construction joints between intersection points between walls and floors, ceilings or rated roof systems.
 - Construction joints at expansion or seismic joints.
 - Penetrations of vertical service shafts.
 - Openings shown or required by other sections.

1.02 RELATED DIVISIONS:

1. 07 81 00 Fireproofing.
2. 07 92 00 Joint Sealants.
3. Divisions 22, 23, and 26: Plumbing, HVAC, and electrical penetrations.

1.03 REFERENCES

- A. ASTM C719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants under Cyclic Movement (Hockman Cycle).
- B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- D. ASTM E119 - Standard Test Methods of Fire Tests of Building Construction and Materials.
- E. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C.
- F. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.
- G. Underwriters Laboratories, Inc. UL 1479 - Fire Tests of Through-Penetration Fire Stops.
- H. Underwriters Laboratories, Inc. UL 263 - Fire Tests of Building Construction and Materials.

1.04 DEFINITIONS

- A. Fire rated assembly: Includes fire rated walls, floors and roof system assemblies. Ratings in accordance with ASTM E119 or UL 263.
- B. Firestopping: A material, or combination of materials, to retain the integrity of time-rated construction by maintaining an effective barrier against the spread of flame, smoke and gases. Through Penetration firestop systems are designed to prevent the spread of fire through openings in fire rated assemblies for a specified period of time. Incorporating the use of specific products installed in a specific manner, they shall only be installed in configurations for which they have been specifically tested and listed by Underwriters Laboratories or Factory Mutual in accordance with ASTM E814 or UL 1479.

- C. Flame spread and smoke developed ratings: Numerical Value of a material when tested in accordance with ASTM E84.

1.05 SUBMITTALS

- A. Shop Drawings: Submit details showing proposed material, reinforcement, anchorage and fastenings; indicate applicable UL, FM and ICBO system numbers, as required by code jurisdiction, for firestop systems to be installed.
- B. Installation instructions: Submit manufacturer's installation instructions for firestop systems to be installed.
- C. Product Data: Submit manufacturer's printed data sheets for all products used in the firestop systems, indicating product characteristics, performance and any limiting criteria.
- D. Manufacturer's certifications and recommendations: For installations or configurations not covered by a tested or listed firestop system, provide recommendations from manufacturer and provide subsequent opinion or decision from regulatory authorities.

1.06 QUALITY ASSURANCE

- A. Manufacturer: Each firestop system shall be properly installed with the materials as tested for the specific application, or based on manufacturer's written recommendations when conditions above are met.
- B. Construction Manager Qualifications: Minimum two years' experience installing UL listed or Factory Mutual approved firestop systems in similar type construction.
- C. Mock-Up: Prepare job site mock-ups of typical firestop systems proposed for use in the project.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials to the site in manufacturer's original, unopened containers with labels indicating brand and type, and bearing a label of a recognized testing agency.
- B. Storage: Store materials in accordance with the manufacturer's directions and recommendations.

1.08 PROJECT CONDITIONS

- A. Do not proceed with installation of firestop systems when job site conditions are not within the limits permitted by the manufacturer.
- B. Do not use materials that are damaged or beyond indicated shelf life.

1.09 SEQUENCING AND SCHEDULING

- A. Pre-installation conference: Convene a pre-installation conference to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.
- B. Sequence: Perform work of this and other sections in proper sequence to prevent damage to the firestop systems and to ensure that their installation will occur prior to enclosing or concealing work.
- C. Install all firestop systems after voids and joints are prepared sufficiently to accept the applicable firestop system.
- D. Do not cover firestop systems until they have been properly inspected and accepted by the authorities having jurisdiction.

1.10 WARRANTIES

- A. Warrant the firestop systems against degradation or failure for five years.

END OF SECTION

DIVISION 7 – THERMAL & MOISTURE PROTECTION
SECTION 07700 – JOINT SEALANTS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Joints in exterior concrete, openings in exterior walls, interior stone counter tops, expansion joints, and elsewhere as noted shall be pointed with sealant hereunder.

1.02 RELATED DIVISIONS:

1. Division 3 – Cast-in-Place Concrete
2. Division 6 - Rough Carpentry
3. Division 9 - Plaster and Gypsum Board

1.03 REFERENCES

- A. Federal Specification FS-TT-S-227e.
- B. ASTM D1752 - Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.

1.04 QUALITY ASSURANCE

A. Manufacturer's supervision:

1. Obtain manufacturer's supervision for the following:
 - Instruct personnel doing this Work.
 - Verify that proper procedures are being followed.

1.05 SUBMITTALS

- A. Submit Shop Drawings, including full-size details of each condition.
- B. Provide manufacturer's Product Data.
- C. Samples: Submit Samples of various types and colors of materials specified or intended for use on this project.

1.06 PRODUCT HANDLING

- A. Deliver materials to the project or place of application in original unopened containers bearing manufacturer's name and product designation.
- B. Store materials in accord with manufacturer's instructions.
- C. Do not use materials upon which the shelf life date has expired. Remove these materials promptly from the Project Site.

1.07 WARRANTY

- A. Warrant sealants and caulking used in conjunction with openings in exterior walls, and window walls and entrances against all defects of material and application for a period after the date of substantial completion equal to the manufacturer's warranty
- B. Unless otherwise noted or specified, warrant all other sealants and caulking against all defects of material and application for a period of five years after the date of Substantial Completion.
- C. Refer to specific Specification Sections for other warranty period requirements.

PART 2 - PRODUCTS

2.01 SEALANT MATERIALS

- A. Use sealants of the following types and manufacture as required by the drawings and Specifications.
 - 1. Colors for all sealants shall be as selected by the Architect from manufacturer's standard colors to match adjacent finishes.
 - 2. Coordinate the sealants required by various interfacing trades to ensure compatibility of sealants.
- B. Type designation: Sealant types with numerical designation as specified hereinafter refer to basic sealant materials.

2.02 SEALANT TYPES

- A. For interior and exterior horizontal application subject to pedestrian or vehicular traffic.
 - 1. Sealant compound shall be two-part polyurethane-base sealant of self-leveling pour-grade consistency at slopes up to 1-1/2%, and gun grade for steeper slopes, meeting following standard:
 - Federal Specification TT-S-227e.
 - "Shore A" hardness of cured sealant shall be 40 + 5.
 - 2. For self-leveling grade:
 - Sikaflex 2c/SL.
 - Sonolastic Paving Joint Sealant.
 - Tremco THC 900.
 - Vulkem 245.
 - Elasto-Thane 227 H.S. /P (Pacific Polymers).
 - 3. For gun grade:
 - Sikaflex 2c/NS.
 - Sonolastic NP11.
 - Tremco THC 901.
 - Vulkem 922.
 - Elasto-Thane 227 H.S. /NS (Pacific Polymers).
- B. For acoustical sealant, coordinate with requirements of Gypsum Board Systems Section; non-hardening polysulphide or elastic water-base sealant:
 - 1. Inmont Company "Prestite 579.64".
 - 2. Tremco Acoustical Sealant.
 - 3. United States Gypsum Acoustical Sealant.
 - 4. W.W. Henry Type 313 Acoustical Sealant.
- C. For expansion joint sealer for use when the sealer is concealed in the finished work such as at telescoping joints in window frames, gutters, fascias, gravel stops, etc., non-drying butyl:
 - 1. PTI 707.
 - 2. Tremco Curtain Wall Sealer.
- D. For joints in precast concrete, prefinished metal wall panels; glazed aluminum ribbon windows, punched windows, window walls and entrances, and openings in exterior walls required to be pointed with sealant, use Dow Corning 790.

- E. For other exterior and interior horizontal or vertical applications:
1. For porous or non-porous surfaces wherein the sealant will not be covered by paint:
 - Dow Corning 790 or 795.
 - General Electric Silpruf.
 2. For porous or non-porous surfaces wherein the sealant will be covered by paint:
 - Pecora AC20, acrylic latex caulk (interior only).
 - Sikaflex 2c/NS.
 - Tremco Acrylic Latex Caulk (interior only).
 - Tremco Dymeric.
 - Elasto-Thane 920 (Pacific Polymers).
 3. For mildew-resistant sealant at ceramic wall tile, plumbing fixtures, etc:
 - Dow Corning 786.
 - General Electric 1702.

2.03 INCIDENTAL MATERIALS

- A. Staining characteristics: Do not use joint filler, primer or other materials which would stain the sealant and the materials to which they are applied.
- B. Compressible joint filler: Taylor Foam, open cell polyethylene, or other compatible resilient material, recommended by the sealant manufacturer for use in conjunction with the sealant.
 1. Do not use joint fillers which are subject to deterioration through contact with the sealant or required primers.
- C. Bond-breaker tape: Wrinkled or smooth faced masking tape, or other adhesive faced tape product which is adaptable to installation in the bottom of a solid-backed joint for the purpose of breaking bond between the sealant and the back of the joint.
- D. Primers: As recommended by the sealant manufacturer for use in conjunction with the sealant for application onto the various types of materials to which the sealant is applied. When the manufacturer's instructions make reference to use of primers or special surface preparations, comply with these instructions.
- E. Cleaners, where required by manufacturer's instructions in lieu of primers, shall be of the type and kind recommended by the manufacturer.
- F. Lead wool: Fine gage strands of lead adaptable to packing in reglet to form anchorage for sheet metal extended into reglet.
- G. Preformed compressible joint filler: Standard brand conforming to ASTM D1752, Type II or III, or Homex Expansion Joint, manufactured by the Homasote Co.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Cut out defective existing sealants and existing sealants not complying with manufacturer's recommendation for thickness, including existing backing. Clean metals at joints with solvents as required to produce absolutely clean substrates.
- B. Where new sealant is to join existing, wipe remaining cut edges of existing cured sealant with a solvent such as methyl-ethyl ketone (MEK).

3.02 APPLICATION

- A. Accurately position joint filler within the joint to establish and control the uniform designated thickness of sealant.
 - 1. Exercise care in the installation of joint backing to see that the backing is not set too far below surface, thereby increasing the depth of the sealant.
- B. Apply material with sufficient pressure to completely fill the void space and to assure complete wetting of the contact area to obtain uniform adhesion.
 - 1. During application, keep tip of nozzle at bottom of joint, forcing sealant to fill from bottom to top.
 - 2. Move tip along joint to completely fill the joint. Finish joints smooth and flush with adjacent surface unless detailed otherwise.
- C. Perform joint preparation, including cleaning and priming, in accord with manufacturer's instructions. When solvents are used, wipe the dissolved contaminant and solvent from the surface promptly.
- D. Install bond-breaker tape to prevent bonding of the sealant with the backing or bottom of the joint.
- E. Do not allow sealants to remain on exposed surfaces.

END OF SECTION

DIVISION 8 – OPENINGS

Section 08110 – METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Pressed steel doors and frames.
 - 2. Preparation for hardware.
 - 3. Fire rated door and frame systems with integrated frames, doors and hardware.

1.02 RELATED WORK:

- 1. Division 8 - Wood Doors.
- 2. Division 8 - Door Hardware.
- 3. Division 9 - Painting.

1.03 REFERENCES

- A. DHI - Door Hardware Institute: The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
- B. NFPA 80 - Fire Doors and Windows.
- C. NFPA 252 - Fire Tests for Door Assemblies.
- D. SDI-100 - Standard Steel Doors and Frames.
- E. SDI-105 - Recommended Erection Instructions for Steel Frames.
- F. UL 10B - Fire Tests of Door Assemblies.

1.04 SUBMITTALS

- A. Shop Drawings: Indicate general construction, configuration, jointing methods, reinforcements, and locations of cut-outs for glass and/or louvers.
- B. Product Data: Submit manufacturer's literature for Architect's review.
- C. Samples: Submit finish samples on actual frame. Include mitered frame corner to illustrate fit and alignment of miter.
- D. Submit manufacturer's installation instructions.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with the following:
 - 1 SDI-100 - Recommended Specifications - Standard Steel Doors and Frames, Steel Door Institute.
 - 2 Underwriters' Laboratories Inc. (UL) or Factory Mutual (FM) standards as applicable to fire rated hollow metal doors.
 - 3 NAAMM - Hollow Metal Technical and Design Manual, National Association of Architectural Metal Manufacturers.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect doors and frames with resilient packaging sealed with heat shrunk plastic.
- B. Break seal on-site to permit ventilation.

1.07 WARRANTY

- A. Warranted for a period of five years against defects in material and workmanship, including rusting or degradation of finish.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Steel doors and frames: Ceco Corporation, Curries Company, Steelcraft, or equal.
- B. Integrated doors and frames: Total Door.

2.02 FABRICATION

- A. Hollow metal doors and pressed steel frames.
 - 1. Per referenced standards except as amended herein. Custom shapes and sizes; interior metal-primed for painting; exterior metal zinc coated and primed for painting; reinforced for hardware.
 - 2. Doors: Flush; seamless; edge joints continuously welded and ground smooth; door louvers truncated vee-type.
 - Exterior Doors: not less than 16 gauge; top and bottom flush.
 - Interior Doors: not less than 18 gauge.
 - 3. Frames: Pre-assembled welded type with welded in floor anchors; corners mitered, continuously welded, ground and finished smooth. Prepare for silencers at door openings except where seals occur. Where applicable, prepare for gaskets furnished under Hardware Section.
 - Exterior Frames: Except as required by Underwriters' Laboratories, not less than 14 gauge.
 - Interior Frames: Except as required by Underwriters' Laboratories, not less than 16 gauge for openings 4'-0" and less in width and not less than 14 gauge for openings over 4'-0" in width.
 - 4. Louvers: Roll formed steel material, primed finish; inverted 'V' blade, with tamperproof fasteners.
 - 5. Rubber Silencers: Resilient rubber.
 - 6. Glazing Stops: Rolled steel channel shape, mitered corners; prepared for countersink style tamperproof screws.
- B. Fire Rated Doors: Of construction in accordance with requirements of Underwriters Laboratories and Factory Mutual standards. Place UL labels where visible when doors are in installed position. Refer to drawings for class requirements.
- C. Reinforce and prepare doors and frames to receive hardware.
 - 1. Refer to section 08 71 00 for Door Hardware, for hardware requirements.
- D. Provide astragals for double doors in accordance with UL requirements for labeled doors.

2.03 INTEGRATED DOORS AND FRAMES

- A. Fire rated door and frame systems with integrated frames, doors and hardware: Finish as selected by Architect. Provide all operating and functional hardware required. Hardware trim, finish and function selections as shown on hardware schedule.

PART 3 - EXECUTION

3.01 INSTALLATION

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- A. Install doors, frames and hardware in accordance with SDI-100, the requirements of this section and with manufacturer's recommendations and installation instructions.
 - 1. Install fire rated assemblies in conformance with fire label requirements.
- B. Install steel doors and frames plumb and square, and with maximum diagonal distortion of 1/16".
- C. Coordinate installation of glass panels in doors.
- D. Fill surface depressions with metallic paste filler and grind to smooth uniform finish.
- E. After installation, touch up scratched or damaged surfaces. Use type of primer recommended for galvanized surfaces, or identical to that used for shop coat, as applicable to installed door materials.
- F. Install door louvers.
- G. Install roll formed steel reinforcement channels between two abutting frames. Anchor to structure and floor.

3.02 TOLERANCES

- A. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.03 FIELD FINISHING

- A. Paint steel doors and frames in the field in accordance with section 09 91 00 Painting.
 - 1. Paint frames to match adjacent wall color.
 - 2. Where wall color differs on both sides of frame, paint both sides of frame to match the respective wall finish. Transition the color change at inside corner of formed metal door stop.

3.04 ADJUSTING AND CLEANING

- A. Adjust hardware for smooth and balanced door movement.

END OF SECTION

DIVISION 8 – OPENINGS
SECTION 08140 – WOOD DOORS AND FRAMES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Standard and fire rated type solid core wood doors, with flush faces.

1.02 RELATED DIVISIONS:

1. Division 6 - Architectural Woodwork.
2. Division 8 - Metal Doors and Frames.
3. Division 8 - Door Hardware.
4. Division 9 - Painting: Field painting.

1.03 REFERENCES

- A. ANSI A135.4 - Basic Hardboard.
- B. ANSI/HPMA HP - Hardwood and Decorative Plywood.
- C. ASTM E413 - Classification for Rating Sound Insulation.
- D. AWI - Architectural Woodwork Quality Standards.
- E. NFPA 80 - Fire Doors and Windows.
- F. NFPA 252 - Standard Method of Fire Tests for Door Assemblies.
- G. NWMA - Standard Door Guarantee.
- H. WDMA - Window and Door Manufacturers Association Standard I-S.1 Series for Wood Doors.
- I. UL 10B - Fire Tests of Door Assemblies.

1.04 SUBMITTALS

- A. Shop Drawings: Indicate general construction, specified rail sizes and locations, jointing methods, hardware blocking and hardware locations, door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, identify cutouts for glazing and louvers.
- B. Product data: Manufacturer's standard literature and specifications. Indicate door core materials and construction; veneer species, type and characteristics.
- C. Samples:
 1. Submit two samples of door construction, minimum 8" x 11" in size cut from top corner of door.
 2. Submit two samples of door veneer, minimum 8" x 11" in size illustrating wood grain, finish texture and color.
- D. Certification: AWI certification is required. Submit certificate of compliance.
- E. Manufacturer's Installation Instructions: Indicate special installation instructions.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with the following:
 1. NFPA 80 requirements for rated doors.
 2. Underwriters' Laboratories Inc. standards for fire rated doors.

3. Factory Mutual (FM) standards for fire rated doors.

1.06 REGULATORY REQUIREMENTS

- A. Rated assemblies and components: Conform to UL and NFPA 80.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect doors with resilient packaging. Do not store in damp or wet areas; avoid exposure to direct sun. Seal top and bottom edges if stored more than one week. Break seal on-site to permit ventilation. Comply with manufacturer's written recommendations for storage of doors.

1.08 COORDINATION

- A. Coordinate the work with door opening construction, door frame and door hardware installation.

1.09 WARRANTY

- A. Provide warranty for the following term:
 1. First year of installation.
- B. Provide written warranty in accordance with NWMA "Standard Door Guarantee", modified as follows: Provide for replacing, including re-hanging and refinishing. Provide temporary doors to maintain security and privacy during replacement or repair operations.
 1. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials and telegraphing core construction.
 2. Opaque finish doors shall be warranted by the door fabricator. All other doors shall be warranted by the door fabricator in conjunction with the architectural woodwork fabricator.

PART 2 - PRODUCTS

2.01 WOOD DOORS

- A. Wood door shall be of size, thickness and design as indicated on "Door Schedule."
- B. Wood doors shall be of solid core, flush hardwood, veneer doors with continuous block or glued-up vertically staved core, of low-density core wood of 2" minimum width, with standard thickness hardwood cross-banding, and with face veneers not less than 1/28" thick before sanding. Side edge strips shall not be less than 1/2" wide after trimming and shall match face veneers. Top and bottom edge strips shall be hardwood or soft wood or according to the manufacturer's standards. Doors shall be manufactured to meet or exceed the requirements of commercial standard CS-171-58; or does shall meet the description "Type A" construction in accordance with Architectural Woodworking Institute, Brochure 5, (Revised). See "Materials" section herein for door face veneer material.
- C. Door construction shall be "Premium Grade", solid core (CS-171-58) when face veneers are "Custom" grade select birch (for natural finish).
- D. Door construction shall be "Good Grade" birch (US-171-58) when face veneers are to be painted.
- E. Pattern doors and louvered doors shall be as manufactured by Morgan Building Products (or equivalent as approved by Architect), sizes and design stiles as indicated on Drawings. Wood species shall be Ponderosa Pine (or equivalent as approved by Architect); painting and staining by others.
- F. Provide doors Type "D" with factory glazed 1/4" tempered safety glass, or 1/4" laminated glass.
- G. All doors shall be shop fitted to openings and shall be shop fabricated for all hardware. Templates shall be provided by the Hardware Subcontractor.
- H. Undercut all doors 1/4" above finish floor surfaces.
- I. All exposed surfaces of wood doors shall be cleaned and sanded smooth.

J. Products

- 1 Interior Wood Door Frames: All interior door frames shall be $\frac{3}{4}$ " thick and full jamb width to fit walls in which they occur, and of same wood as scheduled in the Room Finish Schedule. All frames to be fitted with planted stops.
- 2 Interior Wood Doors (See Schedule): All interior doors as called for on the door schedules shall be Trustile Knotty Alder High Country Series with Bevel (BV) Sticking and V-groove panels (or equivalent as approved by Architect). Submit shop drawing for approval. All raised panels shall be raised with solid plywood panels, solid stiles, and rails milled to popular and modern mill practice. All flush doors as scheduled shall be "A" grade, flush solid core Birch doors of thickness and to sizes as called for. Provide glass lights and metal louvered inserts to the flush doors as called for. Refer also to Door Schedule.
- 3 Cabinet Work: Provide and install wood, cabinets, vanities, etc., and quartz, granite and plastic laminate countertops with backsplashes, built to dimensions and details shown and to fit the areas as indicated.

- K. Plastic laminates shall be selected from manufacturer's full range of colors and patterns by Formica, Nevermar, or approved equal.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Examine door frames and verify that frames are the correct type and have been installed as required for proper hanging of corresponding doors. Do not proceed with installations until satisfactory conditions have been achieved.

3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions.
1. Install fire rated assemblies in conformance with fire label requirements.
- B. Install wood doors plumb and square, with maximum diagonal distortion of 1/16", and in compliance with the referenced standards.
- C. Undercut doors in place to clear floor finishes by $\frac{1}{4}$ inch, unless otherwise noted.
- D. Install hardware in accordance with requirements of section 08 71 00 Door Hardware.
- E. Touch up shop finishes as required to assure complete integrity of finish system.
- F. Replace doors where damages are in excess of repairs which may be corrected by touch up process.

3.03 ADJUSTING

- A. Adjust doors for smooth and balanced door movement.

3.04 WORKMANSHIP

- A. Comply with the requirements of the referenced standards.
- B. The completed work shall be rigid, plumb or level as appropriate; free from damage, flaws, blemishes or other defects detrimental to appearance; have joints in proper position and alignment and be uniform in plane, color and finish.

END OF SECTION

DIVISION 8 – DOORS AND WINDOWS
SECTION 08520 – FIBERGLASS WINDOWS

PART 1 - GENERAL

1.01 SCOPE OF THE WORK

- A. Work under this heading shall include furnishing of all materials, labor, equipment, etc., to provide, fabricate, erect and install a finished and complete job in place. The items described herein, indicated on the Drawings and Schedules, or normally and reasonably required will be provided.

1.02 WINDOWS

- A. All windows shall be Marvin Integrity Ultrex fiberglass as indicated on drawings, to sizes as called for and glazed with insulated glazing panel, tinted glass for window units, tempered insulated glass for units where called for, with operating hardware, weather-stripping and screen.
- B. All interior sills to be Introsul.

1.03 FIXED FRAMES

- A. Fiberglass frames and trim on fixed tinted glass units. Glazed with 1" insulated glass. Refer to Plans and Details.

1.04 FIXED UNITS

- A. Sill: Shall be fiberglass.
- B. All exterior surfaces shall be fiberglass. Overall depth of frame. Color to be white.

1.05 SASH UNITS

- A. Frame: Shall be fiberglass, assembled with hardware installed.
- C. Sash: Shall be fiberglass.
- E. Glazing: Shall be single-light quality glass, glazed from inside with removable stops, insulating glass Low "E". Gray tint (submit sample).
- F. Weatherstripping: Shall be flexible polymeric material, compressed between frame and sash for positive seal on all four sides.
- G. Hardware: Shall include all-steel sash handle and lock shall be finished in baked white enamel.
- H. Screen: Shall consist of fiberglass screen cloth set in white fiberglass frame, supplied complete with all necessary hardware.
- I. Assembly and Trim: Individual units shall be furnished factory assembled with sash installed in the frame, and without trim. Trim shall be supplied.
- J. Muntin Bars: Wood muntin bars interior face, and fiberglass muntin bars exterior face. 7/8" widths.

END OF SECTION

DIVISION 8 – DOORS AND WINDOWS
SECTION 08710 – DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY - ALLOWANCE

A. Section includes:

1. Hardware for steel frames, wood frames, steel and composite doors.
2. Cylinders for doors fabricated with locking hardware.

1.02 RELATED DIVISIONS:

1. Division 6 - Architectural Woodwork: Hardware for cabinetwork and architectural millwork.

1.03 REFERENCES

- A. ANSI A156.1 through A156.20 - Standards for various hardware items.
- B. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
- C. Building Hardware Manufacturers Association (BHMA).
- D. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
- E. AWI - Architectural Woodwork Institute - Quality Standards.
- F. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures.
- G. NFPA 252 - Fire Tests of Door Assemblies.
- H. UL 10B - Fire Tests of Door Assemblies.
- J. UBC Standard 7-2 - Fire Test of Door Assemblies: Positive pressure testing.

1.04 SUBMITTALS

A. Shop Drawings:

1. Indicate locations and mounting heights of each type of hardware.
2. Supply templates to door and frame manufacturer(s) to enable proper and accurate sizing and locations of cut-outs for hardware.
3. Detail any conditions requiring custom extended lip strikes, or any other special or custom conditions.
4. Submit door schedule indicating each type of hardware for each door and frame.
5. List manufacturer's name with each manufacturer's hardware number together with finishes in US standards.

B. Product Data: Submit two manufacturer's catalog cuts of every item furnished for this project. Show all finishes, sizes, catalog numbers and pictures. Explain fully all abbreviations.

C. Samples: Provide representative samples of metal finishes.

1.05 OPERATION AND MAINTENANCE DATA

- A. Provide Owner with manufacturer's part list and maintenance instructions for each type of hardware supplied. Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

1.06 QUALITY ASSURANCE

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- A. All hardware shall be new and free from defects affecting serviceability and appearance. Working parts shall be well fitted, smooth-working and without excessive play.
- B. All materials or products specified herein and/or indicated on the drawings by trade name, manufacturer's name or catalog number shall be provided as specified.
- C. Supplier: Recognized builders' hardware supplier with minimum five years successful experience in scheduling and furnishing hardware prior to occupancy.

1.07 REGULATORY REQUIREMENTS

- A. All hardware listed or furnished shall meet requirements of federal, state and local codes having jurisdiction over this installation. Any items furnished or installed that do not meet code requirements, shall be removed and proper items substituted at no additional cost. Requirements include, but are not limited to, the following:
 - 1. Access for Persons with Disabilities: Comply with Americans with Disabilities Act Accessibility Guidelines (ADAAG).
 - 2. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
 - 3. NFPA 101.
 - 4. NFPA 252.

1.08 PRE-INSTALLATION CONFERENCE

- A. Convene one week prior to commencing work of this section.

1.09 DELIVERY, STORAGE, AND HANDLING

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

1.10 COORDINATION

- A. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.

1.11 WARRANTY

- A. Guarantee all hardware work for a period of one year.

1.12 MAINTENANCE MATERIALS

- A. Provide special wrenches and tools applicable to each different or special hardware component.
- B. Provide maintenance tools and accessories supplied by hardware component manufacturer.

1.13 EXTRA MATERIALS

- A. Provide one extra key lock cylinders for each master keyed group.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Provide locksets as required, as listed in door schedule and as shown on drawings, complete to function as intended.
- B. Items of same function, appearance and performance will be considered for substitution.
 - 1. Substitutions may be permitted where hardware items are indicated to match or supplement existing installations with Architect approval.

2.02 HARDWARE ITEMS

- A. Refer to the drawings for hardware groups, hardware finishes, group locations and door types

2.03 TEMPLATES

- A. Hardware specified for steel frames or steel doors shall be made to template and secured with machine screws. Templates, or physical hardware items, shall be furnished to manufacturer's concerned and shall be supplied sufficiently in advance to avoid delay in the Work.

2.04 REINFORCING UNITS

- A. Reinforcing required for installation of hardware in hollow metal jambs shall be furnished by jamb manufacturer, coordinated with hardware manufacturer and provided in time to be installed and welded within jamb during fabrication.

2.05 FASTENERS

- A. Furnish screws, bolts, nuts, expansion shields, shim plates, anchors and other fasteners of suitable types and sizes recommended by manufacturer and as required to install hardware securely to withstand hard usage over long life. Finish shall match hardware.
- B. Screw for items applied on gypsum board shall be sufficiently long to provide solid connection to framing or backing behind the gypsum board.
- C. Do not use Through Bolts where doors are specified with hardware blocking and 6 inch solid top rails.

2.6 HARDWARE FINISHES

- A. Special care shall be taken to coordinate the finish of the various manufacturers to insure a uniform finish throughout the installation.

2.7 PACKING

- A. Deliver hardware in manufacturer's original packages individually packaged and carefully marked for its intended opening and use. Pack complete with necessary screws, bolts, keys, instructions, and installation template, if necessary, for spotting mortising tools. Supplier shall, upon delivery, furnish a complete list of hardware to Construction Manager for checking; said list shall be clearly marked to correspond with marking on each package.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Construction Manager shall install finish hardware as required. Hardware shall be fitted then removed prior to painting. Reinstall hardware after painting is complete and dry. Finish hardware must be neatly and properly installed in accordance with best practices as prescribed by manufacturers and as reviewed by Architect. All hardware must be thoroughly cleaned prior to turning building over to Owner.

3.02 EXAMINATION

- A. Verify that doors and frames are ready to receive work and dimensions are as indicated on shop drawings and as instructed by the manufacturer.
- B. Mounting heights for hardware: Heights given are center line heights up from floor unless otherwise stated and shall be subject to the Americans with Disabilities Act (ADA); heights given indicate that all shall be at one height within limits given. Heights of items not listed here or shown on drawings shall be in accordance with recommendations of Builders Hardware Association; subject to review by Architect:
 - 1. Locks and Latches: 38 inches from finish floor to center of lever.

2. Top hinge: To jamb manufacturer's standard, but not greater than 10 inches from head of frame to center line of hinge.
3. Bottom hinge: To jamb manufacturer's standard, but not greater than 12-1/2 inches from floor to center line of hinge.
4. Intermediate hinges: Equally spaced between top and bottom hinges and from each other.
5. Hinge mortise on door leaf: 1/4 inch to 5/16 inch from stop side of door.
6. Dead bolt: Not more than 44 inches from floor to operating lever.

3.03 FIELD QUALITY CONTROL

- A. Architect shall inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

3.04 ADJUSTMENT

- A. Adjust hardware for smooth operation and for compliance with regulatory requirements and accessibility.
- B. During the installation of hardware, a periodic inspection and adjustment shall be made by the Architectural hardware supplier, or their agent. Any hardware improperly installed or improperly functioning shall be removed, repaired or replaced, and reinstalled.

3.05 PROTECTION OF FINISHED WORK

- A. Do not permit adjacent work to damage hardware or finish.

3.06 HARDWARE SCHEDULE

- A. While the hardware schedule is intended to cover all doors, and establish a type and standard of quality, it shall be the specific duty and responsibility of the finish hardware supplier to examine drawings and specifications and furnish proper hardware for all openings, whether listed or not. Any omissions in hardware groups in regard to regular doors shall be called to attention of Architect for instructions; otherwise, list will be considered complete.

END OF SECTION

DIVISION 8 – DOORS AND WINDOWS
SECTION 08800 – GLASS AND GLAZING

NOTE: The Instructions to Bidders, General, Supplementary General, and Special Conditions bound herein, form a part of this Construction Manager's work and shall be considered a part of this section.

PART 1 - GENERAL

1.01 SCOPE OF THE WORK

- A. Work under this heading shall include the furnishing of all materials, labor, equipment, etc., to provide, fabricate, erect, and install a finished and complete job in place. The items described herein, indicated on the Drawings and Schedules, or normally and reasonably required will be provided. The work includes, but is not limited to, the following:

- 1. Glass
- 2. Glazing
- 3. Glazing gaskets

1.2 QUALITY ASSURANCE

- A. Each piece of glass shall bear manufacturer's label, giving manufacturer's name and quality of glass. Labels shall not be removed until glass has been approved by Architect.

1.3 MEASUREMENTS

- A. Take correct measurements from work to be glazed. Glass shall be cut smoothly with straight edges, full size with proper clearance, to provide for cutting.

1.4 SAMPLES

- A. Submit to the Architect for approval samples of all glass and data sheets and color samples of glass and glazing accessories.

1.5 PROTECTION

- A. Provide adequate protection of materials and working during construction of building.
- B. Furnish Owner with written guarantee warranting that all glazing shall remain resilient in serviceable condition and watertight for a period of ten (10) years starting at time of acceptance of the building by the Owner. Insulated glass units shall carry a manufacturer's 20-year guarantee.

1.6 PRODUCTS

- A. Clear Plate/Float Glass: Shall be ¼" thick, clear and polished on both sides as manufactured by P.P.G. or approved equal. Installed where indicated on Drawings.
- B. Tempered Clear Plate/Float Glass: Shall be ¼" thick, clear, polished on both sides and tempered as manufactured by P.P.G. or approved by LOF. Install where indicated on Drawings.
- C. Tempered Insulated Glass: Shall be manufactured by P.P.G. or LOF. Argon-Filled, Low-E tinted insulated glass shall be consisting of an outboard light of ¼" clear/float glass, and a ½" hermetically sealed air space with a metal spacer and an inner light of ¼" tinted Low-E plate/float glass having an overall nominal dimension of 1" fully tempered.
- D. All glazing to meet ANSI Safety Code.

PART 2 – EXECUTION

2.1 SETTING

- A. All glazing shall be in strict compliance with glass manufacturer's written instructions.
- B. Set glass with loose stops where provided.
- C. Set glass without springing.
- D. Clean all rebaites before any glazing.
- E. Set glass on approved setting blocks.
- F. All glazing to be done by skilled mechanics approved by manufacturer of glass used.

2.2 BREAKAGE

- A. At completion of work, replace all glass placed under this Contract which is broken or cracked due to improper setting. Glass shall be judged improperly set when cracked or broken due to loose setting, binding in the frame, or pinched by glazing stops, etc.

END OF SECTION

DIVISION 9 – FINISHES
SECTION 09260 – GYPSUM BOARD SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Gypsum board and accessories.

1.02 RELATED DIVISIONS:

1. Divisions 6 - Rough Carpentry: Wood blocking.

1.03 SYSTEM DESCRIPTION

A. Certification that proposed materials meet the specified requirements and are approved for use by regulatory authorities.

B. Allowable tolerances:

1. Ceiling support system shall limit deflection of the finished ceiling to less than 1/360 of span.
2. For flat surfaces, the maximum deviation from true plumb or level plane, 1/8 inch in 10 feet as measured under straight edge placed at any location on surface.

1.04 SUBMITTALS

A. Product Data: Submit technical product information for materials and accessory components. Include a letter of written indemnification by the manufacturer, addressed to the Owner and Architect, for fiberglass and glass wool fiber products.

B. Submit manufacturer's installation instructions.

C. Certification that proposed materials meet the specified requirements and are approved for use by regulatory authorities.

1.05 QUALITY ASSURANCE

A. Comply with manufacturer's recommendations and the following:

- ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board.
- ASTM C36 - Standard Specification for Gypsum Wallboard.
- ASTM C442 - Standard Specification for Gypsum Backing Board.
- ASTM C665 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Wood Frame and Light Construction Buildings.
- ASTM C475 - Standard Specification for Joint Treatment Materials for Gypsum Wallboard Construction.
- ASTM E119 - Fire Tests of Building Construction Materials.
- GA-214-90 - Gypsum Association Recommended Specification: Levels of Gypsum Board Finish.
- GA-216 - Gypsum Association Recommended Specifications for the Application and Finishing of Gypsum Board.
- GA-505 - Gypsum Association Glossary of Gypsum Board Terminology.
- Provide fire-Resistance Rated Assemblies identical to those indicated by reference to the Gypsum Association "Fire Resistance Design Manual" current edition or as otherwise approved by the authorities having jurisdiction.

1.06 DELIVERY, STORAGE AND HANDLING

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- A. Deliver materials in original unopened bundles and containers bearing manufacturer's name, brand, type, and grade.
- B. Store materials in dry ventilated space off floor per manufacturer's written instructions. Neatly stack gypsum wallboard in flat position.
- C. Avoid exposure to weather by using protective cover. Protect from soiling and construction damage.
- D. Handle and install fiberglass and glass wool fiber products in accordance with manufacturer's recommendations for safe handling and installation.

1.07 PROJECT CONDITIONS

- A. Comply with requirements of referenced standards.
- B. Maintain continuous, uniform, building working temperatures of not less than 55 degrees F for a minimum period of 48 hours prior to, during and following application of gypsum board and joint treatment materials or bonding of adhesives.
- C. During application and curing of joint compounds, provide ventilation as recommended by manufacturer. Avoid drafts during dry, hot weather. Prevent rapid drying.

PART 2 - PRODUCTS

2.01 FRAMING MATERIALS

- A. General: Wood studs, plates, accessories, etc. Gage and stud spacing requirements as required to comply with allowable deflection indicated in Part 3 of this section.
- B. Studs:
 - 1. Wood.
- C. Runners: Matching studs.
- D. Gypsum board furring channels: Screw-type, hat-shaped, 2-3/4 inch x 7/8 inch deep with 1/2 inch wide flanges, 25 gauge electro-galvanized steel sheet, roll-formed.
- E. Fasteners and attachment: Complying with regulatory requirements and referenced standards.

2.02 GYPSUM BOARD

- A. Materials for gypsum drywall systems shall be those of United States Gypsum Company. G-P Gypsum Corp., or National Gypsum Co.
- B. Standard gypsum board: Maximum permissible lengths, ends square cut, tapered edges, 5/8 inch thick unless otherwise noted.
- C. Moisture resistant gypsum board: Maximum permissible lengths; ends square cut, tapered edges, 5/8 inch thick unless otherwise noted.

2.03 GYPSUM BOARD ACCESSORIES

- A. Provide accessories in accordance with referenced standards.
- B. Corner beads: Beadex B1W or USG "Durabead".
- C. Edge trim: L metal bead, USG #200-B or Beadex B-4.
- D. Gypsum board joints:
 - 1. Joint reinforcing tape and joint adhesive shall be the gypsum board manufacturer's standard products.
- E. Skim coat compounds: Use USG Ready Mixed all-purpose Joint Compound or equal.

2.04 ACOUSTICAL ACCESSORIES

- A. Acoustical insulation:
 - 1. Noise barrier fiberglass batt insulation, friction fit type without integral vapor barrier membrane; 3-1/2 inch thick, unless otherwise noted.
 - 2. Flame spread of 25 or less and smoke developed rating of 50 or less.
 - 3. As manufactured by Johns Manville, Owens-Corning or Celotex.
- B. Electrical box sound pads:
 - 1. 1/8 inch thick, 6 inch x 8 inch polybutene butyl pads, self-adhesive.

PART 3 - EXECUTION

3.01 GENERAL

- A. Erect wood framing in accordance with referenced standards.
 - 1. Do not exceed maximum unbraced height recommended by manufacturer.
 - 2. Isolate stud system from transfer of structural loading to system, both horizontally and vertically.
 - 3. Provide OSB or plywood to attain lateral support and avoid axial loading.
- B. Floor runners:
 - 1. Secure with 1/4 inch diameter expansion bolts; powder driven fasteners at least 1 inch long may be used, where permitted by code.
 - 2. Space fasteners 4 inch from ends of each piece; maximum 24 inch on centers intermediately.
 - 3. Provide a minimum of two fasteners per piece of runner.
 - 4. Install studs plumb, square and straight. Where studs extend to structure above, cut studs 1/2 inch short and do not secure gypsum board to top track. Provide for deflection of structure above.
- C. Framing at doors and cased openings: Install double studs at jambs and extend from floor to structure above, securely attach to each other, floor and head. Install runner at head (for jack studs) and secure to jamb studs.
- D. Install wood backing plates for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, handrails, hardware and other wall mounted items.
- E. Coordinate installation of bucks, anchors, blocking, electrical and mechanical work which is to be placed by others in or behind partition framing. Allow such items to be installed after framing is complete.
- F. Laterally brace soffits and partitions to resist 5 psf lateral load. Vertically brace to resist loads as required by UBC.

3.02 INSTALLATION: CEILING FRAMING

- A. Gypsum board furring channels:
 - 1. Place perpendicular to carrying channels at 16 inch on center for exterior ceiling board and WR Board and 24 inch on center for all others, not more than 2 inch from perimeter walls.
 - 2. Lap splices minimum 8 inch.
- B. Interference:
 - 1. Where wide air conditioning ducts or similar obstructions above gypsum board ceilings interfere with joists, provide independent framing below duct work or obstruction to support the ceiling as an obligation under this Section.

2. Support framing from floor or roof structure above. Do not attach framing to duct work or obstruction.
3. Provide layout of proposed support system for Architect's review prior to beginning such work.

3.03 INSTALLATION: GYPSUM BOARD CONSTRUCTION

- A. Install gypsum board in accordance with referenced standards.
 1. Examine all surfaces to receive gypsum board.
 2. Make certain that framing is plumb and true.
 3. The fastening surface of any framing or furring member shall not vary more than 1/8 inch from the plane of the faces of adjacent framing or furring members.
 4. All gypsum board work receiving flat wall paint shall be finished to Level 4 as noted in the referenced standard.
- B. Single-layer standard gypsum board:
 1. Erect in direction most practical and economical.
 2. All ends and edges shall be over framing members or other solid backing except where treated joints occur at right angles.
 3. Maximum gap at floor shall be 1/2 inch.
 4. Where full-height walls extend to underside of structure above, maximum gap shall be 1/2 inch.
 5. Where so indicated, adhere single-layer gypsum board directly on concrete or masonry walls, using adhesive in accordance with referenced standards.
- C. Place control joints as required by reference standards, shown on drawings, consistent with lines of building spaces. Review all control joint locations with the Architect prior to installation.
- D. Place corner beads at external corners. Use longest practical lengths.
- E. Place metal edge trim where gypsum board terminates, butts dissimilar materials, and as indicated on drawings.
- F. Finishing of Gypsum board joints, beads, trim: In accordance with GA-214:
 1. Level 1:
 - Locations: Plenum areas above ceilings, in attics, in areas where generally concealed, in service areas not normally open to public view.
 - All joints and interior angles shall have tape imbedded in joint compound.
 - Surfaces free of excess joint compound.
 - No tool marks or ridges.
 2. Level 2:
 - Locations: All exposed walls to receive flat paint, textured coatings or light-to-medium-grade backed vinyl wallcoverings. Use in other locations indicated on drawings.
 - All joints and interior angles shall have tape imbedded in joint compound, and three separate coats of joint compound applied over all joints, angles, fastener heads and accessories.
 - Surfaces free of excess joint compound.
 - Feather compound coats onto adjoining surfaces so that camber is maximum 1/32 inch.

- No tool marks or ridges.
 - Do not scuff paper surface of gypsum board when sanding joints.
3. Level 3:
- Locations: All exposed walls to receive eggshell, semi-gloss or gloss paint or fabric wallcoverings. All exposed gypsum board wall and ceiling surfaces perpendicular to and abutting exterior window glazing systems. Use in other locations indicated on drawings.
 - All joints and interior angles shall have tape imbedded in joint compound, and three separate coats of joint compound applied over all joints, angles, fastener heads and accessories.
 - Surfaces free of excess joint compound.
 - Feather compound coats onto adjoining surfaces so that camber is maximum 1/32 inch.
 - No tool marks or ridges.
 - Apply a thin skim coat of joint compound to the entire surface.
 - Do not scuff paper surface of gypsum board when sanding joints.

3.04 INSTALLATION: ACOUSTICAL ACCESSORIES

- A. Erect resilient channels at maximum 24 inch on center. Make joints occur over framing members.
- B. Place acoustical insulation full height in partitions, tight within spaces, around cut openings, behind and around electrical and mechanical items within or behind partitions, and tight to items passing through partitions.
- 1 Comply with manufacturer's instructions for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with work.
 - 2 All workmanship and handling of insulation materials shall be in accordance with all applicable federal and state safety standards, and in accordance with the manufacturer's recommendations for safe handling.
- C. Acoustical sealant:
1. Place as shown on drawings and in accordance with manufacturer's recommendations.
 2. Set floor and ceiling runners in two continuous beads of sealant.
 3. Install continuous beads of acoustical sealant to produce an air tight sound seal at intersections of all partitions and shafts with floors, ceilings, walls, columns and other abutting construction so that the entire perimeter is sealed.
 4. At openings and cutouts, fill open spaces between gypsum board and ducts, pipes and other penetrating items.
- D. Electrical boxes:
1. Wrap completely with self-adhering sound pads.
 2. Seal sound pads to backside of electrical box.
 3. Leave no gaps.

3.05 ADJUSTING AND CLEANING

- A. Fill cracks and joints in gypsum board with joint compound and finish smooth and flush.
- B. Access panels:

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1. Adjust panel doors and latches for smooth operation.
2. Adjust doors to be flush with panel frame or face of partition.
3. Adjust doors to provide uniform gaps between panel door and surrounding frame.
- . At panel locations in vertical walls, adjust doors and frames to be visually level. At panel locations in ceilings and soffits, adjust doors and frames to be flush with ceiling plane.

END OF SECTION

DIVISION 9 FINISHES
SECTION 09900 – PAINTING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes
 - 1. Surface preparation.
 - 2. Painting interior gypsum board.
 - 3. Painting interior wood.
 - 4. Mock-ups.

1.02 RELATED DIVISION

- 1. Division 8 - Wood Doors.

1.03 DEFINITIONS

- A. Dry Film Thickness (DFT) is defined as the minimum thickness, in mils, of a fully cured paint or coating system.

1.04 SUBMITTALS

- A. Shop Drawings
 - 1. Plans: Scale: 1/4 inch per foot. Show areas to receive finishes. Indicate locations of paint colors and sheen. Indicate locations of transitions to other finishes.
- B. Product Data: Manufacturer's data, such as technical literature, brochures, specifications, material lists and product designations. Include manufacturer's recommendations for preparation and application.
- C. Samples: Minimum size: 8 inches x 11 inches.
 - 1. For transparent and stained finishes, submit samples on specified wood substrate.
 - 2. For opaque finishes, submit samples on white cards or gypsum board.
- D. Operation and maintenance manuals and instructions:
 - 1. Indicate shelf life of materials.
 - 2. Indicate cleaning methods recommended.
 - 3. Indicate cleaning methods to avoid.

1.05 QUALITY ASSURANCE

- A. Coats: The number of coats specified is the minimum required. Provide additional coats if required for full coverage.
 - 1. If not otherwise indicated, the minimum finish requires 1 primer or prep coat and 2 finish coats.
- B. Provide finish coats and verify compatibility with primer coats specified in other sections.
- C. Comply with local, regional, state and federal air quality standards.
- D. Qualifications:
 - 1. Applicator specializing in performing the Work of this section with minimum 5 years documented experience.
- E. Mock-ups:
 - 1. Construct mock-up of the Work in this section, minimum 8 feet long by 8 feet wide.

2. Apply mock-up of coating system over gypsum board substrate.
3. Locate where directed. Mock-up may remain as part of the Work.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle in accordance with manufacturer's recommendations. Protect from adverse exposure to weather and temperature extremes. Avoid freezing.
- B. Deliver materials to the Project site in unopened containers bearing manufacturer's name and product descriptions corresponding to designation on material list.
- C. Store materials in a dry, clean and well ventilated area. Store containers closed.

1.07 PROJECT CONDITIONS

- A. Comply with manufacturer's recommendations for application conditions.
- B. Do not apply coatings where dust is airborne.
- C. Mask off and protect floors, fixtures, furniture, equipment, hardware and adjacent surfaces.
- D. Acclimate materials in accordance with manufacturer's recommendations.

1.08 WARRANTY

- A. Warranty term: 5 years.
- B. Include coverage for scrubability, fading, color change, chalking or peeling.

1.09 MAINTENANCE

- A. Extra materials:
 1. Provide 1 gallon of each color, type and sheen of paint from the same color lot as the applied materials, in sealed containers. Label project name, sheen, type of paint, color formula and color number on containers. Label containers with Architect's color number or designation indicated on Drawings, supplemented with designation for sheen.
 2. Deliver to Owner at Substantial Completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. General: Manufacturers, color numbers or names, or sheen designations indicated on Drawings indicate color and gloss only. Cross reference colors and sheen on Drawings to the manufacturers specified in this section. Match Architect's control samples when available.
- B. Architectural opaque finishes: Benjamin Moore.
 1. Substitutions: Equal products by Sherwin Williams, Pratt and Lambert, Graham.

2.02 SOURCE QUALITY ASSURANCE

- A. Verification of performance:
 1. The Owner reserves the right to perform testing to verify compliance with the specifications.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify substrates are acceptable to receive the Work of this section. Examine surfaces scheduled to receive paint and finishes for conditions that will adversely affect execution, permanence and quality of Work.

3.02 PREPARATION

- A. Vacuum or clean substrate.

- B. Prepare substrate in accordance with the manufacturer's recommendations.
- C. Condition and prepare surfaces and apply materials in accordance with paint manufacturer's recommendations. In case of conflict, comply with the most stringent.
- D. Surfaces to receive paint shall be clean, dry, smooth, and dust free before application of any material. Prepare as follows:
 - 1. Measure moisture content of substrate with an electronic moisture meter. Do not apply finishes unless moisture content of surface is within limits acceptable to paint manufacturer.
 - 2. Alkalinity: Test cementitious substrates for alkalinity. If found to be sufficiently alkaline to cause blistering and burning of finish paint, modify surface alkalinity before proceeding.

3.03 APPLICATION

- A. Apply material evenly, free from sags, runs, crawls, holidays or defects. Brush out smooth, leaving minimum of brush marks. Enamel shall be uniformly applied without brush marks.
- B. Apply paint by brushes, rollers or sprays as required to obtain specified finish.
 - 1. Spray apply products when recommended by manufacturer.
 - 2. Enamel finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skid marks or other surface imperfections.
 - 3. Pigmented (opaque) finish: Completely cover to provide an opaque, smooth surface of uniform finish, color and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags or other surface imperfections will not be acceptable.
 - 4. Transparent (clear) finish: Use multiple coats to produce glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.
 - 5. Multi-color finish: Spray apply in accordance with manufacturer's recommendations.
- C. Tint all pigmented undercoats to approximately same shade as final coat. Perceptibly increase the depth of shade in successive coats.
- D. Allow each coat to thoroughly dry before succeeding coat application.
- E. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.
- F. Apply materials at the manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated. If not indicated, provide dry film thickness as recommended by the coating manufacturer.
- G. Primer: Apply prime coat to unprimed material which is required to be painted or finished. Re-coat where there is evidence of suction spots or unsealed areas, to provide a finish coat without burn-through or defects due to insufficient sealing.
- H. Pigmented acrylic sealer/primer: Apply to gypsum board with a roller. Do not spray, apply.
- I. Finish door edges with the same number and kind of coatings as door face.
- J. Finish mill or shop primed items with materials compatible with prime coat.
- K. Mechanical and electrical Work exposed in finished areas:
 - 1. Include portions of items, such as ducts or plenum spaces, where visible through grills or openings.
 - 2. Paint shop primed metal surfaces of mechanical and electrical equipment to match adjoining wall or ceiling surfaces unless otherwise indicated. Includes items such as fire extinguisher

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cabinets, air grills, ceiling diffusers, electric panels, telephone panels, access panels, exposed conduit, outlet and pull boxes, ducts and pipes.

- 3. Paint mechanical and electrical equipment exposed to view, such as covered and uncovered piping and ducts, pumps, compressors, air conditioning equipment and tanks.
- K. Use products specifically manufactured or prepared for the substrate to be painted.
- L. Completed Work: Match Architect's control samples for color, texture, sheen and coverage.
- M. Pre-molded Millwork: May be painted with either a high quality latex or oil based paint. Follow manufacturer's requirements for surface preparation and paint selections.

3.04 CLEANING

- A. Remove masking.
- B. Remove discarded paint materials, rubbish, cans and rags at the end of each day.
- C. At completion of Work, remove masking and stray paint. Avoid damage to finished surfaces.
- D. Perform final detailed cleaning and dusting, ready for occupancy.

3.05 PROTECTION

- A. Provide temporary protection for installed Work. Remove protection prior to occupancy.
- B. Protection: Protect Work of other trades, whether to be painted or not, against damage from painting operations. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
 - 1. Provide "Wet Paint" signs as required to protect newly painted finishes.
 - 2. Remove temporary protective wrappings provided by others for protection of their Work, after completion of painting operations.

SCHEDULE OF INTERIOR HIGH PERFORMANCE COATINGS		Ameron
Substrate: Ferrous and aluminum miscellaneous metal, handrails, aluminum storefront metal, porcelain steel.	Sheen GE-Gloss	
	Preparation: SSPC-SP3	
	<ul style="list-style-type: none"> • First Coat 	Amerlock 400 Epoxy (3 to 5 mils dry film thickness)
	<ul style="list-style-type: none"> • Second Coat 	Amershield Urethane (3 to 5 mils dry film thickness) Or PSX700 (3 to 5 mils dry film thickness)

END OF SECTION

DIVISION 10 - SPECIALTIES
SECTION 10150 – TOILET ACCESSORIES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Toilet accessories and mirrors.
 - 2. Baby-changing station
- B. Related Work:
 - 1. 09260 Gypsum Board Systems: Framing for accessories.

1.02 REFERENCES

- A. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
- B. ASTM B456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- C. Federal Specification FF DD-G-451c.

1.03 SUBMITTALS

- A. Shop Drawings:
 - 1. Provide plans showing locations of accessories.
 - 2. Identify accessory types, using same designations as found on Drawings.
 - 3. Provide sections to indicate locations and sizes of rough openings to receive accessories. Indicate backing and framing locations required for attachment and support. Indicate method of cutting openings in each substrate or finish. Indicate method of attachment and show details for attachment devices.
 - 4. Provide elevations showing locations of accessories and relationships to finishes, partitions, plumbing fixtures or devices.
 - 5. Include dimensions on Shop Drawings to indicate compliance with disabled access requirements.
- B. Product Data: Manufacturer's data sheets, parts list and installation requirements.
- C. Maintenance data, operating instructions and keys required for each type of locked accessory.

1.04 QUALITY ASSURANCE

- A. Comply with the recommendations of The Americans with Disabilities Act Accessibility Guidelines (ADAAG).

1.05 PRODUCTS

- A. Refer to Appendix A for toilet accessories.

1.06 PRODUCT HANDLING

- A. Deliver items in manufacturer's original unopened protective packing. Store materials in original protective packaging to prevent soiling, physical damage, or wetting. Handle in a manner to avoid damage to finish surfaces.

1.06 WARRANTY

- A. Warrant mirrors against silver spoilage per manufacturer's warranty.
- B. Warrant accessories against corrosion, failure of operating hardware or moving parts per manufacturer's warranty.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Stainless steel: ASTM A666, Type 304; Provide ratio of 18% chromium and 8% nickel. Finish: No. 4 (satin).
- B. Chrome plating: ASTM B456, Type SC2.
- C. Mounting devices: ASTM A123 galvanized steel.
- D. Mirrors: beveled edge, polished plate or float glass recommended for high humidity use.

2.02 WASHROOM ACCESSORIES: (submit shop drawings)

- A. Refer to designations on Drawings. Include all screws, fittings, anchors, etc., as required for complete installation:
 - 1. Recess Mounted Paper Towel Dispenser and Disposal Unit: Bradley Model 2017 Marquis Series Satin Bronze
 - 2. Toilet Tissue Holders:
 - 3. Recess Mounted Napkin Disposal Unit: Bradley Model 4781 Marquis Series Satin Bronze. Surface mounted napkin disposal unit with hinged cover.
 - 4. Soap Valves and Dispenser: Selection by Architect.
 - 5. Baby Changing Station: Koala Model KB200.

2.03 FABRICATION

- A. Fabricate units with seamless one piece flange on exposed face. Weld corners, leaving no open miters.
- B. Master key locked dispensing units. Key coin boxes separately from dispensing unit.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Check openings in substrates to receive accessories. Verify openings are correctly located and sized to receive accessories, and that locations will comply with disability access requirements. Confirm that blocking, backing or support is properly located and adequate for the accessory installation.
- B. Verify spacing of plumbing fixtures and toilet partitions. Confirm spacing and locations are compatible with proposed accessory locations and will allow compliance with disability access requirements.

3.02 INSTALLATION

- A. Drill holes to correct size and application that is concealed by item with ¼ inch tolerance.
- B. Mount recessed accessories into wall openings with sheet metal screws into metal frames.
- C. Mount surface mounted accessories to backing plates with machine screws, plumb and align.
- D. Include above to install existing baby-changing station (American Specialties, Inc., #9012)

3.03 ADJUST AND CLEAN

- A. Adjust accessories for proper operation. After completion of installation clean and polish all exposed surfaces. Deliver keys and instruction sheets to Owner.

END OF SECTION

DIVISION 10 - SPECIALTIES
SECTION 10155 – TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes plastic-laminate units as follows:
 - 1. Toilet Enclosures: Overhead braced.
 - 2. Urinal Screens: Wall hung.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each exposed finish.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE UNITS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. Bobrick Washroom Equipment, Inc.
- C. Plastic Laminate: NEMA LD 3, HGS, 0.048-inch nominal thickness.
 - 1. Color and Pattern: Two colors and patterns in each room as selected by Architect from manufacturer's full range of colors and patterns.
- D. Door, Panel, and Pilaster Construction: Plastic-laminate facing sheets are pressure laminated to core material without splices or joints in facings or cores. Laminate is applied to edges before broad surfaces to seal edges and prevent laminate from being pried loose. Exposed core material is sealed at cutouts to protect core from moisture.
 - 1. Core Material: ANSI A208.1, Grade M-2 particleboard with 45-lb density.
 - 2. Doors and Panels: Finished to not less than 7/8 inch thick.
 - 3. Pilasters: Provide construction to comply with the following:
 - a. Finished to not less than 1-1/4 inches (32 mm) thick and with internal, 0.1196-inch-(3.0-mm-) thick steel-sheet reinforcement.
- E. Pilaster Shoes: Stainless steel, ASTM A 666, Type 302 or 304.
- F. Brackets (Fittings):
 - 1. Full-Height (Continuous) Type: Manufacturer's standard design; aluminum.

2.2 ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories.
 - 1. Material: Chrome-plated, nonferrous, cast zinc alloy (zamac) or clear anodized aluminum.
- B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.
- C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel or chrome-plated steel or brass, finished to match hardware, with theft-resistant-type heads.

Provide sex-type bolts for through-bolt applications. For concealed anchors, use hot-dip galvanized or other rust-resistant, protective-coated steel.

2.3 FABRICATION

- A. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, fasteners, and anchors at pilasters to suit floor conditions. Make provisions for setting and securing continuous head rail at top of each pilaster. Provide shoes at pilasters to conceal supports and leveling mechanism.
- B. Doors: Unless otherwise indicated, provide 24-inch- wide in-swinging doors for standard toilet compartments and 36-inch- wide out-swinging doors with a minimum 32-inch- wide clear opening for compartments indicated to be accessible to people with disabilities.
 - 1. Hinges: Manufacturer's standard self-closing type that can be adjusted to hold doors open at any angle up to 90 degrees.
 - 2. Latch and Keeper: Manufacturer's standard recessed latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be accessible to people with disabilities.
 - 3. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
 - 4. Door Bumper: Manufacturer's standard rubber-tipped bumper at out-swinging doors.
 - 5. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with accessibility requirements of authorities having jurisdiction. Provide units on both sides of doors at compartments indicated to be accessible to people with disabilities.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters and Panels: 1/2 inch.
 - b. Panels and Walls: 1 inch.
 - 3. Brackets: Secure panels to walls and to pilasters with continuous brackets.
 - a. Attach brackets to concealed 2 x wood blocking.

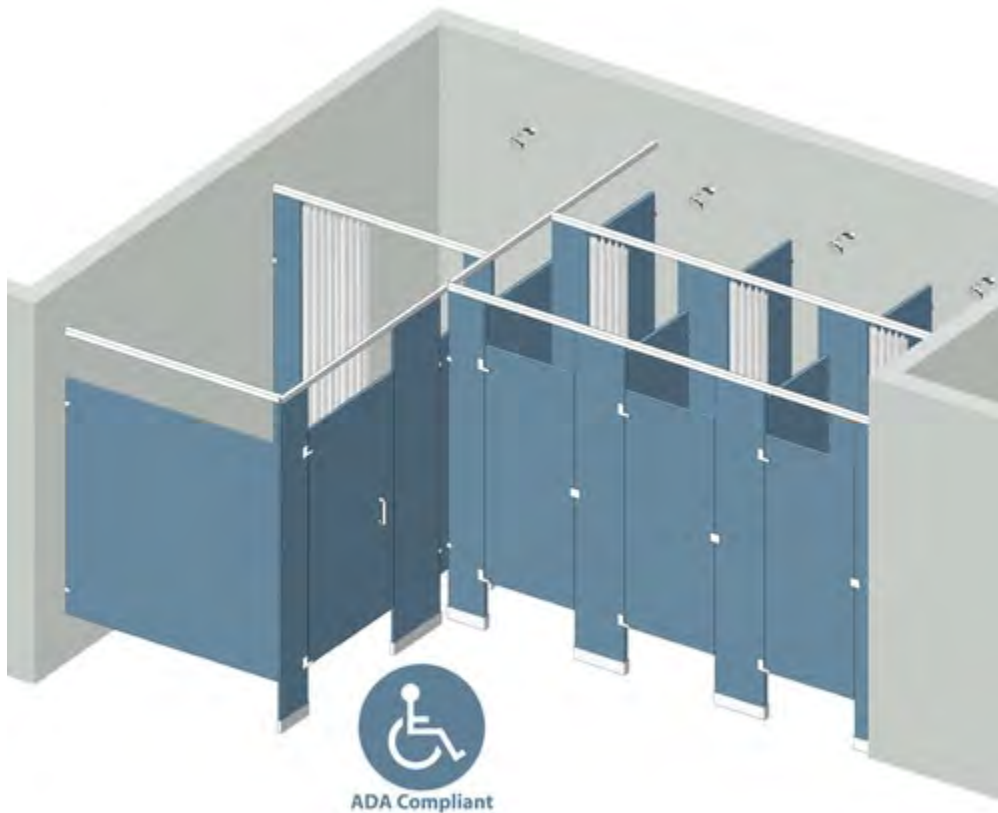
ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION

Shower/Dressing Combo - Between Wall - Left Hand - 4 Stall ADA BW4LADA

Manufacturer: [HCS](#)



SKU: SDC-BW4LADA Between Walls 4 Stalls ADA Left Hand Shower/Dressing Combo brings privacy and easy access for all users in any public facility. Shop numerous divider materials and mounting styles to complete any new or existing facility. Enjoy free shipping on all door and curtain enclosures with ADA compliant stall sizing.

- Standard stall measures 36" x 36" shower area and 36" x 36" dressing area
- ADA stall measures 60" x 36" or 60" x 60" shower areas and 60" x 60" dressing areas
- Shower curtain hooks mount in headrail during installation
- Standard shower curtain is opaque white vinyl
- Includes all mounting hardware and instructions

DIVISION 10 - SPECIALTIES
SECTION 10500 – FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes

1. Fire extinguishers as shown on the drawings, specified herein, and needed for a complete and proper installation.

1.02 RELATED DIVISIONS

1. Division 9 - Gypsum Board Systems: Metal stud framing.
2. Division 9 - Painting: Field application of paint finish.

1.02 SUBMITTALS

- A. Shop Drawings: Clearly indicate dimensions, anchorage, construction details, method of installation and junction with other work or finishes.
- B. Product Data: Submit manufacturer's Product Data for fire extinguishers.

PART 2 - PRODUCTS

2.01 FIRE EXTINGUISHERS

- A. Four Cosmic, 1OE multi-purpose dry chemical
- B. One Cosmic, 2OE multi-purpose dry chemical

2.02 ACCESSORIES

A. Fire Extinguisher Brackets:

1. Furnish and install fire extinguisher bracket locations as per code and directed by Fire Marshall.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine the areas and conditions under which work will be installed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. Install the work of this Section where shown on the drawings, as recommended by the manufacturer, and in strict accordance with requirements of governmental authorities having jurisdiction.
- B. Install brackets plumb and level. Securely fasten to substrate or framing.
- C. Place extinguishers on brackets as appropriate

END OF SECTION

DIVISION 10 - SPECIALTIES
SECTION 10510 – LOCKERS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Factory Finished Steel Lockers (or equivalent as approved by Architect) as shown on the drawings, specified herein, and needed for a complete and proper installation.

PART 2 - PRODUCTS

2.01 Salsbury Industries Lockers (or equivalent as approved by Architect)

A. Model #70024

2.02 ACCESSORIES

A. Locker Styles:

1. Shall be Steel interior, interior rod and hooks, padlock mounts.

B. Hardware:

1. Brushed aluminum handles.

END OF SECTION

DIVISION 11 – EQUIPMENT
SECTION 11400 – FOOD SERVICE EQUIPMENT

NOTE: The Instructions to Bidders, General, Supplementary General, and Special Conditions bound herein, form a part of various Mechanical and Electrical Subcontractor's work and shall be considered a part of this section.

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The food service equipment has been bid by the owner and awarded, with the exception of the hood system, which is the responsibility of the CM. It is the Construction Manager's responsibility to coordinate delivery of the equipment and will be responsible for rough and finish hook-ups through his Plumbing and Electrical Subcontractors.
- B. A complete specification of food service equipment is available for review at the Stafford Smith Company office, or the FAH Architecture, PLLC, office. See drawing and equipment schedule at the end of this Section.
- C. Drawings as part of the Construction Documents sheets are for information only.

1.02 FOOD SERVICE EQUIPMENT CONTRACTOR'S RESPONSIBILITIES

- A. The Food Service Equipment Contractor (FSEC) shall deliver, unload, uncrate and install all food service equipment and related items.
- B. All final wiring or connecting of all plumbing and electrical work between outlets on fixtures and rough in are to be furnished by the H.V.A.C trades.

1.03 CONSTRUCTION MANAGER'S RESPONSIBILITIES IN RELATION TO FOOD SERVICE EQUIPMENT

- A. The Architectural trades shall furnish the necessary openings through the walls. The FSEC shall verify to the Architectural trades the exact size and height of the equipment so that the openings can be constructed accordingly.
- B. The Construction Manager shall be responsible for checking depressions, wall openings, and so forth, to make sure that they agree with the dimensional Food Service Equipment Drawings.
- C. Should the Construction Manager fail to check these depressions and openings etc., before the slab is poured and the walls are erected, he shall be responsible for making all necessary changes and paying all costs involved.

1.04. DESCRIPTION

- A. The fabrication requirements attached are a governing part of this specification and shall be consulted for all matters pertaining to the work.
- B. The FSEC is to provide all items, articles, materials, transportation, operations, and methods listed, mentioned, or scheduled on the drawings and specifications, including all labor, materials, equipment, and incidentals necessary and as required for their completion.

1.05. QUALITY ASSURANCE

- A. Brands and Names
 - 1. The manufacturer's catalog designations used in the following specifications are intended to illustrate and represent the standards which will be required by the Owner. Bidders are to list, by item number, manufacturer's name and quantities on itemized proposal form attached to the specifications for approval by the Owner. When not attached, the FSEC shall make up

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his own itemized list and submit same attached with his bid. NOTE! Base Bid must be on fixtures specified for fair comparison of all bids.

B. Substitutions

1. Substitutions by any bidder wishing to supply alternate equipment other than that specified may submit a separate itemized proposal on similar articles of other manufacturers of the same standard performance, capacity, size, durability and appearance but must accompany their alternate proposal with complete descriptive literature of the item quoted.
2. Owner and Architect reserve the right to accept or reject such proposed substitutions. Bidders recommending such substitutions are cautioned to examine the mechanical plans that may have already been approved and conditions at the building site to determine if such substitutions require changes in mechanical connections already planned or installed.
3. If the proposed substitutions require such changes, the Bidder shall include the cost of same in his bid and call it to the attention of the Architect and Owner by including a descriptive notation in his bid.

C. Discrepancies

1. Where model numbers, quantities, sizes or gauges of material differ on plans and specifications, it shall be understood that the FSEC shall figure the larger quantities, longest size and heavier gauge unless advised otherwise in writing.
2. Where an accessory or price of equipment is shown on elevation or plan, it shall be deemed part of the Food Service Contract, even if it is not listed in the Item Specifications.
3. Where an item is listed in Item Specifications and not shown on plan or elevations, the item shall be deemed part of the Food Service Equipment Contract.

D. Measurements

1. All dimensions given on bidding are approximate and are as accurate as can be determined at the time. The FSEC shall check all measurements at the building prior to fabrication of equipment and shall bring any deviation to the attention of the Architect.
2. Prior to fabrication, the Architect or the Owner reserves the right to require the Construction Manager to make reasonable modifications in the routing of the work and relocation of the equipment. This specifically refers to conditions where interference occurs or where materials cannot be installed because of structural or mechanical conditions encountered. The Construction Manager will receive no additional compensation for such work.

E. Ordinances

1. Work and materials shall be in full accord with the latest rules of U.S. Public Health Service, National Board of Fire Underwriters, O.S.H.A., local and state ordinances, State Accident Commissions Safety Ordinances, regulations of the State Fire Marshal and with prevailing ordinances.
2. Ordinances including building codes, gas codes, steam codes, and other codes applying to this contract shall be followed.
3. All applicable items shall conform to latest Standards Revisions established by the National Sanitation Foundations, (N.S.F.), Ann Arbor, Michigan.
4. Electric operated and/or heated equipment, fabricated or otherwise shall conform to the latest standards of National Electric Manufacturer's Association, Underwriter's Laboratories, Inc., National Electric Code or local standards such as to be acceptable to authorities having jurisdiction.

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5. Standard steam heated equipment shall be manufactured in accordance with A.S.M.E. code requirements and carry the
 6. A.S.M.E. stamp. Burners for gas heated equipment shall be equipped with automatic lighters. Oven burners and other concealed burners shall have automatic safety pilots and conform to A.G.A. standards. All gas equipment is to be furnished with appliance pressure regulators. The drawings and specifications shall govern whenever they require longer sizes or higher standards than are required by the ordinances. The Ordinances shall govern whenever drawings and specifications require something which will violate the ordinances. No extra charge will be paid for furnishing items required by local and state ordinances not specified or shown on drawings.
 7. Rulings and interpretations of the enforcing agencies shall be considered as part of the ordinances.
 8. Should any change in the drawings and specifications be required to conform to the above, the Architect shall be notified when bid is submitted. After entering into contract, all necessary work shall be done to meet above laws, ordinances, Fire Marshal requirements, etc., without additional expense to the Owner.
- F. Samples:
1. Samples of all hardware, locks, feet, brackets, and other materials that may be requested shall be submitted for approval before use.
- G. Scheduling of Work
1. The work shall be scheduled so there will be no interference with work of other trades and so that it will cause no delay.
 2. A time schedule will be worked out for the entire building and this work shall keep pace with the set schedule, working nights, Sundays and holidays, if necessary, to complete the work within the time limit.
- H. Submittals:
1. FSEC shall submit required number of good quality reproducible vellum working drawings, brochures and portfolios of all equipment, apparatus, materials, etc., which are applicable to this contract together with detailed specifications. Each piece of equipment, apparatus, and accessory to be checked by the FSEC to insure compliance with requirements of Architect's drawings and specifications and also brochures or any other item of information to be clearly marked for identification with respect to their application and installation locations. This specification page shall appear on every shop drawing.
 2. Approval and/or review of shop drawings, details, and equipment by the Architect is for design and concept only and does not relieve the FSEC of responsibility for compliance with design drawings, details and specifications, verification of all dimensions of equipment and building conditions and reasonable adjustments due to deviations.
 3. While the Architect's drawings and specifications propose to be complete in all respects as to layout, type of equipment and materials, they are not intended to serve as detailed sleeve or insert drawings, and preparation of such drawings, required or necessary for this purpose, or to set equipment accurately, are to be the responsibility of the FSEC.
 4. FSEC shall submit vellum drawings of all custom fabricated equipment within thirty (30) days after notification of contract award. Drawings to be accurately laid out and correlated with other Construction Managers work and latest architectural final construction plans. Equipment elevation shop drawings must be on 3/4" scale (3/4" = 1'-0").

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5. Vellum drawings to show detailed construction for each piece of equipment. Before submitting detail drawings for review, they must be checked by the FSEC with the specifications and shall show exactly how item will be fabricated. Construction of equipment shall not deviate from approved shop drawings without written approval from the Architect and/or Owner.
 6. FSEC shall submit rough-in drawings on vellums for approval at a scale of 1/4" = 1'-0", locating accurately all utility connections for each item of equipment requiring the same. Rough-in plan to be drawn up using final architectural building drawings. NOTE! All rough-in connections to conform with normal acceptable standards. Rough-in requirements for present or future food service equipment shall be included on all drawings.
 7. FSEC 1/4" scale rough-in drawings are to be dimensioned from ends of finished walls. Shop drawings with dimensions from centerline of columns will not be accepted, unless approval has been given by Architect or the Construction Manager.
 8. Drawings showing all dimensions of bases or platforms and depressions to be submitted on a scale of 1/4" = 1'-0".
 9. Rough in connection notes are not to be listed under numbered rough in schedule, except for general purpose outlets or where drawing space is limited.
 10. Equipment rough in plans are to be furnished complete with layout plan and item schedule similar to food service drawings. Plumbing, electrical, ventilation & depression plan, and base detail when required. Plumbing and electrical plans are to be on separate sheets when drawings are prepared at 1/4" scale. NOTE! Food Service documents are not to be traced.
 11. Manufacturers to strictly adhere to approved and reviewed drawings, except where field conditions require changes and in that event the Architect must be notified in writing. Manufacturing of any equipment fitting between walls or between columns and walls to be withheld until actual field dimensions are set and approved by the Construction Manager. All other items which do not require field dimensions are to be manufactured upon receipt of reviewed shop drawings.
 12. Upon completion of contract, the Construction Manager is to deliver to the Owner two (2) complete sets of final working drawings and two (2) portfolios of purchased equipment bound in a binder.
 13. A time schedule will be worked out for the entire building and this work shall keep pace with set schedule, working nights, Sundays, and holidays, if necessary, to complete the work within the time limit.
- 1.06. JOB CONDITIONS
- A. Job Meetings
 1. It shall be the responsibility of the FSEC to have a qualified representative at all monthly or special job meetings to help the Architect and other Construction Managers on the job to correlate work or answer questions so that the job can progress without any obstructions.
 - B. Examination of Premises
 1. FSEC to check the Architectural Contract Plans and visit the premises at a suitable time to determine maximum size of equipment he can safely get into the building in one piece. Field joints to be held to a minimum. Should door openings not be large enough, FSEC shall provide field joints in equipment as required and re-weld inside of building.
 - C. Utilities Services

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1. Rough-in cold water, hot water, waste and vent piping, duct work and electrical wiring to be installed by Plumbing and Electrical Trades. Such items are to be brought away from surface of floors, walls and/or ceilings by these Trades and capped prior to installation of food service equipment.

1.07. GUARANTEE

- A. FSEC is to furnish one (1) year written guarantee for equipment starting from date of acceptance by the Owner or the Owner's duly authorized representative. Guarantee to be in accordance with Architect's General Conditions.
- B. Refrigeration - Self-Contained
- C. All self-contained refrigeration compressors for milk coolers, ice cream cabinets, cold food counters, reach-in refrigerators or freezers, etc., shall be furnished with a five (5) year compressor warranty and one (1) year refrigeration service starting from date of final acceptance.

PART 2 PRODUCTS

2.01 FABRICATION REQUIREMENTS (See following page for details)

A. Welding

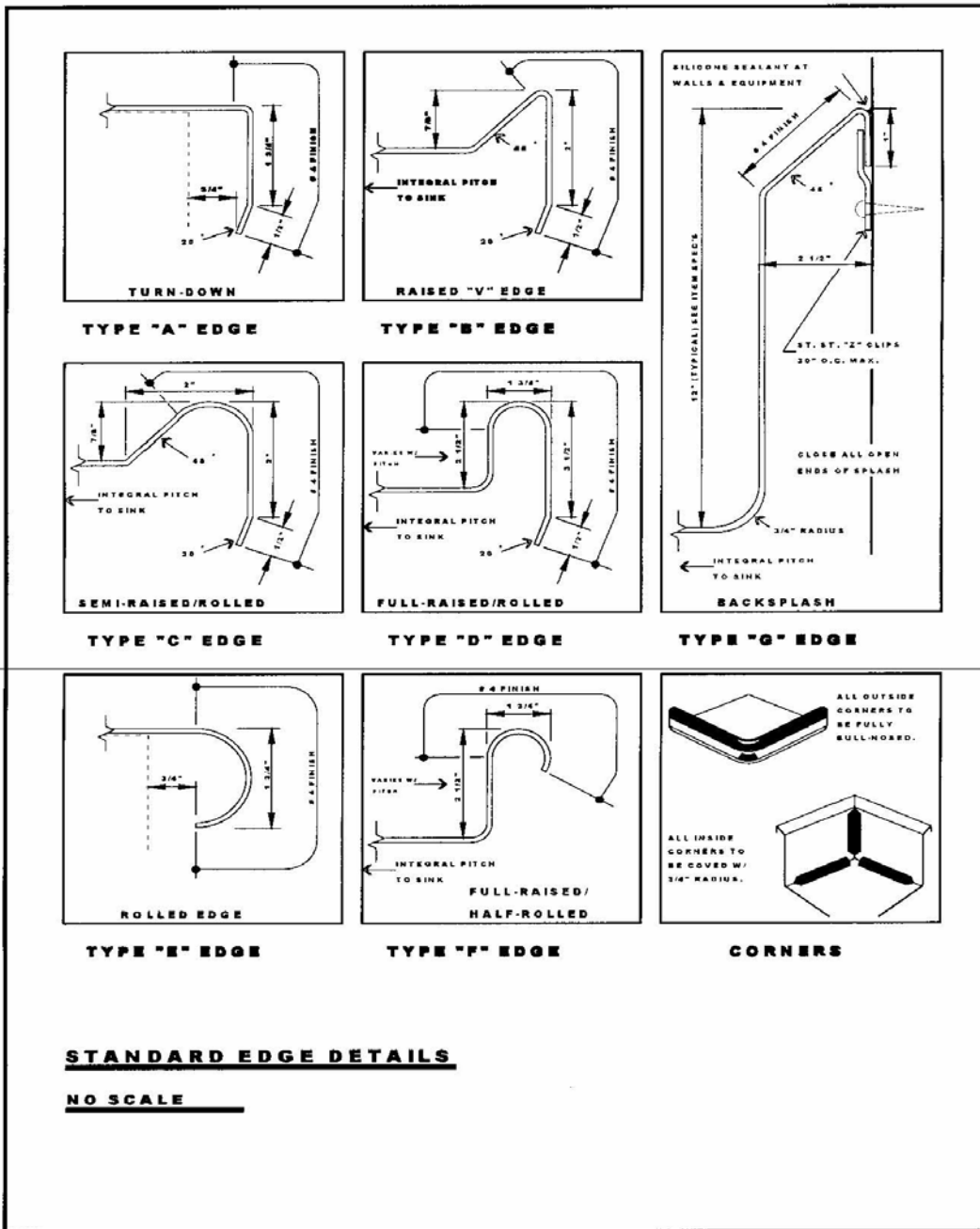
1. The words "weld", "welded", or "welding" as used in the item specifications, mean a metal joint continuously welded then all exposed parts ground smooth and polished to match adjoining surfaces.
2. All welding to be done in a thorough manner with welding rod of same composition as sheets or parts welded. Welds to be strong, ductile with excess metal and discoloration ground off and joint finished smooth to match adjoining surfaces.
3. Welds to be free of imperfections such as pits, runs, splatters, cracks, warping or discoloration. All welded joints to be homogeneous with parent metal itself. All fabricated equipment items where metal to metal butt joints occur to be joined and properly welded then ground and polished smooth.

B. Grinding, Polishing and Finishing

1. All exposed welded joints to be ground flush with adjoining material and neatly finished to harmonies therewith.
2. Whenever material has been depressed or sunken in by welding operations, such depressions shall be suitably hammered and peened flush with adjoining surfaces to then be polished and/or buffed to match adjoining surfaces to a degree consistent with good workmanship. Care shall be exercised in all grinding operations to avoid excessive heating of metal and metal discoloration. Abrasive wheels and belts used in grinding to be iron free and not having been used on carbon steel. In all cases, the grain or rough finish to be removed by successively finer polishing operations to be consistent with reasonable care and good workmanship. Final polishing operations to be uniform and smooth.
3. Where break band occurs, free of open texture or orange peel appearance, all such marks shall be removed by grinding, polishing and finishing. Wherever sheared edges occur, they shall be free from burrs, projections and fins to obviate all danger from cutting or laceration when hand is drawn over such sheared edges.
4. Where miters or bull-nosed corner, they will be neatly ground to uniform condition and in no case will overlapping materials be acceptable.
5. Equipment quality finish consistent with high grade of manufacturing practiced in industry. All exposed surfaces to be commercial mill finishes known as #4 satin finish for corrosion

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- resistant steel. All exposed edges to be furnished with a #7 mirror finish, unless otherwise noted in item specifications.
6. All cabinets, doors and shelves where exposed to be interpreted as meaning inside surface exposed to view when swinging door or sliding doors are opened. Unless otherwise specified, underside of shelves need not be satin finish.



C. Doors - Hinged

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1. To be full height of door opening. Each door shall not be over 30" wide for high cabinets and 24" wide for low cabinets. Doors to be double pan construction flush type and braced and thoroughly sound deadened made of 18 gauge stainless steel Inner and outer pans to be sealed with 3/4" long tack welds spaces approximately 6" apart. Balance of the space to be completely sealed between tack welds with silver solder or N.S.F. approved hard solder (Silicone not approved).
2. All welds ground and polished smooth. All bracings to be on proper centers to fit door size.
3. Doors to be mounted on heavy semi-concealed nickel bronze olive-knuckle hinges fastened to inside ledge of door and cabinet so that only pin will be exposed to heavy stainless steel piano hinges. Provide each door with Component Hardware #M22-2420.

D. Doors - Sliding

1. Make same as specified for hinged doors, except they shall operate on Component Hardware #B58-5513 and #B58-5523 nylon tire wheels running on one (1) piece drawn aluminum overhead Component Hardware #B57 tracks. Bottom shall be guided by
 - a) "High" type fixtures to be fitted with two (2) sets of doors in height, each set opening into half height of fixture.
 - b) "Low" type fixtures to be fitted with (1) set of full height doors. No door length to exceed 36".

E. Sinks

1. All sinks to be made of 14 gauge stainless steel unless otherwise specified. All corners shall be coved at least 5/8" radius, with all corners and joints welded, ground and polished smooth to a #4 satin finish. Sinks, unless otherwise specified, shall not be less than 14" deep. The use of solder or separate filler pieces to obtain coved corners will not be acceptable. All sink bottoms are to be integrally pitched to insure complete drainage of sink to waste opening. Edges at table height to have exposed edges formed to match adjoining table. Edges adjacent to table to be welded to table with all welds ground and polished smooth.
2. Unless otherwise specified, all sinks to be provided with backsplash 12" high x 2-1/2" wide to allow for pipe space in rear. Flange over at ends, with top edge turned back 2-1/2" at 45 degree angle and down 1". Provide openings for combination swinging type water faucet for each compartment.
3. In sinks of two (2) or more compartments, furnish between each sink compartment a 3/4" wide full height portion integrally welded to sinks at front, back and bottom maintaining smooth 5/8" radius coved corners as described in preceding paragraph.
4. Front of multiple compartment sinks shall consist of stainless steel apron same gauge as sinks having length same as overall length of sink bowls and same depth as bowls. This apron shall be "L" shaped and welded to or part of the top rim.
5. Design of apron front to be such that sinks shall have an appearance of a continuous one (1) piece front face of all overlapping joints and open spaces between sink compartments.
6. Each compartment to be furnished with Component Hardware rotary handle type drain, connected rear overflow, 6" tailpiece and faucet of make and model number as called for in Item Specifications. Also each sink to be furnished with 14 gauge stainless steel waste handle bracket welded to underside of sink.
7. Provide utility sink for Racquet Sports Pavilion (Regency #600S12424B or equal)

F. Tables & Tops - Height

1. All working tops to be 34" high from floor, unless otherwise stated under specific item.

G. Metal Tops

1. Unless otherwise specified in Item Specifications, metal tops to be 14 gauge stainless steel reinforced and braced on underside by framework consisting of 1-1/2" x 1-1/2" x 3/16" angles and 1" x 3" x 3/16" channels, galvanized where concealed and stainless steel where exposed.
2. Framework angles to run full length and width and with angle crossbrace on not over 2'-6" centers. Channel reinforcing to run full length of tops down center of top. All tops with sinks shall be integrally pitched towards same.
3. All joints of framework to be welded with weld re-metalized. Tops to be bolted to framework in a concealed manner with stainless steel bolts similar to AN-COR-LOX cup nuts. All metal tops to appear as one piece with all field and shop joints reinforced and welded, ground smooth, and polished, also to be made of largest piece obtainable.
4. No short pieces of metal will be acceptable. Stainless steel tops to have a #4 satin finish and all tops of this metal to be full 1/2" cove at re-entrant corners, also where turned up in rear or in front, such as dish tables. Solder filled corners will not be acceptable.
5. Metal edges to be made as described below and/or shown on detail drawings. Top to have all edges turned down 1-3/4" then back 1/2" at a 70 degree angle all around with all corners welded, ground, and polished smooth with no cracks or openings showing. All exterior corners to be well rounded bull-nosed in 1-1/4" radius.
6. All free edges to be turned up 2-3/4" then rolled to 1-5/8" x 180 degrees and furnished with apron edge front, as per Edge Detail Sheet. All exposed and exterior corners to be coved at 5/8" radius with all joints welded, ground, and polished smooth.
7. Where tables abut a wall or other tall equipment, extend back and/or ends up 12" then back 2-1/2" at 45 degrees and down 1" parallel to wall. Provide with end filler pieces and all welded surfaces ground and polished smooth.
8. The underside of Dish and Pot Washing tables to be reinforced with 1-1/2" x 1-1/2" x 3/16" stainless steel angles and 1" x 3" stainless steel channels. Angles to run full length of tops at both front and rear of tops with crossbrace front to back on 2'-6" centers. Channel bracing to run down center, full length of tops. Tops shall be integrally pitched to dishwasher and sinks.

H. Fastening Tops to Washers and Other Equipment

Where tops are shown adjacent to dish or glass washer, etc., ends are to be turned down 1-1/2" into fixture and bolted tightly to it with approved gaskets between body and turned down edges. Backsplashes to have edge against fixture turned out 1-1/2" and tightly fitted to it. Free edges to be neatly fitted to fixture corners to prevent water from dripping on floor. All tops to have integral pitch to drain towards dishwasher.

I. Dish & Pot Table Drainage

During installation of dish tables and dishwasher, FSEC shall water test all counter tops to make sure of proper pitch before final plumbing and electrical connections are made. All water on counter tops shall drain with no standing puddles allowed. Should the FSEC fail to pitch tables properly, he shall be responsible for disconnecting plumbing and electrical connections and re-adjust tables to insure proper pitch. FSEC shall also be responsible for re-connecting all service lines after tables have been re-aligned.

J. Pipe Stands

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1. All equipment requiring pipe legs or stands to be provided with sufficient supports to carry superimposed load of 100 lbs. per sq. ft. Top to be fabricated of 16 gauge stainless steel Tubing to be Component Hardware #A46-5288 complete leg assembly Model Number 2236HB, 1-5/8" O.D., with stainless steel hex head bullet shaped feet as previously specified. All pipe stands to be braced with crossrails, Component Hardware #A46-4288, 1-5/8" stainless steel pipe welded to legs approximately 10" above floor or braced by lower shelf as specified hereinafter. Provide Component Hardware #A18-0206 stainless steel gussets as previously specified, welded to framework on underside of top.
2. In place of gussets, stainless steel legs may be welded to stainless steel channels 5" long which shall fit into channel cross-bracing. Flange of both channels to be machine bolted together. Holes for bolts to be slotted for adjustment. Provide legs on not over 5'-0" centers and additional if required or requested.
3. All pipe legs or vertical members to be set back from tabletop on ends and on front and back sufficient distance to offset any interference with workers, columns, walls or other items. Where tops are welded to sinks, omit pipe legs supporting top at sink location.

K. Shelves Under Tables

1. Under tops which are mounted on pipe legs or stands, shelves under table to be fabricated of 16 gauge stainless steel with all edges flanged down 1-1/2" or as otherwise noted in the Item Specifications. Shelves to fit tightly around contour of legs and welded from underside. Shelves to be made up from long lengths with all joints welded, ground, and polished smooth.
2. Short lengths will not be permitted. Reinforced, as required, to support load of 50 lbs. per sq. ft. All sharp edges, burrs, and corners to be ground smooth and removed and then be slightly rounded. All shelves in cabinet bases are to be angle reinforced.

L. Cabinet Bases

1. Stainless steel exterior to be mounted over a 1-1/2" x 1-1/2" x 1/8" all welded galvanized iron angle frame. Where stainless steel exterior meets angle framework at drawer, door or shelf openings, exterior shall be turned in 1-1/2" over angle framework inside of openings. All drawers and doors to be flush with cabinet face.
2. All cabinet base bottoms to be enclosed with 18 gauge galvanized iron panels. Interior shelves of cabinet base to be constructed of 16 gauge stainless steel and be reinforced with 1-1/2" x 1-1/2" x 1/8" angles. Rear and ends of shelves to be turned up 2" with all interior corners coved to 5/8" radius.

M. Drawers

1. Drawer front to be 3/4" thick double-pan construction with 16 gauge stainless steel telescoping rear panels. Joints to be sealed same as specified for double-pan hinged doors. Drawer front fitted with recessed stainless steel grip handle, Component Hardware #CAGP63-1012. Drawer to be furnished with 18 gauge galvanized iron bottom with openings in front to accommodate drawer. Provide with cylinder type lock when specified under Item Specifications or shown on elevation details.
2. Opening in front to have edges turned in to fit drawer front which will be flush when drawer is closed. Bottom of enclosure to be open with edges turned in 1" on all sides.
3. All corners on enclosure to be continuously welded, then polished and ground smooth. Exposed rivets or screws will not be acceptable. Component Hardware #S81-2020 Drawer insert to consist of removable die-stamped 18 gauge stainless steel pan approximately 20" square x 5" deep. Top edges of drawer insert to be flanged out on all sides, not less than 1/2" for resting on drawer extension glides. All sharp edges and burrs to be removed from drawer flange.

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4. Housing supports to be made of 12 gauge stainless steel formed into angles welded to underside of metal tops or screwed to underside of wood tops and to extend full width of top with rear enclosure, where exposed. All welded items to be ground and polished smooth. Screws for wood tops to be stainless steel countersunk. Drawer housings to slide on 14 gauge stainless steel telescoping channels with stainless steel rollers, Component Hardware #552 series extension roller slides.
 5. This mechanism must be designed so that drawer will not tilt when fully opened. Provide with stop mechanism to prevent pulling the housing from slides but with suitable extension so it may be removed for cleaning.
 6. Tier of Drawers
 - a. To be two (2) or three (3) in number of same size as specified for above and entirely enclosed with 18 gauge stainless steel same as specified under cabinet bases with openings for drawers with all joints flush welded, grounded, and polished smooth.
 - b. Single drawers under table tops to be one inch (1") back of edge of fixture. All draws shall have front flush with cabinet body.
 - N. Fasteners: Exposed screw or bolt heads will not be permitted on fixtures. Rivets, if specified, shall be countersunk flush. Rivets to be same material as they join. Butt joints made by riveting straps under seams and then filling with solder or caulking will not be permitted or accepted.
 - O. Name Plates: All buy-out equipment shall be furnished with a permanently affixed metal name plate listing manufacturer's name, model number, voltage, cycle, phase, horsepower, etc., in an easily readable location. Dealers, installers, fabricators or service agencies name plate stickers shall not be fastened to any item without the approval of the Architect or Owner.
- 2.02. MATERIALS AND WORKMANSHIP
- A. Stainless Steel shall be type 304 having a standard analysis of 18% chrome and 8% nickel. Stainless steel to be as manufactured by Republic Steel Company, "Endure", Allegheny Metal Company, Crucible Steel Company, "Rezistal" or approved equal. Gauge to be specified under Item Specifications and furnished with #4 satin finish, unless otherwise specified.
 - B. Galvanized Iron shall be American Rolling Mills "Armco", Republic Steel, Inland Steel, "Tocan" or approved equal.
 - C. Pipe legs shall be Standard-Keil #2235HB, 16 gauge stainless steel (0.65" thick), tubing furnished with stainless steel adjustable foot and Standard-Keil #481-58 with enclosed gusset welded to underside of table top reinforcing channel.
 - D. Tubing to be seamless drawn, ground, and polished smooth to a #4 satin finish. Bottom of legs to be swedged for close fit to adjustable foot. Where space permits furnish 1-1/4" dia. stainless steel crossrails welded to leg uprights. All welds shall have radius corners and be ground and polished smooth to a #4 satin finish.
 - E. Handles, Hinges & Door Fasteners
 1. All hardware and other fittings used in connection with the equipment to be cast nickel-bronze or stainless steel handles to be welded or bolted to the equipment in a concealed manner. Bolts to be stainless steel and hinges to be recessed in door with stainless steel Component Hardware #M75-1002 lift-off, N.S.F. approved hinge. Hinges to be fastened in place with stainless steel recessed rivets or welded in place with weld ground and polished smooth.
 2. Sliding doors to be depressed type and furnished with Component Hardware Model #P62-1010 handles. Hinges to be olive-knuckle, semi-concealed type of nickel-bronze or stainless steel piano type as described under the specific item.

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- F. Painting and Coating: All metal that is not stainless steel is to be painted with two (2) coats of an approved rust-proof paint such as Rust-Oleum or other approved equal of highest quality gray enamel.
- I. Electric Receptacles
1. All 120V-1 phase duplex receptacles in cabinet bases to be Pass & Seymour Model #6307 and receptacles over 120 volt shall be Hubbel receptacles sized as per the rough-in drawings.
 2. All receptacles are to be grounded type being both dust and moisture proof. Furnish outlets with stainless steel face plates and neoprene mats. In cabinet bases, all receptacles are to be mounted in Chase #R-1 all covered corners stainless steel recessed type enclosure mounted to cabinet base. Component Hardware #R73 -1210 receptacles shall be pre-wired by FSEC to junction box in bottom of base cabinet left ready for final connection by Electrical Trades. All wiring between receptacles and junction box to be run in rigid conduit.
 3. All countertop receptacles to be Component Hardware #R58 chrome plated type as specified in Item Specifications. Countertop receptacles to be pre-wired to junction box in rigid conduit same as previously specified. All wiring to be in strict compliance with latest standards of the National Sanitation Foundation and Board of Health Requirements.
- J. Quietness of operation of all food service equipment is a requirement and the FSEC shall be required to remove or repair any equipment producing objectionable noises.
- K. Shop Drawing Review
1. By reviewing and submitting shop drawings and samples, the FSEC thereby represents that he has verified all construction criteria, materials, catalog numbers and similar data and that he has checked and coordinated each shop drawing and sample with the requirements of the work and of the contract documents.
 2. If shop drawings and/or samples are submitted without proper identification and in the Architect's opinion it is evident that they have not been properly reviewed by the FSEC or if shop drawings are submitted in an unprofessional manner, they will be returned to the FSEC for identification and/or review and re-submission. In such an event, it will be held that the FSEC has not complied with the above requirements for reviewing and identifying shop drawings and samples. The FSEC shall bear the risk of all delays in work or in work of any other trade, the same as if no shop drawing or samples had been submitted. The above requirements will be strictly enforced.
 3. The Architect will review and process only two (2) submissions of each shop drawing and/or sample. Shop drawings and samples returned because the FSEC has not complied with the above requirements shall be counted as the first submission. If more than two (2) submissions are required, the FSEC shall pay the Architect's cost for reviewing and processing the third and subsequent submissions. (Which will be so identified by the Architect when returned to the FSEC)
 4. The Architect's cost shall be computed at two and one-half (2-1/2) times payroll plus reproduction and mailing expense.
- L. Buy-out Booklets
1. By submitting prepared Buy-out Booklets, the FSEC thereby represents that he has determined and verified voltage and phase requirements and that he has checked and coordinated each item with shop drawings and contract documents.
 2. Each item in the Buy-out booklet shall have a typed title page, complete with descriptive details and included accessories. Title page to be as per the "SAMPLE TITLE PAGE" on the following page.

PART 3 EXECUTION

3.01. INSPECTIONS

- A. Construction Manager shall correct any errors found during the inspections, to the extent within the scope of the plans, specifications and detailed drawings.

SAMPLE TITLE PAGE	
Food Service Equipment Contractors	JOB: _____
	DATE: _____
ITEM #: _____	QUANTITY _____
ITEM:	
<u>Description</u>	
<u>Electrical</u>	
Motor H.P.	Volts_____ Phase_____ Cycle
Heating Element:	KW_____ Volts_____ Phase
Lighting and/or Fan Circuit:	Volts_____ Phase
Refrigeration specs:	
<u>Plumbing</u>	
Cold Water_____	140 degree water, 180 degree water
Steam in_____	Steam Pressure_____ Pounds
Steam return_____	Connected Waste_____ Floor Waste
<u>Gas</u>	
Kind_____	Size_____ B.T.U.
Spec. Gravity_____	Pressure
<u>Direction of Feed for Dishwasher</u>	
Right to Left, Left to Right, Straight thru, Corner type, Clockwise, and Counter Clockwise (circle unit required)	
<u>Door Hinged</u>	
Right Side, Left Side (Circle unit required)	

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- B. Upon being notified of job completion, it shall be the responsibility of the FSEC to inspect the job site and prepare an itemized Punch List.
- C. If items are found not to be complete per approved drawings, General Requirements and the Architect's Item Specifications, upon receiving the Punch List, the FSEC shall correct all items on the list within thirty (30) days.
 - D. It shall be the responsibility of the Plumbing and Electrical Trades to check all rough-in connections installed by their personnel to make sure that they agree with the dimensioned rough-in drawings as prepared by the FSEC.
 - E. Should these Trades fail to check rough-in before slab is poured, they shall assume all responsibility for making necessary changes and paying all the costs involved. Should the dimensioned rough-in drawings be incorrect, it shall be the responsibility of the FSEC to assume costs involved for revising all connections involved in the dimensioned error.
 - F. FSEC shall verify with the Electrical Trades the voltage and phase required for each piece of equipment that is to be supplied. Should the FSEC fail to verify the voltage characteristics it shall be his responsibility for changing the equipment on the job site to fit the voltage on the site.
 - G. It shall be the responsibility of the Plumbing and Electrical Trades to check all rough-in connections installed by their personnel to make sure that they agree with the dimensioned rough-in drawings as prepared by the FSEC.
 - H. Should these Trades fail to check rough-in before slab is poured, they shall assume all responsibility for making necessary changes and paying all the costs involved. Should the dimensioned rough-in drawings be incorrect, it shall be the responsibility of the FSEC to assume costs involved for revising all connections involved in the dimensioned error.
 - I. FSEC shall verify with the Electrical Trades the voltage and phase required for each piece of equipment that is to be supplied. Should the FSEC fail to verify the voltage characteristics it shall be his responsibility for changing the equipment on the job site to fit the voltage on the site.
 - J. When deemed necessary by the Architect, the FSEC shall meet on the job site with the Electrical and Plumbing Trades to determine the best way of offsetting rough-in connections that interfere with beams, foundations or other possible field obstructions. The FSEC shall check all base sizes, after installation by the Architectural Trades, to make sure that they will fit his equipment. Should base be installed incorrectly, the FSEC shall advise the Architectural Trades in writing at once to have base corrected as required.
 - K. The FSEC shall check all walls where equipment abuts or fits between, after installation by the Architectural Trades, to make sure that the equipment will fit correctly.

3.02. PREPARATION

- A. All gas equipment is to be furnished with appliance pressure regulators. Electrical requirements shall be in accordance with rough-in plan and verified on the job site.
- B. Should the electrical requirements and the item specifications not agree with the rough-in plan or electrical requirements on the job site, it shall be the responsibility of the FSEC to send a written report to the Architect advising them of the discrepancy. Should the FSEC fail to verify voltages on the job site, it shall be his full responsibility to make all necessary changes on his equipment at no cost to the Owner.
- C. All measurements shall be verified at the building site and full responsibility for their correctness must be assumed by the Construction Manager.

- D. No extra charge or compensation will be allowed on account of difference between actual dimensions and the measurements indicated on the drawings. All or any differences which may be found shall be submitted to the Architect for consideration before proceeding with the work.

3.03. INSTALLATION

A. Food Service Equipment

1. FSEC shall be responsible for assembly and erection of all equipment included herein and in required location as shown on drawings, leaving same with outlets for other Construction Managers to make final steam, plumbing, electrical and ventilation connections.
2. FSEC is to provide a competent foreman to supervise the erection and placing of equipment and to advise other Trades in regards to connections at time of installation. Where applicable, he shall deliver to other Trades all plumbing, steam fittings, and electrical parts included with his equipment for their proper installation.
3. FSEC to have qualified personnel on job site while the Plumbing, Electrical, and H.V.A.C. Trades are making final connections between rough-in and equipment. Where necessary, FSEC is to move equipment to allow these Trades to make final connections. Should the FSEC fail to assist the other Trades and final location of equipment is incorrect, it shall be the
4. FSEC is responsible for cutting all holes thru tops, backsplashes, shelves and cabinets so the other Trades can make final connections to outlets in fixtures from his rough-in.
5. Should specified equipment arrive at the job site with incorrect finish, model number, damaged, etc. A replacement item must be ordered immediately. Should the project schedule require incorrect unit for opening operation, existing unit is to be left in operation until replacement is available, at no cost to the owner. It shall be the responsibility of the FSEC to assume all costs for re-stocking, re-selling, etc., of the incorrect items that have been used by the Owner.
6. All holes or openings must be cut in a workmanlike manner, with all edges ground and polished smooth and free of sharp edges. Opening in rear of base cabinet must not be larger than 1" bigger than pipe extending thru cabinet. Oversize cutouts with rough edges will not be approved.
7. All faucets and waste assemblies to be furnished by the FSEC and to be turned over to the Plumbing Trades for their installation. NOTE! Faucets and waste assemblies to be tagged properly to insure proper installation of these items on the correct fixtures.

B. Ventilating Trades: This Trade will furnish all ductwork to openings on top hoods.

C. Electrical and Plumbing Trades

1. These Trades shall furnish all final electrical and plumbing connections between fixtures and rough-in outlets in walls or floors.
2. Internal connections on booster heater and disposer to be furnished by the Plumbing and Electrical Trades and proper installation of these above named items. FSEC shall also include detailed drawings showing proper location of all accessories. General Building Construction Manager shall furnish all masonry platforms, tile bases and floor depressions.

D. Trimming & Sealing Equipment

1. Space between units to walls, ceilings, and floors and adjoining units not portable and with enclosed bodies, shall be completely sealed against entrance of food particles or vermin by means of stainless-steel trim strips, welding or commercial joint material suitable to the nature of the equipment. Sealer when not exposed to extreme heat shall be silicone construction sealant in the appropriate color. Ends of hollow sections to be closed. Enclosed

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fixtures without legs mounted on masonry bases or floor shall be sealed watertight to base of floor.

2. All equipment setting on masonry bases will be constructed to overhang to provide toe spaces, however, metal framework and/or housings are to be turned under a sufficient distance to overlap masonry base and eliminate openings at these points. Bases to be sealed with Dow Corning sealant #780 or approved G.E. sealant.

3.04. ADJUST & CLEAN

- A. FSEC shall adjust and lubricate all moving parts for smooth quiet operation. The FSEC shall touch up scratches, marred or abraded surfaces to restore equipment to the original condition.
- B. The FSEC shall also remove all crating and packing material from the job site and shall also remove fingerprints and leave equipment and adjacent equipment or surfaces clean.
- C. The FSEC shall be responsible for missing items unless he can produce signed receipts from the Owner's personnel that the items were received and an accounted for. Owner cannot be responsible for items that were dropped off at the job site and were not signed for by the Owner's personnel or representatives.

3.05. DEMONSTRATION

- A. The FSEC shall arrange a demonstration date with the Owner and at the same time check out all loose items with the Owner or Owner's representative. Copy of signed receipts shall be mailed to the architect, showing all loose items, such as stainless-steel pans mixer attachments, etc.

3.06. GUARANTEE

- A. All items furnished by the Food Service Equipment Construction Manager as part of this Contract, shall be guaranteed against defects in workmanship and material for a period of one (1) year. Manufacturers of standard items of equipment as supplied under this Contract are to provide a one (1) year warranty on parts and labor.
- B. In addition, connected pieces of equipment requiring calibration are to be so calibrated by a qualified person as part of this Contract. Commencement date for warranty purposes is as follows:
 - Connected equipment: - When equipment is started up for intended use.
 - Non-connected equipment: - Date of Owner acceptance.

3.07. PROTECTION OF EQUIPMENT

- A. Fabricated fixtures such as custom stainless steel & plastic laminate items are to have fiberboard or plywood taped to tops and exposed body panels. Protective covering is to be left in place until all trades are completed. Manufactured equipment is to have fiberboard or plywood tape as required per equipment shape and installation access requirements. Prohibited use of equipment; tool and material storage area, workbench, scaffold, stacking area, etc.

3.08. PLASTIC LAMINATE BASE/WALL CABINET CONSTRUCTION

- A. All millwork to be constructed in compliance with latest Heath standards of the National Sanitation Foundation, State, County and city Health Inspection Departments. Violations found after inspection are to be corrected by the millwork subcontractor at no cost to owner.

3.09 DESCRIPTION OF WORK & ITEMIZED DOCUMENTS

- A. Construction Manager is directed to bidding drawings consisting of layout, elevations, section details, equipment schedule and item specifications showing all aspects of sized and construction details. If various documents disagree, for bidding purposes include the best grade plastic

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laminate, thicker material, greater length, width or quantity. Variances to above accepted with written clarification with proposal or pre-bid phone conversation.

3.10. QUALITY STANDARDS

- A. Except otherwise noted, all millwork items to be with specified provisions of NSF and Architectural Woodward Institute Quality Standards AAWI.≅
- B. All work and material to be furnished with one (1) year written guarantee for equipment, starting upon acceptance by owners duly authorized representative.
- C. Guarantee based on owner maintaining temperature and humidity 24 hours a day in installation area as required to maintain moisture content of installed millwork within a 1.0% tolerance of the optimum moisture content. This shall continue thru the entire construction period. Millwork fabricator shall advise owner of optimum moisture content and required temperature and humidity conditions to provide proper curing of all millwork products. Copy of this letter shall be send to the Architect, HVAC subcontractor and Owner.

3.11. DELIVER, STORAGE & HANDLING

- A. Equipment not to be delivered until walls, floors, wetwork and similar operations have been completed to prevent damage to finished millwork.
- B. Plastic laminate top, cabinet fronts, etc., to be covered with cardboard or thin plywood, taped in place to protect from dust, scratched and other Trades using equipment for work bench.

3.12. SHOP DRAWINGS

- A. Submit detailed shop drawings in same scale and description as called for under General stainless steel custom fabricated equipment previously mentioned in these General Requirements.

3.13. SUBMITTALS & SAMPLES

- A. Submit manufacturers' specifications and installation instructions for plastic laminate and other materials to comply with job requirements. NOTE! 18" long section of sample tray slide to be submitted for approval before fabrication of balance of counter. Sample tray slide to be furnished complete with stainless steel recessed runners per section detail. Include detailed illustrations of all drop in items built into counter tops, service stations, etc.

3.14. MATERIALS & FABRICATION METHODS: Except if otherwise indicated, all food service millwork to comply with the following:

- A. Plastic laminate: Comply with NEMA LD3. Type, thickness, color and finish to be as follows:
- B. Plastic laminate for horizontal surfaces, external vertical surfaces, internal vertical surfaces, post forming, and cabinet linings: .042" thick, concealed panel backing: .020" thick backer type unless otherwise noted to be FORMICA BRAND, WILSON ART OR NEVARMAR brand laminate.
- C. Plastic laminate to be applied with hot glue method to waterproof seal woodwork.

3.15. TOP

- A. Tops to be fabricated of 1-1/4" thick exterior grade plywood covered with 1/16" thick plastic laminate surface on top, outside vertical edge and coved vertical corners. Plywood to be grade A-B or better "Douglas Fir" with agency stamp certifying compliance with US products standard PS-1-74. Countertop and base to be built to fit around field conditions where required and field trimmed around vents, ducts, etc. Depth of top, front to back to be 27", 30", 33" or as shown on plan.

3.16. BACKSPLASH & SIDESPLASH

PELLSTON PUBLIC SCHOOLS – PELLSTON, MI

- A. Equipment against walls, equipment, etc., to be furnished with 6" high backsplash as shown on layout and elevation details. Backsplash to be made of 3/4" plywood covered with 1-1/2" return scribed to meet wall conditions. Rear and sides to be caulked with clear silicone sealant in neat and workmanlike manner. Backsplash to be made integral with top, covered with plastic laminate to match top. Where required, backsplash and top to be fabricated around field conditions such as vent pipe, downspouts, electrical conduit, etc.
- B. Cut out at top of backsplash to be furnished with same material filler to prevent entrance of vermin, etc.

3.17. BASE CABINETS

- A. Construct of 3/4" thick exterior grade plywood PS-1-74 same as called for under TOP construction. Cabinets to have all plastic laminate interior and exterior mounted on 6" high base with overall height from floor to working surface of 36", or as shown on elevation detail.

3.18. BASE CABINET UTILITY SPACE

- A. Rear of base cabinet shall be held 4" away from wall to allow space for utility connections and offsets to insure neat rough in connections direct to sinks, electrical outlets, etc. Per elevation details & rough in plan, provide plastic lined utility space with access door to hide plumbing & electrical connections. Base area to be recessed around building floor drains, etc.

3.19 DRAWERS

- A. Drawers to be constructed of PS-1-74 grade plywood. Front to be 3/4" thick, sides to be 5/8" thick with dado joint. Drawer front and rear each to be fastened with six (6) 1-1/2" long wood screws to accommodate heavy use.

3.20 DRAWER PULLS

- A. COMPONENT HARDWARE model #P46-1010, size 5-1/4" long with 1" finger space under handle made of 5/8" x 1-1/4" stainless steel bar material. Fasten through drawer face with 8-32 screws with lock nuts and washers. COMPONENT HARDWARE (800-526-3694)

3.21 DRAWER SLIDES & LOCKS

- A. Drawer slides to be #328, 150 pound, full extension as made by GRANT MANUFACTURING. Cylinder locks to be #986, flush mounted as made by K & V.

3.22 SILVERWARE DRAWERS

- A. Silverware drawers to be constructed same as specified for standard drawers except furnish BLOOMFIELD #1071 four compartment silver box, size 21-5/8" x 11-7/8" x 3-3/4" high. See elevation for quantity and location. Drawer pulls, slides and locks to be same as previously specified.

3.23 DOORS

- A. HINGED 3/4" plywood, same material as cabinet base. Hinges to be BLUM #90 model 176o (Varies to fit plan arrangement). Door handles to be COMPONENT HARDWARE #P-46-1010 to match drawers.

3.24 DOORS - SLIDING

- A. 3/4" plywood, same material as cabinet base. Door tracks to be LAWRENCE #505. Tracks to be extruded aluminum metal finish. Door handles to be COMPONENT HARDWARE #P-46-1010 to match drawers.

3.25. CABINET FLOOR BASE

PELLSTON PUBLIC SCHOOLS – PELLSTON, MI

- A. 3/4" exterior grade PS-1-74 plywood reinforced on not more than 48" centers. Base to be 6" high with necessary cutouts to fit around floor drains, or hub outlets. Base to be shimmed level and caulked watertight. Face of exposed base to be covered with 6" high black covered vinyl.

3.26 CABINET SHELVES & HARDWARE

- A. 3/4" exterior grade PS-1-74 plywood covered with plastic laminate on all sides. Include shelves in quantities and length as shown on plan and elevation detail. Shelf supports to be K & V model #256 or recessed #255 K & V Standards.

3.27 WALL CABINETS

- A. Same construction as base cabinet except see plan, elevation and item specifications for sizes and quantities. Lag units to wall and or ceiling with heavy duty stainless steel lag bolt and wall anchors to support heavy loads.

3.28 PRE-CUT OPENINGS

- A. Fabricate food service millwork with pre-cut openings wherever possible to receive hardware, appliances, plumbing fixtures, and electrical work or similar items. Locate openings accurately and use templates or rough in diagrams for proper size and shape. Smooth the edges of the cutouts and where located in counter tops and similar exposures, seal inside edges of cutout with a plastic laminate finish.

3.29 BUILT IN EQUIPMENT

- A. All items built in to cabinet millwork, sinks, drain pans, dispensers, etc. to be shipped to fabricator of millwork for in shop wiring, etc.

3.30 ELECTRICAL WITH MILLWORK

- A. Electrical distribution panels: square D "QO" or GE with main circuit breaker and individual breakers for each serviced unit.
- B. CIRCUIT BREAKERS: Molded plastic type, A.C. rated, 1, 2, or 3 poles as required, quick-make, quick-break, with trip-free operation handle, position indication, and thermal-magnetic trip device suitably rated for the device controlled and itemized.
- C. CONDUIT - Sealtight, UL approved, 3/4" minimum size. Wiring to be done at fabricators factory ready for final connections on job site by Electrical Subcontractor. All wiring to meet all state and local code requirements.

3.31 PLUMBING WITHIN MILLWORK

- A. All items installed within cabinet bases, ice makers, water chillers, condensing units, glass fillers, urn trays, etc., are to be pre-piped in hard copper to access opening in cabinet base, final connection of water lines, waste lines, etc., to be by plumbing Construction Manager. All piping to be run per state and local code requirements.

3.32 MILLWORK INSPECTION

- A. The fabricators installer must examine the substrate and conditions under which the work is to be installed and notify the Construction Manager in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

3.33 PREPARATION

- A. Condition woodwork to average prevailing humidity conditions in installation areas prior to installing. Prior to installation of food service woodwork, examine shop fabricated work for completion and complete work as required including back priming and removal of packing.

3.34 MILLWORK INSTALLATION

- A. Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to tolerance of 1/8" in 8'-0" for plumb and level (including counter tops); and with 1/16" maximum offset in flush adjoining surfaces, 1/32" maximum offset in revealed adjoining surfaces.
- B. Scribe and cut work to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.
- C. Anchor woodwork to anchors or blocking built-in or directly attached to substrates. Secure to grounds stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Use fine finishing nail for exposed nailings, countersunk and filled flush with woodwork.
- D. CASEWORK: Install without distortion and accurately align.
- E. COUNTER TOPS: Anchor securely to base units and other support systems as indicated.
- F. STANDING AND RUNNING TRIM: Install with minimum number of joints possible, using full length pieces (form maximum length of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns, miter at corners and comply with quality standards for joinery, except provide butt joints at door frames glued and sanded to provide flush appearance.
- G. Anchor paneling to supporting substrate with concealed panel-hanger clips, and by blind nailing on back-up strips, splined-connection strips and similar trim and framing. Do not face-nail.

3.35 ADJUSTMENT, CLEANING, FINISHING AND PROTECTION:

- A. Repair damaged and defective woodwork wherever possible to eliminate defects functionally and visually; where not possible to repair properly replace woodwork, adjust joinery for uniform appearance. Clean woodwork on exposed and semi-exposed surfaces.

END OF SECTION

DIVISION 11 - EQUIPMENT
SECTION 11500 – PROJECTION SCREEN

PART 1 - GENERAL

PART 1 - PRODUCT

1.01 PROJECTION SCREEN

- A. Draper Model: Salara Series M - Manually Operated.

END OF SECTION

DIVISION 11 - EQUIPMENT
SECTION 11600 - BLEACHERS

PART 1 - GENERAL

PART 1 - PRODUCTS

1.01 BLEACHERS

- A. National Recreation Systems, Inc. – Angle Frame Bleachers.

END OF SECTION

DIVISION 11 - EQUIPMENT
SECTION 11700 - FENCE

PART 1 - GENERAL

PART 1 - PRODUCT

1.01 FENCE

- A. Steelco Fence, 48" Chain Link Fence – Commercial Fence Applications. 2-3/8" posts, 1-5/8" rails, 9GA x 2 Mesh, Dome Style Caps, 9GA Aluminum Ties, 48"deep x 12" terminal post footings, 42"deep x 10" line post footings, 3000PSI.

END OF SECTION

DIVISION 11 - EQUIPMENT
SECTION 11800 - SCOREBOARD

PART 1 - GENERAL

PART 1 - PRODUCT

1.01 SCOREBOARD

- A. Eversan Incorporated Model #9360-10.

END OF SECTION

SECTION 12500

FURNITURE AND FIXTURE INSTALLATION

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. The complete installation of all furniture and fixtures which are furnished by Owner.
- B. Related Sections:
 - 1. Section 06100- Rough Carpentry: Blocking for wall mounted furniture and fixtures.

1.02 QUALITY ASSURANCE

- A. Qualified installer shall have experience in installation methods similar to work of this section.

1.03 DELIVERY, STORAGE AND HANDLING

- A. The Contractor shall receive and store all items furnished by Owner.
- B. The storage area shall be secure and dry with temperatures maintained above 40 degrees F. at all times.
- C. For each delivery, the contractor shall fill out receiving reports. Each delivery shall be inspected for damage. All damage shall be noted on the carrier's delivery slip as well as the receiving report. Receiving reports and carriers delivery slips shall be forwarded to the Owner immediately upon receipt of delivery. If damaged material is not reported when discovered, the Contractor assumes full responsibility.

PART 2 – EXECUTION

2.01 INSTALLATION

- A. Contractor shall exercise care when installing items so as not to damage or soil adjacent areas and surface.

END OF SECTION



SYNTHETIC TRACK SURFACING- SPURTAN® BS SPECIFICATION

PART 1- GENERAL

1.01 SUMMARY

A. The contract work to be performed under this section consists of furnishing all required labor, materials, equipment, implements, parts and supplies necessary for, the surfacing in accordance with these specifications and indicated on the drawings.

1. Spurtan® BS – A 13mm polyurethane bound running track surface with a structural spray finish.

1.02 CODES AND STANDARDS

A. Codes and standards follow the current guidelines set forth by the International Associations of Athletics Federation (IAAF), the National Collegiate Athletic Association (NCAA) or the National Federation of State High School Associations (NFHS).

1.03 SUBMITTALS AND SUBSTITUTIONS

A. Request for deviations or substitutions from the specifications must be made in writing seven days prior to the bid date. Complete product data including specifications, application rates, mixing instructions and a sample shall be sent with the request to the district and/or its agent for an evaluation. Alternatives will be allowed only by addendum.

1. Submit three (3) sets of manufacturer's product data sheets including installation guidelines and maintenance guidelines.
2. Submit three (3) representative track samples in the color of surfacing to be installed.
3. Submit Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDS) for all individual components of the system to be installed.
4. Submit evidence that the synthetic surfacing contractor is a member of the American Sports Builders Association (ASBA)

1.04 QUALITY ASSURANCE

- A. The track surface installer shall be authorized by APT (Manufacturer) and possess a minimum of ten (10) years' experience of installing the specified system.
- B. The supervisor of the installing company must have ten (10) years' experience in surfacing with the specified polyurethane system. A letter of certification must accompany the bid proposal.
- C. The supervisor, of the installing company, must have installed a minimum of ten (10) IAAF certified track systems, within the last three (3) years. A letter of certification from the manufacturer must accompany the bid proposal.
- D. The manufacturer (APT) must represent a minimum of four (4) IAAF approved track systems.
- E. All material components must be procured and manufactured from APT, a single source. No substitutes allowed.
- F. **All polyurethanes used must be manufactured by APT an ISO 9001 and ISO 14001 Certified Company. Manufacturer's ISO 9001 and ISO 14001 certificate must accompany bid.**

1.05 SITE CONDITIONS

- A. Weather: Surfacing shall not begin if rain is imminent, if gusting winds are occurring or when the threat of freezing exists within 24 hours.
- B. Site: During any surfacing and striping, sprinkler systems must be shut off or controlled so that no water falls on the track or event area surfaces. Other trades and school district personnel must stay off the wet or curing surface.
- C. Only mix and apply when meeting manufactures recommended guidelines.

The General Contractor shall provide temporary barriers as required to prevent public entry to construction area and to protect adjacent properties from damage during construction operation.



APT

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Harmony, PA 16037 USA

Phone: 724.452.1330

Fax: 724.452.1703

Web: sportsbyapt.com

1.06 WARRANTY

- A. Provide manufacturers standard five (5) year warranty.

PART 2- PRODUCTS

2.01 SUPPLIER

- A. Advanced Polymer Technology
109 Conica Lane/PO Box 160
Harmony PA 16037
724-452-1330

2.02 MATERIALS

- A. Spurtan® BS – A 13mm polyurethane bound running track surface with a structural spray finish.

Materials include:

1. Qualipur Polyurethane primer
2. SBR Black Rubber
3. Qualipur Polyurethane binder
4. Melos EPDM Spray Rubber
5. One Component Qualipur Structural Spray

PART 3- EXECUTION

3.01 EXAMINATION

- A. The General Contractor shall verify that all asphalt/concrete paving meets all dimensional accuracy, strength, and compaction. Notify owner of any deficiencies. Recommended compaction of asphalt and sub base is 95%.



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- B. The General Contractor shall verify that all concrete work meets all required tolerances.
Notify owner of any deficiencies.
- C. Upon completion of paving, it is the responsibility of the paving contractor to water flood the surface with the use of a water truck. If after 30 minutes on a 70° F day, “bird bathes” are evident in a depth more than 1/8” the paving contractor, track surfacing contractor and the owner’s representative will determine the best method of correction.

3.02 PRODUCT AND MATERIAL DESCRIPTION

- A. The Spurtan® BS – A 13mm polyurethane bound running track surface with a structural spray. The base layer is a paved in place rubber granule and a Qualipur polyurethane binder basemat. Two coats of a mixture of colored Qualipur Structural Spray and Melos EPDM spray rubber are then structurally sprayed onto the base to form a textured finish.
- B. Rubber (Black SBR): The basemat rubber shall be specifically graded Styrene Butadiene Rubber (SBR). SBR is to be dried to no less than 2.5% moisture and sealed in bags.
- C. Polyurethane Binder: The basemat shall be bound by moisture-cured, Qualipur polyurethane, compatible with the basemat rubber. No asphaltic emulsions or epoxies are allowed in the basemat. Installation of the basemat shall take place with a specially designed track-paving machine to an average depth of 11 mm. No sprayed basemat systems will be allowed.
- D. One Component Structural Spray: The basemat shall be coated by a pigmented, one component, Qualipur polyurethane resin based, structural spray mixed with Melos spray rubber.

3.03 APPLICATIONS PROCEDURES

- A. The entire asphalt or concrete track surface shall be clean and free of dirt, oil, grease or any other residue upon arrival of the installation team. Any dirt, etc. shall be pressure washed off the base by the general contractor.



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SPURTAN

- B. Prime entire surface area with a compatible Qualipur polyurethane primer. Mask and protect adjacent structures, as required. Primer shall dry to a tack-free condition, but no longer than 24 hours, for application of basemat. The consumption rate is 0.29 lbs/sy (0.16 kgs/sm).
- C. Mix the binder and granules until all rubber is thoroughly coated transport onto to the track and apply using a paving machine that is specifically designed for this type of application. For an average 11 mm mat the consumption is 14.94 lbs/sy (8.11 kgs/sm) of SBR rubber and 3.52 lbs/sy (1.91 kgs/sm) Qualipur binder. Apply to the specified thickness.
- D. Mix the structural spray and spray rubber until thoroughly coated. The mixture should be sprayed in two separate applications. Apply the second coat, in an opposite direction as to the first. The minimum application rate is 2.16 lbs/sy (1.17 kgs/sm) for the Qualipur structural spray and 1.44 lbs/sy (0.78 kgs/sm) EPDM spray rubber. Apply specified amounts to achieve proper coverage.

3.04 STRIPING

- A. All line marking paint shall be compatible and approved for the synthetic surfacing. Only an experienced track-stripping specialist shall perform the line striping.

END OF SPECIFICATION – SPURTAN® BS SYSTEM

Rev 1 GT/JC 3/19/14



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Spartan BS



POWERED **BY**
sportgroup

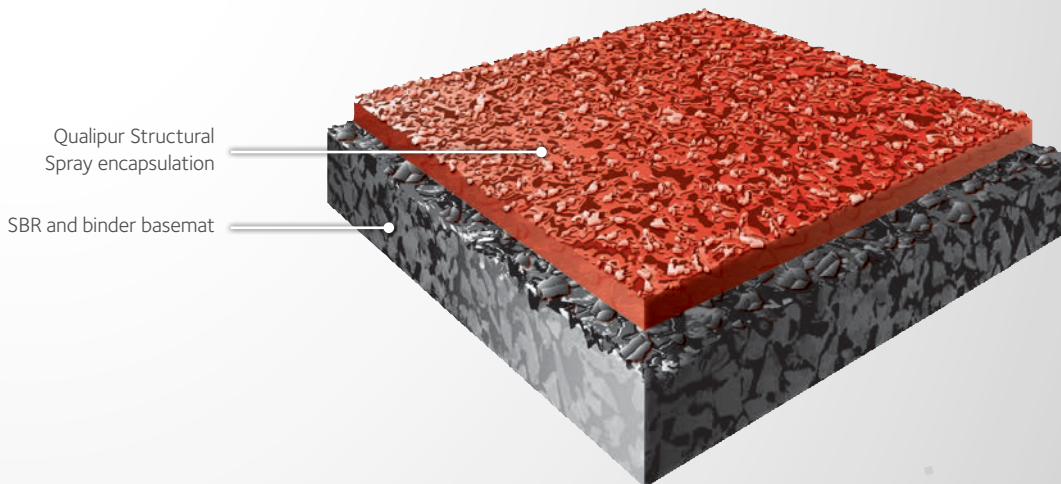
Spartan BS

Spartan BS is a two layer, 13mm, permeable spray coat track system. The base layer consists of a black mat of SBR rubber granules bound in polyurethane. The surface layer is made up of polyurethane and colored EPDM granules applied by spray to provide a structural topcoat.

SMART
TECHNOLOGY
AVAILABLE

HIGHLIGHTS

- IAAF approved system
- Permeable structural spray coat system
- Excellent force reduction
- Ideal for regional tracks and universities
- Spike resistant
- Available in multiple colors
- Aliphatic top coat option available
- Premium colors available upon request



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THE SURFACE SPECIALISTS



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