PROJECT MANUAL

for

Hannen Lake Park Shop Building

1949 Benton/Iowa Road
Blairstown, IA 52209

Project:

BCC 012023

Owner:

Benton County Conservation
5718 20th Avenue Drive
Vinton, IA 52349

Contact:

Larry Reiter
319-269-8725

Shelby Williams
swilliams@bentoncountyparks.com

10 January 2023
00005

SECTION 00015 - TABLE OF CONTENTS

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SECTION 00200 – NOTICE TO BIDDERS

NOTICE TO BIDDERS

NOTICE TO BIDDERS AND NOTICE OF PUBLIC HEARING FOR THE HANNEN LAKE PARK SHOP BUILDING PROJECT # BCC012023. REQUEST FOR DESIGN BUILD PROPOSALS BASED ON THE BIDDING DOCUMENTS.

Notice Of Acceptance Of Sealed Bids
The Benton County Conservation Board will be accepting sealed bids for a meeting on Monday, February 13th at 5:45pm for a Design-Build for the Hannen Lake Park Shop Building.

Go to https://www.bentoncountyia.gov/bid_notices/ for project specifications.

All bids must be filed no later than 2:00pm on Monday, February 13th, 2022. Bids may be emailed or mailed.

Addenda
All questions should be emailed to swilliams@bentoncountyparks.com no later than February 8 at 2:00pm. All questions that require an addendum will be posted on the Benton County Bid website at: https://www.bentoncountyia.gov/bid_notices/ no later than February 9th at 12:00pm. All Bidders need to check the website by this date to ensure they received all addendums on the project.

To mail bids
Benton County Conservation Board
Attn: Hannen Lake Park Shop
5718 20th Avenue Drive
Vinton, Iowa 52349

To email bids
swilliams@bentoncountyparks.com
subject: Hannen Lake Shop

Questions should be directed to Shelby Williams at swilliams@bentoncountyparks.com.

Time and Place for Filing Sealed Proposals
Sealed bids for the work comprising the project as stated below must be filed before 2:00pm on February 13, 2023 at the Benton County Conservation Nature Center located at 5718 20th Ave Drive, Vinton, IA 52349.

Time and Place Sealed Proposals Will be Opened and Considered
Sealed proposals will be opened and bids will be read and tabulated at 5:45pm on February 13, 2023 at the Benton County Nature Center 5718 20th Ave Drive, Vinton, Iowa for consideration by the Benton County Conservation Board at the Benton County Conservation Board Meeting. The Benton County Conservation Board, Benton County, Iowa reserves the right to reject any and all bids.

Time and Place for Public Hearing
The Benton County Conservation Board, Benton County, Iowa, will hold a public hearing on the proposed plans, specifications, form of contract, and estimate of cost for the Hannen Lake Shop Building project in accordance with the provisions of Chapter 26, Code of Iowa, at 5:45pm on March 13, 2023, at the Benton County Nature Center. Said proposed plans, specifications, form of contract, and estimate of cost will then be on file in the office of the Benton County Conservation Board, Benton County, Iowa. At said hearing, any interested person may appear and file objections thereto or to the cost of the improvements.

Time for Commencement and Completion of Work
Work on the Hannen Lake Park Shop Building shall start April 1, 2023 and be completed by December 1, 2023.

Performance Bond and Payment Bond
Bond requirements: The successful Bidder shall furnish bonds covering the faithful performance of the contract and the payment of all obligations arising there under.
Time of delivery and form of bonds: submit bonds, in duplicate, together with the executed Owner-Contractor Agreement.

Bid Documents
Bid Documents will be available starting on Tuesday, January 10, 2023 at https://www.bentoncountyia.gov/bid_notices/ or at the Benton County Nature Center 5718 20th Ave, Vinton, IA 52349.

Preference for Iowa Products and Labor
By virtue of statutory authority, preference will be given to products and provisions grown and produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa statutes.

Sales Tax
The Bidder should not include sales tax in the bid. Sales tax exemption certificates will be issued in accordance with Iowa Code 423.3, subsection 80, and provided to the contractor and subcontractors for all material purchased for incorporation in the project.

General Nature of the Project
Site work will include granular subbase and concrete paving as shown on Hannen Shop Layout document. Project will include Design Build and new building construction.

Owner will provide temporary power and water.

Publish as follows:

Legal publication one time only: Cedar Rapids Gazette, January 2023

SECTION 00500 Bid Form

_____

Contractor Name

Bid Form

We, the undersigned Bidder, having examined the documents and visited the site, familiarized ourselves with all conditions and the Owner's operations likely to be encountered affecting the cost of the work, and having the qualifications required to perform this work, do hereby propose to perform everything required, furnishing all labor, materials, tools, equipment, supervision and insurance to complete the Hannen Lake Park Shop Building in strict accordance with the drawings and specifications designated as project number BCC 012023, dated January 4, 2023, for the following sum:

Bid Packet #	**Total Sum:**
Bid Package #1	
Bid Package #2	
Bid Package #3	
Bid Package #4	
Bid Package #5	
Bid Package #6	
Bid Package #7	

We propose the following alternates. Alternates will be added to the base bid at Owner's option:

Alternates

No.1

		Add	**Deduct**
Description	Provide 3 zones of in-floor heating system in lieu of radiant tube heat and forced air	**$**	$

No. 2

Description	Provide R-21 Fiberglass Insulation in lieu of spray foam insulation in all exterior walls.	$	$

No. 3

Description		$	$

For information only, we offer the following breakdown of the above total price:

HANNEN LAKE PARK SHOP BUILDING

Schedule of Values BID PACKAGE #1

DIV. 2: Site Work, DIV. 3: Concrete

Note: All labor, materials and equipment are tax exempt. The following breakdown is for administrative use only.

February 13, 2023	Material	Labor	Total
General Requirements			
Building Area Earthwork			
Concrete Sidewalk & Approaches			
Concrete Floor Slab			
		Total:	

HANNEN LAKE PARK SHOP BUILDING

Schedule of Values BID PACKAGE #2

DIV. 6: Wood & Plastics, DIV. 8: Doors and Windows,
DIV. 13 Special Construction

Note: All labor, materials and equipment are tax exempt. Contract is design build lump sum. The following breakdown is for administrative use only.

February 13, 2023	Material	Labor	Total
General Requirements			
Finish Carpentry - Cabinets & Countertops			
Hollow Metal Doors & Frames			
Door Hardware			
Insulated Overhead Doors with Openers			
Vinyl Windows			
Glazing			
Pre-Engineered Timber Column Structure			
		Total:	

HANNEN LAKE PARK SHOP BUILDING

Schedule of Values BID PACKAGE #3

DIV. 7: Thermal Insulation

Note: All labor, materials and equipment are tax exempt. The following breakdown is for administrative use only.

February 13, 2023	Material	Labor	Total
General Requirements			
Thermal Insulation			
		Total:	

HANNEN LAKE PARK SHOP BUILDING

Schedule of Values BID PACKAGE #4

DIV. 9: Gypsum Wallboard Systems, Tiling, Painting

Note: All labor, materials and equipment are tax exempt. The following breakdown is for administrative use only.

February 13, 2023	Material	Labor	Total
General Requirements			
Tiling			
Gypsum Wallboard systems			
Resilient Wall Base			
Painting			
		Total:	

HANNEN LAKE PARK SHOP BUILDING

Schedule of Values BID PACKAGE #5

DIV. 2: Sewage Treatment System

Note: All labor, materials and equipment are tax exempt. The following breakdown is for administrative use only.

February 13, 2023	Material	Labor	Total
General Requirements			
Mechanical – Sand Filter Septic System			
		Total:	

HANNEN LAKE PARK SHOP BUILDING

Schedule of Values BID PACKAGE #6

Note: All labor, materials and equipment are tax exempt. The following breakdown is for administrative use only.

**Provide description and quantity of all equipment provided.

February 13, 2023	Material	Labor	Total
General Requirements			
Mechanical – Plumbing			
Mechanical – HVAC			
		Total:	

HANNEN LAKE PARK SHOP BUILDING

Schedule of Values BID PACKAGE #7

Note: All labor, materials and equipment are tax exempt. The following breakdown is for administrative use only.

** Provide electrical panel layout

** Provide electrical lighting layout

February 13, 2023	Material	Labor	Total
General Requirements			
Electrical – Lighting			
Electrical – Distribution			
		Total:	

Addenda to specifications are included in the above price and receipt thereof is acknowledged as follows:

Addenda No. _____, _____, _____, _____, _____, _____, _____.
(Insert numbers of addenda received, if any).

We will make changes or do additional work only on written order from the Owner's Representative. Failure to do so will relieve Benton County Conservation of any financial responsibility for such changes. We agree to start and complete the work in accordance with the Construction Schedule or the alternate construction schedule we have submitted.

We hereby designate the address given below as the legal address to which all notices, directions, or other communications may be served or mailed.

Name _____

Street _____

City _____ State _____ Zip _____

Bid Expiration

This proposal shall remain firm for 45 calendar days (Saturdays, Sundays, and holidays included) from bid due date.

This bid is submitted in the name of:

_____

By: _____
(Signature) (Title)

Signed and sealed this ____ day of _____.

Project Description: 012023 Hannen Lake Park Shop Building.

Schedule

Contractor submits their proposed schedule for completion of work to meet the required milestone dates:

Description	Date
Out for Bids	January 10, 2023
Bids Due – 2:00 P.M.	February 13, 2023
Award Contract	Within 30 days of Bids Due
Start Construction	April 1, 2023
Complete Construction	December 1, 2023

Signed _____ Company _____

Title _____ Date _____

SECTION 01005 - ADMINISTRATIVE PROVISIONS

PART 1 - GENERAL
1

1.1 SECTION INCLUDES

A. Alternates.
B. Applications for Payment.
C. Change Order Procedures.
D. Coordination.
E. Cutting and Patching.
F. Definitions.
G. Examination of Work not in Contract.
H. Field Engineering.
I. Overlapping and Conflicting Requirements.
J. Reference Standards.
K. Request for Information Procedures.
L. Submittals
M. Unforeseen Conditions.
N. Work on Other Property.

1.2 RELATED SECTIONS

A. Document 00700 - General Conditions of the Contract: Minor Changes in the Contract; Schedule of Values; Performance Bonds; Costs included in Allowances.

B. Section 01300 - Submittals: Submission procedure.

C. Section 01400 - Quality Control: Cutting and patching tested work.

D. Section 01700 - Contract Close-out: Lien Waivers.

1.3 ALTERNATES

A. Alternates are amounts proposed by Bidders, and stated on their Bid Form, that will be added to or deducted from Base Bid amount if Owner accepts corresponding change in work described in Contract Documents.

B. Alternates quoted on Bid Forms will be exercised as Owner options. Accepted alternates will be listed in Owner-Contractor Agreement.

C. Coordinate related work and modify surrounding work affected by accepted alternates as required to complete the Work.

D. Notify Owner of any additional issues or documentation required by Contractor due to Alternate items, prior to commencing or ordering any material affected by Alternate.

E. Immediately following award of Contract, prepare and distribute to each party involved, notification of the status of each alternate. Indicate whether alternates have been accepted, rejected or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

F. Schedule of Alternates: See end of this Section.

1.4 APPLICATIONS FOR PAYMENT

A. Submit three copies of each application to Owner Representative on AIA G702 - Application and Certificate for Payment

B. Content and Format: As specified and approved for Schedule of Values in this Section.

C. Provide substantiating information, justifying line item amounts in question including but not limited to: itemized subcontractor pay requests, partial lien waivers, etc.

D. Prior to the initial Application for Payment, the following shall have been submitted:
1. Schedule of Values.
2. Contractor's staff assignments and principal consultants list.
3. Copies of building permits and similar authorizations and licenses from governing authorities for current performance of work.
4. Certificate of Insurance (AIA G705), and evidence satisfactory to Owner that Contractor's insurance coverages have been secured.

E. Provide updated Construction Progress Schedule with each Application for Payment. No payment will be processed without updated schedule.

F. Provide Lien Waivers for previous payments with each Application for Payment for each entity (including Contractor) legally entitled to file a lien in excess of one thousand dollars ($1000.00) arising out of Contract and work covered by payment. Final Application for Payment must be accompanied by final and full lien waivers as specified in Section 01700.

1.5 CHANGE ORDER PROCEDURES

A. Documentation of Change in Contract Sum and Contract Time:
1. Maintain detailed records of work performed on a time and material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.
2. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.

3. On request of Owner Representative, support each claim for additional costs, and for work done on a time and material basis, with the following additional information:
    a. Origin and date of claim.
    b. Dates and times work was performed, and by whom.
    c. Time records and wage rates paid.
    d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

B. Construction Change Authorization:
1. Owner may issue Proposal Request describing a potential change in the Work, for subsequent inclusion in a Change Order. Contractor should not proceed with Work described in Proposal Requests until in receipt of a Change Order signed by the Owner.
2. Owner may issue an Owner's Supplemental Instruction to address minor changes in the Work, as defined in the General Conditions of the Contract.
3. Owner may issue a Construction Change Directive (CCD) with a copy to the Owner, instructing Contractor to immediately proceed with a change in the Work, for subsequent inclusion in a Change Order.
4. Should any dispute arise relating to Change Orders, Contractor shall carry on the Work and maintain its progress during any arbitration proceedings.

C. Types of Change Order:
1. Lump Sum Change Order:
    a. Based on Proposal Request and Contractor's lump sum quotation, or Contractor's request for Change Order as approved Owner.
2. Unit Price Change Order:
    a. For pre-determined unit prices and quantities, Change Order will be executed on a lump sum basis.
    b. For unit costs or quantities of units of work which are not predetermined, execute Work under a construction change authorization. Changes in Contract Sum or Contract Time will be computed as specified for time and material Change Order.
3. Time and Material Change Order:
    a. Submit itemized account and supporting data after completion of change, within time limits in Conditions of the Contract.
    b. Owner will determine the change allowable in Contract Sum and Contract Time as provided in Conditions of the Contract.

D. Execution of Change Orders:
1. Owner Representative will issue Change Orders for signatures of parties as provided in Conditions of the Contract.

E. Correlation of Contractor Submittals:
1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum as shown on Change Order.
2. Promptly revise Construction Progress Schedules to reflect any change in Contract Time, revise subschedules to adjust times for other items of work affected by the change, and resubmit.
3. Promptly enter changes in Project Record Documents.

1.6 COORDINATION

A. Coordinate work of the various Sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.

B. Verify characteristics of elements of interrelated operating equipment are compatible; coordinate work of various Sections having interrelated responsibilities for equipment installation, connections and placing in service.

C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduits, as closely as practicable; make runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, maintenance, repairs and Owner’s fixtures and equipment.

D. In finished areas, except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

E. Conduct Project Meetings as specified in Section 01200.

1.7 CUTTING AND PATCHING

A. Each trade will be responsible for cutting and patching required for their portion of the work.

B. Submit written request to Owner in advance of cutting or alteration which affects:
1. Structural integrity of any element of Project.
2. Integrity of weather-exposed or moisture-resistant elements.
3. Efficiency, maintenance, or safety of any operational element.
4. Visual qualities of sight-exposed elements.
5. Work of Owner or separate contractor.

C. Execute cutting, fitting, and patching, including excavation and fill, to complete Work, and to:
   1. Fit the several parts together, to integrate with other work.
   2. Uncover work to install ill-timed work.
   3. Remove and replace defective and non-conforming work.
   4. Remove samples of installed work for testing.
   5. Provide openings in elements of Work for penetrations of Mechanical and Electrical work.

D. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

E. After uncovering, inspect conditions affecting performance of work.

F. Beginning of cutting or patching means acceptance of existing conditions affecting performance of work.

G. Provide supports to assure structural integrity of surroundings; and devices and methods to protect other portions of Project from damage.

H. Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.

I. Execute work by methods to avoid damage to other work, and which will provide proper surfaces to receive patching and finishing.

J. Employ original installer, or, if unavailable, another experienced and specialized firm, to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

K. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

L. Restore work with new products in accordance with requirements of Contract Documents.

M. Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

N. At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with fire-rated material, full thickness of the construction element.

O. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

1.8 DEFINITIONS

A. Approved: Where used in conjunction with Owner's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of the term "approved" will be held to limitations of Owners' responsibilities and duties as specified in General and Supplementary Conditions. In no case will "approval" by Owner be interpreted as a release of Contractor from responsibilities to fulfill requirements of Contract Documents.

B. Directed, Requested, Etc.: Where not otherwise explained, terms such as "directed", "requested", "authorized", "selected", "required", "accepted", and "permitted", mean "directed by Owner", "requested by Owner", etc. However, no such implied meaning will be interpreted to extend Owner's responsibility into Contractor's area or construction and responsibility.

C. Furnish: Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, etc. , as applicable, except as otherwise defined in greater detail.

D. Indicated: Cross-reference to graphics, notes or schedules on Drawings, to other paragraphs or schedules in specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used in lieu of "indicated", it is for the purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.

E. Install: Operations at Project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations, as applicable in each instance, except as defined in greater detail.

F. Installer: The entity (person or firm) engaged by Contractor, Subcontractor or Sub-subcontractor for performance of a particular unit of work at Project site, including installation, erection, application and similar required operations. Installers are required to be experienced in operations they are engaged to perform.

G. Project Site: The space available for the performance of the work, either exclusively to the Contractor or in conjunction with others performing work as part of the project.

H. Provide: Furnish, install and connect, complete and ready for intended use, and shall include, without limitation, all labor, materials, equipment, transportation, services and other items required to complete the indicated and referenced Work, except as defined in greater detail.

I. Related Sections: (As used in Project Manual as an Article heading) This Article is intended to re-direct the Project Manual reader to other Sections of work directly related to work of the Section being read.

J. Section Includes: (As used in Project Manual as an Article heading) This Article is not intended to "scope" the section or to imply trade responsibility; but is a convenient listing of the significant items described within the Section, and is not intended to limit items covered by the Section to the items listed.

K. Testing Laboratory: An independent entity engaged to perform specific inspections, tests, or approvals of the work, either at Project site or elsewhere; and to report and, if required, interpret results of those inspections, tests, or approvals.

1.9 EXAMINATION OF WORK NOT IN CONTRACT

A. Examine work not in Contract which is to receive or is adjacent to Work of Contract before commencement of Work.

B. Do not proceed until conditions which would result in an unsatisfactory installation are corrected.

C. Commencing work shall be construed as acceptance of work not in Contract as satisfactory to receive Work.

1.10 FIELD ENGINEERING

A. Owner's, Responsibilities:
1. Employ services of land surveyor, registered in State in which Project is located, to locate and mark property lines of site and benchmark.

B. Contractor's Responsibilities:
1. To perform the following:
   a. Locate and lay out exterior corners and boundaries of building.
   b. Establish finished floor elevation, referenced to established benchmark.
   c. Establish temporary monument for finished floor elevation in protected location near building.
   d. Remove temporary monument upon Project completion.

C. Do not scale Drawings to determine dimensions.

1.11 OVERLAPPING AND CONFLICTING REQUIREMENTS

A. Where compliance with two or more standards or requirements is indicated, and where overlapping requirements establish different or conflicting levels of quality; the most stringent, (and generally the most expensive), requirement is intended, and will be enforced unless written approval is granted otherwise by the Owner.

B. At Bidding stage: Notify Owner of overlapping and conflicting requirements for clarification.

C. During Construction: Refer to Owner for resolution conflicting requirements and uncertainties as to which level of quality is more stringent, and receive written clarification from Owner before proceeding with questioned work.

1.12 REFERENCE STANDARDS

A. For products specified by association or trade standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Where a reference in the Contract Documents to a Federal Specification (FS), American National Standards Institute (ANSI) standard, American Society of Testing Materials (ASTM) standard or any other standard does not include the edition or date of the standard, the latest edition and amendments current as of the Bid date, or date of Owner-Contractor Agreement when there are no bids, shall apply.

C. Obtain copies of standards when required by Contract Documents. Maintain copy at jobsite during progress of the specific work.

1.13 REQUEST FOR INFORMATION PROCEDURES

A. Items requiring additional information or clarification, submit request on "Request for Information" Form provided.

B. Number each Information Request Form chronologically. Responses will refer to this number.

1.14 SUBMITTALS

A. Submit the following Administrative Submittals within 7 days of date established for Notice to Proceed, or date of Owner - Contractor Agreement, whichever is earlier, under the provisions of Section 01300, and as specified in this Section:
   1. Schedule of Values.
   2. Contractor's Staff and Consultant List.
   3. Work by Bidder's Forces List.
   4. Subcontractor/Supplier List.
   5. Progress Schedule.

B. Submit the following Administrative Submittals at regular intervals, under the provisions of Section 01300, and as specified in this Section:
   1. Updated Progress Schedule.
   2. Lien Waivers for Previous Payments.
   3. Construction Progress Photographs.

1.15 UNFORESEEN CONDITIONS

A. In the event that unforeseen conditions are encountered, and these conditions were not available for reasonable pre-bid inspection or question, the Contractor may be entitled to an extension of time and costs relating to additional work required as approved by the Owner as defined for Concealed Conditions in the General Conditions of the Contract.

1.16 UNIT PRICES

A. Unit Prices: Prices per unit of measurement for materials or services, added to or deducted from Contract Documents.

B. Unit Prices do not substantially change scope and general character of Work.

C. Prices shall be based on labor, material, equipment and related services necessary for complete installation of work described.

D. Schedule of Unit Prices is provided at end of Section, using abbreviated language, with individual Specification Sections outlining detailed requirements.

1.17 WORK ON OTHER PROPERTY

A. Correct damage to existing property on or adjacent to Site, including, but not limited to, lawns, walks, pavements, roadways, structures, and utilities cut or damaged by construction and not designated for removal, relocation, or replacement during construction.

B. Construct Work occurring on public property according to governing laws, ordinances, rules, regulations, and orders of public authorities having jurisdiction.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. General Submittal Procedures.

B. Shop Drawings.

C. Product Data.

D. Samples.

E. Manufacturer's Instructions.

F. Field Samples.

G. Contractor Review.

H. Owner Review.

I. Resubmittals.

1.2 RELATED SECTIONS

A. Section 01005 - Administrative Provisions: Owner-Supplied Products; Allowances, Applications for Payment.

B. Section 01400 - Quality Control: Testing laboratory reports; manufacturers' field service reports; manufacturer's certificates; mockups.

C. Section 01600 - Material and Equipment: Contractor's list of Products; submittals procedure for Owner-supplied products.

D. Section 01700 - Contract Closeout: Closeout submittals.

E. Individual Specification Sections: Submittals.

1.3 PROCEDURES

A. Submittals Schedule: Submit within 7 days of Contract Award a schedule of submittal dates proposed for shop drawings, product data, samples and other similar submittals, including required product delivery dates.

B. Deliver or email submittals to the Owner addressed as follows:

Owner:

Benton County Conservation
5718 20th Ave Drive
Vinton, IA 52349
Attention: Larry Reiter

C. Transmit each item under Owner-accepted form. Identify Project, Contractor, subcontractor, major supplier; identify pertinent Drawing sheet and detail number, and Specification Section number, as appropriate. Identify deviations from Contract Documents. Provide space for Contractor and Owner review stamps.

D. Submittals received from sources other than through Contractor's office, or which do not have Contractor's executed review and approved marking, will be returned "without action".

E. Comply with progress schedule for submittals related to Work progress. Coordinate submittal of related items.

F. Do not allow submittals without appropriate final "action" markings by Owner to be used in connection with the Work.

1.4 SHOP DRAWINGS

A. Submit in the form of one reproducible transparency and one opaque reproductions. Opaque copies of reproductions will be retained by Owner, and the transparency returned to Contractor.

B. Present in a clear and thorough manner. Title each drawing with Project name; identify each element of drawings by reference to sheet number and detail, schedule, or room number of Contract Documents.

C. Identify field dimensions; show relation to adjacent or critical features of Work or products.

D. Typical or standard details are not acceptable if not an exact representation of the condition to be constructed.

1.5 PRODUCT DATA

A. Submit two copies to be retained by the Owner. Submit to the Contractor, one copy for Project Record Documents, two copies for Operation and Maintenance Manuals and any additional copies which the Contractor requires.

B. Submit only pages which are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics, and capacities, wiring and piping diagrams and controls, component parts, finishes, dimensions and required clearances.

C. Modify manufacturer's standard schematic drawings, diagrams and data to supplement standard information and to provide information specifically applicable to the Work.

1.6 MANUFACTURER'S INSTRUCTIONS

A. When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation start-up, adjusting, and finishing, in quantities specified for product data.

1.7 SAMPLES

A. Submit the number specified in respective Specification section; one will be retained by Owner. Reviewed samples which may be used in the Work are indicated in the Specification Section.

B. Submit full range of manufacturers' standard colors, textures, and patterns for Owner's selection, where required by individual Specification Sections. Submit samples for selection of finishes within 60 days after date of Contract.

C. Submit samples to illustrate functional characteristics of the product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing work.

D. Include identification on each sample, giving full information.

1.8 FIELD SAMPLES

A. Provide field samples of finishes at Project as required by individual Specifications section. Install sample complete and finished. Acceptable samples in place may be retained in completed Work.

1.9 CONTRACTOR REVIEW

A. Review submittals prior to transmitting to the Owner determine and verify field measurements, field construction criteria, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.

B. Apply Contractor's stamp, signed or initialed, and dated, indicating review, verification of products, field dimensions and field construction criteria, and coordination of information with requirements of Work and Contract Documents. Notify Owner in writing at time of submittal of any deviations from requirements of Contract Documents.

C. Do not fabricate products or begin work which requires submittals until return of submittal with Owner 's "approval".

D. Transmit submittals in accordance with approved Construction Progress Schedule, and in such sequence to avoid delay in the Work or work of other contracts.

1.10 CONSTRUCTION MANAGER REVIEW

A. Construction Manager to be copied on all shop drawings, product data, and samples and forward submittals to the Owner.

B. The Construction Manager to receive a copy of the General Contractor’s Submittal Log at each Construction Progress Meeting, and periodically as requested.

C. **OWNER REVIEW**

D. Owner will review shop drawings, product data, and samples and will endeavor to return submittals within ten working days from receipt.

E. Submittals will be reviewed with the following actions:

1. "Approved": Indicates that Submittal is in general conformance with the design intent of the Contract Documents. Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Owner's approval of Submittal.

2. "Approved as Noted": Indicates Submittal is approved as defined above, subject to noted corrections.

3. "Revise and Resubmit": Indicates unspecified material, insufficient information, unapproved system or similar inadequacies. Additional information must be revised and resubmitted before Submittal will be approved.

4. "Rejected": Indicates unsolicited submittal; returned unreviewed.

F. Submittals not "approved" by Owner will be returned to the Contractor for further action.

1.11 RESUBMITTALS

A. Make resubmittals under procedures specified for initial submittals; identify changes made since previous submittal.

1.12 DISTRIBUTION

A. Duplicate and distribute reproductions of submittals and samples, which bear Owner's "approval" to job site file, Record Documents file, subcontractors, suppliers, affected separate contractors, and other entities requiring information.

B. Instruct recipients to promptly report inability to comply with provisions.

PART 2 - PRODUCTS 2
(Not Used)

PART 3 - EXECUTION 3
(Not Used)

END OF SECTION

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. General Quality Control.

B. Workmanship.

C. Installer's Examination of Conditions.

D. Manufacturer's Instructions.

E. Manufacturer's Certificates.

F. Mock-ups.

G. Manufacturers' Field Services.

H. Special Inspections.

I. Testing Laboratory Services.

1.2 RELATED SECTIONS

A. Section 01005 - Administrative Provisions: Cutting and Patching.

B. Individual Sections: Tests required for materials and/or construction.

1.3 QUALITY CONTROL - GENERAL

A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

1.4 WORKMANSHIP

A. Comply with industry standards and manufacturer's instructions, except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

B. Perform work by persons qualified to produce workmanship of specified quality.

C. Secure products in place with positive anchorage devices designed and sized to withstand reasonable stresses, vibration and racking.

1.5 INSTALLER'S EXAMINATION OF CONDITIONS

A. Installer of each unit of work shall examine substrate to receive work, and conditions under which work will be performed, and report in writing to Owners Representative unsatisfactory conditions. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

1.6 MANUFACTURERS' INSTRUCTIONS

A. Comply with instructions in full detail, including each step in sequence, except where more stringent requirements are indicated in Contract Documents. Should instructions conflict with Contract Documents, request clarification from Owner before proceeding.

1.7 MANUFACTURERS' CERTIFICATES

A. When required by individual Specifications Section, submit manufacturer's certificate, in duplicate, that products meet or exceed specified requirements.

1.8 MOCK-UPS

A. When required by individual Specifications Section, erect complete, full-scale mock-up of assembly at Project site. Tests will be performed in accordance with this Section. Acceptable mock-ups in place may be retained in completed work.

1.9 MANUFACTURERS' FIELD SERVICES

A. When specified in respective Specification Sections, require supplier or manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to make appropriate recommendations.

B. Representative shall submit written report to Owner listing observations and recommendations.

1.10 SPECIAL INSPECTIONS

A. SPECIAL INSPECTOR; shall be a qualified engineer or technician, who will provide the inspection services and detailed inspection reports on specified construction. Special inspector should be directly supervised by an engineer licensed in the state in which the project is located.

B. Owner will employ and pay for services of a special inspector to perform inspections, tests, and other services required by the building code.

C. Provide other Special Inspections required by Building Code for Structural Work, or requested by the Owner.

1.11 TESTING LABORATORY SERVICES

A. Owner shall employ and pay for services of an Independent Testing Laboratory to perform inspections, tests, and other services required by individual Specification Sections.

B. Perform services in accordance with requirements of governing authorities and with specified standards.

C. Submit reports to Owner's Representative giving observations and results of tests, indicating compliance or non-compliance with specified standards and with Contract Documents.

D. Contractor Responsibilities:

1. Contractor shall cooperate with Testing Laboratory personnel and provide access to Work.

2. Furnish tools, samples of materials, design mix, equipment, storage and assistance as requested by Testing Laboratory.

3. Provide incidental labor and facilities to obtain and handle samples at the site or at source of products to be tested.

4. Notify Testing Laboratory 24 hours prior to expected time for operations requiring testing services.

5. Make arrangements with Testing Laboratory and pay for additional samples and tests for Contractor's convenience.

6. Deliver test samples to Testing Laboratory.

E. Payment for any retesting required due to failures of original tests to be borne by Contractor.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. Upon completion of inspection, testing, sample-taking and similar services performed on Work, Contractor shall repair damaged work and restore substrates and finishes.

B. Comply with Contract Document requirements for Cutting and Patching specified in Section 01005.

C. Protect work exposed by or for quality control service activities, and protect repaired work.

END OF SECTION

SECTION 01600 - MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Products.

B. Transportation and Handling.

C. Storage and Protection.

D. Product Options.

E. Owner-Supplied Products.

F. Substitutions.

1.2 RELATED SECTIONS

A. Form 00960 - Substitution Request Form.

B. Individual Sections: Specific transportation, handling, storage and protection requirements.

1.3 PRODUCTS

A. Products include material, equipment, and systems.

B. Comply with Specifications and referenced standards as minimum requirements.

C. Components required to be supplied in quantity within a Specification section shall be the same, and shall be interchangeable.

1.4 TRANSPORTATION AND HANDLING

A. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

C. Promptly inspect shipments to assure that:

1. Products comply with requirements of Contract Documents and reviewed submittals.

2. Quantities are correct.

3. Accessories and installation hardware are correct.

4. Containers and packages are intact and labels legible.

5. Products are undamaged.

1.5 STORAGE AND PROTECTION

A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.

B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.

C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.

D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under required conditions.

1.6 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards.

B. Products Specified by Naming One or More Manufacturers: Any product/manufacturer named. Submit a request for substitution for any manufacturer not specifically named as specified under "Substitutions" article of this Section.

C. Products Specified by Naming One or Several Manufacturers, followed by "No Substitutions": Products of named manufacturers; no substitutions allowed unless one or more of the conditions specified under "Substitutions" in this Section exist.

1.7 SUBSTITUTIONS

A. All substitutions must be requested on the "Substitution Request Form" provided in this Project Manual. No consideration will be given to substitutions requested otherwise.

B. In the time following Bidding Period the Owner will only consider further requests from Contractor for substitutions for products, materials or methods which guarantee an economic advantage to the Owner, ie a credit to the bid price.

C. Request for substitution constitutes a representation that Contractor:

1. Has investigated proposed product and determined that it meets or exceeds, in all respects, specified product.

2. Will provide the same warranty for substitution as for specified product.

3. Will coordinate installation and make other changes which may be required for Work to be complete in all respects.

4. Certifies cost data presented is complete and includes all related costs under this Contract.

5. Waives claims for additional costs which may subsequently become apparent.

6. Certifies proposed substitution will overcome conditions requiring substitution.

D. Substitutions will not be considered if they are:

1. Indicated or implied without being submitted on the "Substitution Request Form" provided in this Project Manual.

2. Indicated or implied on shop drawing or product data submittals without separate written request.

3. Requested directly by subcontractor or supplier.

4. Acceptance will require substantial revision of Contract Documents.

E. Substitute products shall not be ordered or installed without written acceptance by Owner.

F. Owner will determine acceptability of proposed substitution, and will notify Contractor of acceptance, rejection or need for additional information in writing within ten days of receipt of "Substitution Request Form".

G. In the event that additional information is requested, Owner will notify Contractor of substitution acceptance or rejection in writing within ten days of receipt of such information.

H. Only one request for substitution will be considered for each product. When substitution is not accepted, provide specified product.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01700 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Substantial Completion Closeout Procedures.

B. Final Completion Closeout Procedures.

C. Reinspection Fees.

D. Final Cleaning.

E. Project Record Documents.

F. Operation and Maintenance Data.

G. Warranties and Bonds.

H. Spare Parts and Maintenance Materials.

1.2 RELATED SECTIONS

A. Sample Forms: Closeout submittals.

B. Document 00700 - General Conditions: Substantial Completion requirements.

C. Individual Sections: Specific closeout submittals required.

1.3 SUBSTANTIAL COMPLETION CLOSEOUT PROCEDURES

A. Prior to inspection for Substantial Completion perform Final Cleaning under provisions of this Section.

B. When Contractor considers Work is Substantially Complete as defined in General Conditions, submit written notice to Owner Representative accompanied with or preceded by Substantial Completion submittals as follows:

1. Occupancy Permits and other similar approvals by governing authorities, assuring Owner's full access and use of completed Work.

2. Warranties and Bonds under provisions of this Section.

3. Keys and Keying Schedule under provisions of Section 08710. Submit direct to Owner.

4. Test/adjust/balance records, meter readings, start-up performance reports, and similar changeover information.

5. Application for reduction of retainage, with Consent of Surety to Reduction in or Partial Release of Retainage (AIA G707A).

6. Advice to Owner on coordination of shifting insurance coverages, including proof of extended coverages as required.

7. Contractor's punch list as defined in the Conditions of the Contract, listing incomplete work recognized as exceptions to Certificate of Substantial Completion.

C. Should Owner find Work is defective or not Substantially Complete as defined in the Conditions of the Contract:

1. Owner will promptly notify Contractor and Owner in writing, listing observed deficiencies.

2. Contractor shall remedy deficiencies and send a second written notice of Substantial Completion.

3. Owner will reinspect Work.

D. When Owner finds Work is substantially complete, Owner will:

1. Prepare a Certificate of Substantial Completion (AIA G704), accompanied by Contractor's list of items to be completed or corrected, as verified and amended by the Owner, and in accordance with provisions of General Conditions.

2. Prepare Certificate of Substantial Completion for Owner and Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

1.4 FINAL COMPLETION CLOSEOUT PROCEDURES

A. Complete items on Contractor's Substantial Completion punch list, or provide assurance satisfactory to Owner that incomplete work will be completed without undue delay.

B. Remove temporary facilities, services, surplus materials, rubbish and similar elements.

C. Change over door locks and other provisions for Contractor's access to Owner's property, if applicable.

D. When Contractor considers Work is complete, submit the following to Owner Representative:

1. Written Certificate of Final Completion, stating:

   a. Contract Documents have been reviewed.
   b. Work has been inspected for compliance with Contract Documents.

c. Work has been completed in accordance with Contract Documents, and deficiencies listed with Certificate of Substantial Completion have been corrected.
d. Equipment and systems have been tested, adjusted and balanced, and are fully operational.
e. Operation of systems has been demonstrated to Owner's personnel.
f. Work is complete and ready for final inspection.

2. Project Record Documents under provisions of this Section.

3. Operation and Maintenance Data under provisions of this Section.

4. Spare Parts and Maintenance Materials under provisions of this Section.

5. Contractor's Affidavit of Payment of Debts and Claims (AIA G706); proving satisfactorily to Owner that taxes, fees and similar obligations of Contractor have been paid.

6. Contractor's Affidavit of Release of Liens (AIA G706A); providing evidence of payment and release of liens in accordance with Conditions of the Contract.

7. Contractor's Lien Waiver in full amount of Contract Sum.

8. Lien waivers from all subcontractors, sub-subcontractors, and major suppliers to Project legally entitled to file a lien in excess of one thousand dollars ($1000.00) arising out of Work of this Contract and covered by payments, totaling full amount of Contract Sum.

9. Consent of Surety Company to Final Payment (AIA G707).

10. Certificates of Insurance for Products and Completed Operations in accordance with Conditions of the Contract.

11. Application for final payment in accordance with provisions of Conditions of the Contract.

12. Statement of Adjustment of Accounts to Contract Sum indicating:

    a. Original Contract Sum.
    b. Previous change orders.
    c. Changes under allowances.
    d. Changes under unit prices.
    e. Deductions for uncorrected work.
    f. Penalties and bonuses.
    g. Deductions for liquidated damages.
    h. Deductions for reinspection fees.
    i. Other adjustments to Contract Sum.
    j. Total Contract Sum as adjusted.
    k. Previous payments.
    l. Sum remaining due.

E. Should Owner find Work incomplete or defective:

1. Owner will promptly notify Contractor and Owner in writing listing observed deficiencies.

2. Contractor shall remedy deficiencies, subject to Arbitration if disputed, and send a second certification of final completion.

3. Owner will reinspect.

F. When Owner finds work is complete, Owner will:

1. Consider closeout submittals.

2. Issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Orders.

1.5 REINSPECTION FEES

A. Should status of completion of Work require reinspection by Owner due to failure of Work to comply with Contractor's claims on initial inspection, Owner will deduct the amount of Owner's compensation for reinspection services from final payment to Contractor.

1.6 FINAL CLEANING

A. Execute cleaning prior to inspection for Substantial Completion of the Work.

B. Owner and Contractor will be responsible to provide final cleaning of their own work after Substantial Completion. Provide access and coordinate with Owner's personnel at a time agreeable to both parties.

C. Use materials which will not create hazards to health or property, and which will not damage surfaces.

D. Use only materials and methods recommended by manufacturer of material being cleaned.

E. In addition to removal of debris and cleaning specified in other sections, clean interior and exterior exposed-to-view surfaces.

F. Remove temporary protection and labels not required to remain.

G. Clean finishes free of dust, stains, films and other foreign substances.

H. Clean transparent and glossy materials to a polished condition; remove foreign substances. Polish reflective surfaces to a clear shine.

I. Vacuum clean carpeted and similar soft surfaces.

J. Clean and damp mop, resilient and hard-surfaced floors.

K. Clean surfaces of equipment; remove excess lubrication.

L. Clean plumbing fixtures to a sanitary condition.

M. Clean permanent filters of ventilating equipment and replace disposable filters when units have been operated during construction.

N. Clean light fixtures and lamps.

O. Remove waste, foreign matter, and debris from roofs, gutters, areaways, and drainage systems.

P. Remove waste, debris, and surplus materials from site. Clean grounds; remove stains, spills, and foreign substances from paved areas and sweep clean. Rake clean other exterior surfaces.

1.7 PROJECT RECORD DOCUMENTS

A. In addition to requirements in General Conditions, maintain at the site for Owner one record copy of:

1. Contract Drawings.
2. Specifications.
3. Addenda.
4. Proposal Requests.
5. Owner's Supplemental Instructions.
6. Owner's Field Orders.
7. Change Orders and other modifications to the Contract.
8. Reviewed shop drawings, product data, and samples.
9. Field test records.
10. Inspection certificates
11. Manufacturers' certificates.
12. Factory Mutual approved documents.

B. Store Record Documents and samples in Field Office apart from documents used for construction. Provide files, racks, and secure storage for Record Documents and samples.

C. Label and file Record Documents and samples in accordance with Section number listings in Table of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

D. Maintain Record Documents in a clean, dry and legible condition. Do not use Record Documents for construction purposes.

E. Make available Record Documents and samples for inspection by Owner.

F. Record information on a set of translucent mylar drawings, and in a copy of Project Manual, provided by Owner.

G. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.

H. At Contract closeout, deliver Record Documents and samples, signed by Contractor, to Owner under provisions of this Section. Transmit with cover letter, with copy to Owner Representative.

1.8 OPERATION AND MAINTENANCE DATA

A. Submit two sets prior to final inspection, bound in 8-1/2 x 11 inch three-ring side binders with durable plastic covers.

B. Part 1: Directory, listing names, addresses, and telephone numbers of: Owner, consultants, Contractor, subcontractors and suppliers.

C. Part 2: Operation and maintenance instructions, arranged by system, as specified in each Section. For each system, give names, addresses, and telephone numbers of subcontractors and suppliers. List the following:

1. Appropriate design criteria.
2. List of equipment.
3. Parts list.
4. Operating instructions.
5. Maintenance instructions, equipment.
6. Maintenance instructions, finishes.
7. Shop drawings and product data.
8. Warranties.

D. Instruction of Owner Personnel:

1. Before final inspection, instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times. For equipment requiring seasonal operation, perform instructions for other seasons within six months.

2. Use operation and maintenance manuals as basis of instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

3. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

1.9 WARRANTIES AND BONDS

A. Provide original, notarized copies to Owner, with duplicate to Owner. Execute Contractor's submittals and assemble documents executed by subcontractors, suppliers, and manufacturers. Provide table of contents and assemble in binder with durable plastic cover.

B. Submit material prior to final application for payment. For equipment put into use with Owner's permission during construction, submit within ten days after first operation. For items of Work delayed materially beyond Date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

C. Any warranty shall not relieve rights available to Owner under common law or other reserved rights.

D. Provide individual product and system warranties as defined in specification Sections, which may extend beyond Complete Project Warranty period.

1.10 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, and maintenance materials in quantities specified in each Section, in addition to that used for construction of Work. Coordinate with Owner, deliver to Project site and obtain receipt prior to final payment.

B. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.11 SUBMITTALS

A. Submit the following Closeout Submittals under the provisions of this Section:

1. Substantial Completion Notice.
2. Certificate of Occupancy.
3. Warranties and Bonds.
4. Keys and Schedule.
5. Test/Adjust/Balance Records.
6. Meter Readings.
7. Start-up Performance Reports.
8. Application for Retainage Reduction.
9. Insurance Coordination Advice.
10. Contractor's Punch List.
11. Final Completion Certification.
12. Project Record Documents.
13. Operation and Maintenance Manuals.
14. Spare Parts and Maintenance Materials.
15. Affidavit of Pay't of Debts and Claims.
16. Affidavit of Release of Liens.
17. Contractor's Lien Waiver.
18. Other Lien Waivers.
19. Consent of Surety to Final Payment.
20. Certificates of Insurance.
21. Final Application for Payment.
22. Final Statement of Account.
23. Completed Schedule of Submittals.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 02220 - BUILDING AREA EARTHWORK

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Building excavation.

B. Shoring excavations.

C. Building perimeter backfilling to subgrade elevations.

D. Excavate trenches for utilities within the building area, and to a distance 5 feet out from the exterior of the building.

E. Compacted bed and compacted fill over utilities to subgrade elevations.

F. Compaction requirements.

G. Rock Removal.

H. Finish Grading.

1.2 RELATED SECTIONS

A. Section 01005 - Administrative Provisions: Field Engineering; Establishing lines and levels.

B. Section 01400 - Quality Control: Compaction requirements of backfill.

1.3 REFERENCES

A. ASTM C136 - Sieve Analysis of Fine and Coarse Aggregates.

B. ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3)).

1.4 SUBMITTALS

A. Quality Assurance Submittals: Submit the following under provisions of Section 01400:

1. Testing Laboratory Samples: Submit 10 lb sample of each type of fill to testing laboratory, in air-tight containers.

B. Closeout Submittals: Submit the following in accordance with Section 01700:

1. Project Record Documents: Accurately record location of utilities remaining, rerouted utilities, new utilities by horizontal dimensions, elevations or inverts, and slope gradients.

1.5 REGULATORY REQUIREMENTS

A. Dewater in accordance with all local ordinances.

B. Obtain all permits; Pay all fees.

1.6 PROTECTION

A. Protect trees, shrubs, lawns, and other features remaining as a portion of final landscaping.

B. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from equipment and vehicular traffic.

C. Protect above and below grade utilities which are to remain.

D. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.

E. Underpin adjacent structures which may be damaged by excavation work, including service utilities and pipe chases.

F. Notify Owner of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

G. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.

H. Grade excavation top perimeter to prevent surface water run-off into excavation.

I. Repair Damage.

J. Use of explosives is not permitted.

1.7 TESTS

A. Tests and analysis of fill materials will be performed in accordance with ASTM D698 Standard Proctor, and under provisions of Section 01400.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Type A Fill and Backfill: Soil Engineer approved subsoil or imported material able to be compacted to densities specified, free of rock cobbles, frozen material, roots, sod and other organic matter, having a Liquid Limit less than 35, Plastic Limit less than 20, Plastic Indices less than 20.

B. Type B Granular Fill: Granular material, pit run or crushed run mineral product graded in accordance with ASTM C136 within the following limits:

Sieve Size	Percent Passing
No. 4	100
No. 10	30 to 95
No. 40	10 to 70
No. 200	0 to 8

C. Topsoil: Imported, friable loam; free of subsoil, roots, grass, excessive amount of weeds, stone, and foreign matter; acidity range (pH) of 5.5 to 7.5; containing a minimum of 4 percent and a maximum of 25 percent organic matter.

D. Rock (Definition): Solid mineral material with a volume in excess of 1/3 cu yd, or solid material that cannot be removed with a 3/4 cu yd capacity power shovel.

E. Clean sands (SW or SP), less than 5% fines and free of organic material. Coarse aggregate shall not exceed 3/8" in size. Material approved by Soils Engineer obtained from excavation at site may be used.

PART 3 - EXECUTION

3.1 PREPARATION

A. Identify required lines, elevations, contours, and datum. Coordinate with Section 01005.

B. Identify known underground utilities, stake, and flag locations.

C. Identify and flag surface and aerial utilities.

D. Notify utility company to remove and/or relocate utilities uncharted or incorrectly charted.

E. When necessary, compact subgrade surfaces to density requirements for backfill material.

3.2 INSPECTION

A. Verify stockpiled fill to be reused is approved.

B. Verify foundation or basement walls are braced to support surcharge forces imposed by backfilling operations.

C. Verify areas to be backfilled are free of debris, snow, ice, or water, and ground surfaces are not frozen.

3.3 EXCAVATION

A. Excavate subsoil required for building foundations, construction operations, and other work.

B. Excavate subsoil required for utilities within the building area, and to a distance 5 feet out from the building.

C. Cut trenches sufficiently wide to enable installation of utilities and allow inspection.

D. Machine slope banks to angle of repose or less until shored.

E. Excavation shall not interfere with normal 45 degree bearing splay of any foundation.

F. Hand trim excavation and leave free of loose matter.

G. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd, measured by volume. Remove larger material under provisions of "Rock Removal".

H. Correct unauthorized excavation at no cost to Owner.

I. Fill over-excavated areas in accordance with direction by Owner.

J. Stockpile excavated material in area designated on site and remove excess subsoil not being reused, from site.

3.4 BACKFILLING

A. Backfill areas to contours and elevations. Use unfrozen materials.

B. Backfill systematically, as early as possible, to allow maximum time for natural settlement. Do not backfill over porous, wet, or spongy subgrade surfaces.

C. Place and compact select fill materials in continuous layers not exceeding 8 inches loose depth.

D. Place and compact common fill material in continuous layers not exceeding 8 inches loose depth.

Employ a placement method so not to disturb or damage foundation waterproofing, protective cover, utilities in trenches and perimeter insulation.

E. Maintain optimum moisture content of backfill materials to attain required compaction density.

F. Backfill against supported foundation walls.

G. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise.

H. Remove surplus backfill materials from site.

I. Leave stockpile areas completely free of excess fill materials.

J. Maintain dry excavations; grade disturbed areas for drainage.

K. Finish grade all areas. Supply and place approved topsoil.

3.5 ROCK REMOVAL

A. Excavate for and remove rock by the mechanical method.

B. Cut away rock at excavation bottom to form level bearing.

C. Remove shale layers to provide sound and unshattered base 1'-0" below bottom of footings.

D. In utility trenches, excavate to 6 inches below invert elevations of pipe and 24 inches wider than pipe diameter.

E. Remove excavated material from site.

F. Correct unauthorized rock removal in accordance with backfilling and compaction requirements of this Section.

3.6 TOLERANCES

A. Top Surface of Subgrade or Backfill: Plus or minus 0.1 foot.

B. Topsoil: Plus or minus 1/2".

3.7 FIELD QUALITY CONTROL

A. Compaction testing will be performed in accordance with ASTM D698 Standard Proctor, and under provisions of Section 01400.

B. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

PART 4 - SCHEDULES

4.1 SCHEDULE OF FILL LOCATIONS

A. Compact to the following percentages of Standard Proctor Density, ASTM D698:

Type	Location	%
A	Under Footings and Foundations	98 %
A	Under Slabs on Grade (Upper 1'-0")	98 %
A	Under Concrete Sidewalks, Concrete Paving	95%
A	Under Landscaped Areas	92 %

END OF SECTION

SECTION 02250 SEWAGE TREATMENT SYSTEM

PART 1 GENERAL

1.1 DESIGN / PERFORMANCE REQUIREMENTS

1. Sewage Treatment System to serve the proposed Hannen Lake Park Shop Building with a 1,750 gallon three-compartment septic tank and a 540 square-foot sand filter. Siamese installed on the site sewer pipes. The 1,750 gallon three-compartment septic tank should have side inlets cast into the tank. The capacity of the first two compartments shall be at least 1,500 gallons and the third compartment shall be at least 250 gallons. A commercial series effluent filter such as the Tuf-Tite EF-6 should be installed on the outlet pipe on the second. Compartment. The sand filter shall utilize rock and aggregate approved by Benton County Environmental Health & Land Use. The sand filter shall be built similar to the attached specifications. The sand filter should be 15 feet x 36 feet and have a maximum depth of 4.5 feet. The sand filter should gravity drain to a 3-foot wide trench with a minimum length of 50 feet. The trench shall be no more than two feet deep and may consist of chamber or gravel. A length of pipe should be added to the end of the line to daylight the treated effluent. A rodent guard shall be installed on the end of this pipe.

1.2 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Installation methods.

C. Shop Drawings:

D. Operation and Maintenance Data.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.

END OF SECTION

SECTION 03200 - CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Reinforcing steel bars, welded steel wire fabric for cast-in-place concrete.

B. Support chairs, bolsters, bar supports and spacer for supporting reinforcement.

1.2 RELATED SECTIONS

A. Section 01400 - Quality Control.

B. Section 03300 - Cast in Place Concrete.

C. Section 04300 -Unit Masonry System: Reinforcement for masonry.

1.3 REFERENCES

A. ACI 301 - Specifications for Structural Concrete for Buildings.

B. ACI SP-66 - Detailing Manual.

C. ASTM A82 - Cold Drawn Steel Wire for Concrete Reinforcement.

D. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.

E. AWS D1.4 - Structural Welding Code - Reinforcing Steel.

F. ASTM A615 - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

G. CRSI - Manual of Standard Practice.

H. CRSI 63 - Recommended Practice for Placing Reinforcing Bars.

I. CRSI 65 - Recommended Practice for Placing Bar Supports, Specifications and Nomenclature.

1.4 QUALITY ASSURANCE

A. Perform concrete reinforcement work in accordance with CRSI Manual of Standard Practice, and CRSI Documents 63 and 65.

B. Conform to ACI 301 and ACI SP-66.

1.5 SUBMITTALS

A. Material and Equipment Submittals: Submit the following under provisions of Section 01300:

1. Shop Drawings: Indicate sizes, spacings, locations and quantities of reinforcing steel, wire fabric, bending and cutting schedules, splicing, stirrup spacing, supporting and spacing devices.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Reinforcing Steel: ASTM A615, 40 ksi and 60 ksi yield grade billet-steel and deformed bars, uncoated finish.

B. Bar Dowels: ASTM A615, 40 and 60 ksi, plain round and deformed.

C. Welded Steel Wire Fabric: ASTM A185 plain type.

D. Steel Wire: ASTM A82, plain, cold drawn steel.

2.2 ACCESSORY MATERIALS

A. Tie Wire: Conform to CRSI recommendations.

B. Chairs, Bolsters, Bar Supports, Spacers: Sized and spaced for strength and support of reinforcement during installation and placement of concrete; including load bearing pad on bottom to prevent vapor barrier puncture.

C. Chairs, Bolsters, Bar Supports, Spacers Adjacent to Architectural Concrete Surfaces: Plastic coated, or Stainless steel type; sized and shaped as required.

2.3 FABRICATION

A. Fabricate in accordance with ACI SP-66, providing concrete cover specified in Section 03300.

B. Locate reinforcing splices not indicated on Drawings at points of minimum stress. Indicate location of splices on Shop Drawings.

C. Weld reinforcing bars in accordance with AWS D1.4.

3.1 INSTALLATION

A. Before placing concrete, clean reinforcement of foreign particles or coatings.

B. Place, support, and secure reinforcement against displacement. Do not deviate from alignment or measurement.

C. Do not displace or damage vapor barrier required by Section 03300.

D. Place reinforcement to obtain minimum coverages for concrete protection as specified in Section 03300.

E. Install welded steel wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh plus 2" and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

3.2 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01400.

B. Special Structural Testing and Inspection Services: Structural Testing and Inspection shall be performed by qualified parties as specified herein, and in accordance with the provisions of Section 01400. Include items required by the 2006 IBC Section 1704, and other items which in the professional judgement of the Structural Engineer of Record, are critical to the integrity of the building structure.

C. Reinforcing Placement: A special inspector shall inspect the placement of reinforcing for footings, slabs-on-grade, and other concrete work scheduled for reinforcing prior to concrete placement.

END OF SECTION

SECTION 03300 – CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Formwork, shoring, bracing, anchorage, inserts, embedded items and openings.

B. Form accessories

C. Cast-in-place concrete.

D. Concrete hardener, sealer, and slip-resistant finish coatings.

E. Concrete curing materials and methods.

F. Accessories.

G. Stripping forms.

1.2 RELATED SECTIONS

A. Section 03200 - Concrete Reinforcement.

B. Section 04300 - Unit Masonry Systems: Concrete for bond beams and core fill; masonry accessories attached to formwork.

C. Section 05120 - Structural Steel: Anchor bolts and embedded bearing plates for steel joists, non-shrink grout.

D. Section 05311 - Steel Deck: Permanent Metal Formwork

E. Section 05500 - Metal Fabrications: Steel for embedment into concrete.

F. Section 07900 - Joint Sealers.

1.3 REFERENCES

A. AASHTO M182.

B. ACI 301 - Specifications of Structural Concrete for Buildings.

C. ACI 305R - Hot Weather Concreting.

D. ACI 306R – Cold Weather Concreting.

E. ACI 318 - Building Code Requirements for Reinforced Concrete.

F. ACI 318R - Commentary on Building Code Requirements for Reinforced Concrete (ACI 318).

G. ACI 347 - Recommended Practice for Concrete Formwork.

H. ACI SP-66 - ACI Detailing Manual.

I. ASTM A53 - Pipe, Steel, Black and Hot Dipped, Zinc-Coated Welded and Seamless.

J. ASTM A446 - Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process, Structural (Physical) Quality.

K. ASTM A611 - Steel, Cold Rolled Sheet, Carbon, Structural.

L. ASTM C31 - Making and Curing Concrete Test Specimens in the Field.

M. ASTM C33 - Concrete Aggregates.

N. ASTM C39 - Compressive Strength of Cylindrical Concrete Specimens.

O. ASTM C42 - Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.

P. ASTM C94 - Ready-Mixed Concrete.

Q. ASTM C143 - Slump of Portland Cement Concrete.

R. ASTM C150 - Portland Cement.

S. ASTM C171 - Sheet Materials for Curing Concrete.

T. ASTM C172 - Sampling Freshly Mixed Concrete.

U. ASTM C173 - Air Content of Freshly Mixed Concrete by the Volumetric Method.

V. ASTM C231 - Air Content of Freshly Mixed Concrete by the Pressure Method.

W. ASTM C260 - Air Entraining Admixtures for Concrete.

X. ASTM C309 - Liquid Membrane Forming Compounds for Curing Concrete.

Y. ASTM C494 - Chemical Admixtures for Concrete.

Z. ASTM D1751 - Preformed Expansion Joint Filler for Concrete Paving and Structural construction (Non-extruding and Resilient Bituminous Types).

AA. ASTM E1155 - Test Method For Determining Floor Flatness and Levelness Using The F-Number Systm.

BB. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using *in-situ* Probes.

CC. FS TT-C-800 - Curing Compound, Concrete, for New and Existing Surfaces.

DD. PS 1-83 -U.S. Product Standard for Construction and Industrial Plywood.

EE. ASTM C1028 - Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces.

FF. ADAAG - Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities.

1.4 SYSTEM DESCRIPTION

A. Formwork: Design, engineer and construct formwork, shoring and bracing to meet design and code requirements, so that resultant concrete conforms to required shapes, lines, and dimensions; and that formwork is able to support vertical and lateral loads until such loads can be supported by concrete structure.

1.5 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301, ACI SP-66 and ACI 347.

B. Maintain copy of ACI 301 on site.

C. Concrete Floor Finish Applicator: Company specializing in concrete floor surface finishing with three years experience.

D. Concrete Floor Finishing: Furnish finishing materials in manufacturer's packaging with application instructions.

E. Cast-in-Place Concrete: Obtain materials from the same source throughout the Work.

1.6 SUBMITTALS

A. Material and Equipment Submittals: Submit the following under provisions of Section 01300:

1. Mix Design: Indicate proposed mix design of each class of concrete to Owner review 15 days prior to commencement of work. Do not begin concrete production until mixes have been reviewed and accepted by Owner.

2. Certification of compliance for each material furnished stating that material conforms to acceptable ASTM standards.
3. Proprietary materials and items including forming accessories, admixtures, patching compounds, joint systems, curing compounds and dry-shake finish materials. Indicate product conformation to applicable specifications. Submit manufacturer’s literature.

B. Quality Control Submittals: Submit the following under provisions of Section 01400:

1. Concrete Delivery Tickets: Indicate quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump and time of batching for each load delivered.

2. Test Reports: Indicate project identification name and number, concrete placement date, testing service name, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.

3. Contractor shall submit evidence of installation of the vapor retarder in the form of a receipt or other documentation from the vapor barrier installer, cut sheets or photographic evidence.

C. Waterstops: Samples of material, splicing details, and manufacturers’ literature indicating conformance with these Specifications for each type indicated.

PART 2 - PRODUCTS

2.1 GENERAL

A. It is the intention of the designers that the system meet the recommendations of ADAAG for slip resistance using ASTM C1028 as follows:

1. Accessible Routes (as defined by ADAAG): 0.6 static coefficient of friction
2. Ramps (as defined by ADAAG): 0.8 static coefficient of friction

2.2 FORM MATERIALS

A. Conform to ACI 301 and ACI 347.

B. Void Forms: Moisture resistant treated paper faces; biodegradable; structurally sufficient to support weight of wet concrete until initial set; 6 inches thick.

2.3 FORMWORK ACCESSORIES

A. Form Ties: Removable or snap-off metal of adjustable length; 1-1/2" break back dimension; free of defects that will leave holes no larger than 1" diameter in concrete surface.

B. Form Release Agent: Proprietary mix, colorless material which will not stain concrete, absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.

C. Fillets for Chamfered Corners: 3/4" x 3/4", wood, rigid plastic, metal or rubber type; maximum possible lengths; fabricated to produce uniform smooth lines and tight edge joints.

D. Nails, Spikes, Lag Bolts, Through Bolts and Anchorages: Sized as required; of strength and character to maintain formwork in place while placing concrete.

E. Below Grade Pipe Sleeves: ASTM A53, schedule 40, galvanized.

2.4 INTEGRAL JOINT MATERIALS

A. Formed Construction Joints: Tongue groove type profile; knockout holes at 6" o.c. to receive doweling; with anchors.

B. Control Joint Insert: T-shaped plastic strip, 1/16" thick with 3/4" wide removable top and barbed bottom. Depth not less than 1/4 slab thickness. Similar to Greenstreak Plastic Products, "Zipcap Control Joint Former".

C. Joint Filler: ASTM D1751, 1/2" thick, preformed, resilient, non-extruding, asphalt impregnated, vegetable fiber and finely divided mineral filler.

D. Column Isolation Joint Filler: Plastic circular type, designed to lock shut around columns, full slab thickness.

2.5 SEALANTS

A. Sealant and Primer: Specified in Section 07900.

2.6 CONCRETE MATERIALS

A. Portland Cement: ASTM C150, Type I, IA, III, or IIIA. Single brand and type of cement.

B. Fine and Coarse Aggregates: ASTM C33.
1. Provide aggregates from a single source for exposed aggregates.
2. Local aggregates not complying with ASTM C33, but which have shown by special test or actual service to produce concrete of adequate strength and durability may be used when acceptable to Owner.

C. Water: Clean and not detrimental to concrete or steel.

2.7 CONCRETE MIX

A. Provide concrete of characteristics scheduled at end of Section.

B. Mix and deliver concrete in accordance with ASTM C94.
1. Delete references allowing addition of water to batch if slump is insufficient. Addition of water will not be permitted.
2. During hot weather, or under conditions promoting rapid setting of concrete, a shorter mixing time than specified in ASTM C94 may be required.
   a. 85 - 90 deg F, reduce mixing and delivery time from 90 to 75 minutes.
   b. 90 deg F and above, reduce mixing and delivery time to 60 minutes.

C. High Early Strength Concrete: Type III Portland Cement may be used to produce high early strength concrete. Adding additional amounts of Portland Cement to produce high early strength concrete will not be permitted.

D. Use accelerating admixtures in cold weather only (below 50 deg F) when approved by Owner. Use of admixtures will not relax cold weather placement requirements.

E. Use set-retarding admixtures during hot weather only when approved by Owner.

F. Add air entraining agent to concrete mix for concrete work subject to freeze-thaw cycling.

G. Water-reducing admixtures may be used in all concrete to reduce unit water content, and to increase slump.

H. Water-Cement Ratio: 0.45 typically, 0.50 maximum for footings, and for paving sidewalks and retaining walls exposed to freeze-thaw action.

I. Use air-entraining admixture for air-entrained concrete. Use no other admixtures.

2.8 ADMIXTURES

A. Air Entrainment: ASTM C260; "Air-Mix", Euclid Chemical Co; "Protex Air-Entraining Solution", Protex Industries.

B. Chemical Admixtures: ASTM C494; containing not more than 1% chloride ions and no calcium chloride:
1. Type A - Water Reducing: "Eucon WR-75", Euclid Chemical Co; "Pozzolith 344N", Master Builders; "Plastocrete 160", Sika Chemical Corp; Chemtard", Chem-Masters Corp.
2. Type D - Water Reducing and Retarding: For hot weather use only; "Pozzolith 300-R", MasterBuilders; "Eucon Retarder 75",Euclid Chemical Co; "Daratard", W.R.Grace Co; "Plastiment", Sika Chemical Co.
3. Type E - Water Reducing and Accelerating: "Accelguard 80", Euclid Chemical Co; "Pozzolith 500", MasterBuilders.

2.9 FINISHING MATERIALS

A. Chemical Hardener: Colorless aqueous solution containing blend of magnesium fluosilicate and zinc fluosilicate combined with a wetting agent, containing not less than 2 lbs fluosilicates per gallon; "Surfhard", Euclid Chemical Co; "Sanseal", Master Builders; "Lapidolith", Sonneborn-Contech.

B. Sealer-Dustproofer: Liquid epoxy-ester, one-component, non-pigmented, penetrating coating compatible with chemical hardener, with manufacturer's recommended reducer; "Eucopoxy", Euclid Chemical Co; "Son-No-Mar", Sonneborn-Contech.

C. Non-Slip Aggregate Finish: Fused aluminum oxide grits or crushed emery, emery aggregate containing not less than 40% aluminum oxide and not less than 25% ferric oxide. Factory-graded, packaged, rust-proof and non-glazing, unaffected by freezing, moisture and cleaning materials.
   1. Exterior Concrete Penetrating Sealer: Silane, 40 percent solids, clear penetrating sealer.Acceptable Manufacturers:
      a. Dayton Superior "Weather Worker S-40"
      b. Huls America Inc. "Chem-Trete BSM 40"
      c. L & M "Pentane 40"
      d. Master Builders "Masterseal SL 40"
      e. Sonneborn "Penetrating Sealer 40"
      f. TK Products "TK-590-40"

D. Interior Concrete Penetrating Sealer/Hardener: Penetrating colorless, odorless, VOC compliant, water-based reactive silicate solution sealer, hardener and dustproofer.
   1. Acceptable Manufacturers:
      a. Conspec "Intraseal"
      b. Curecrete Chemical Company, Inc. “Ashford Formula”
      c. Dayton-Superior "Day-Chem Sure Hard (J-17)"
      d. Euclid “Diamond Hard”
      e. L & M "Seal Hard"
      f. TK Products "TK-5329A"

2.10 ACCESSORIES

A. Vapor Retarder: 10 mil mil thick semi-opaque plastic film; type recommended for below grade application. Vapor retarder must comply with the requirements of ASTM E1745.

B. Non-shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 7000 psi in 28 days; "Masterflow 713", Master Builders; "Sonnogrout", Sonneborn-Contech; "Euco-NS', Euclid Chemical Co; "Five Star Grout, U.S. Grout Co; "Duragrout, L&M Construction Chemical Co.

2.11 CURING MATERIALS

A. Water: Clean and not detrimental to concrete or steel.

B. Moisture Cover Type:
   1. Absorptive Mat: ASTM C171; AASHTO M 182, Class 2; Burlap fabric of 9 oz/sq yd, clean, roll goods.
   2. Moisture Retaining Cover: ASTM C171; waterproof curing paper, polyethylene curing film or polyethylene-coated burlap.

C. Membrane Curing Compound: Water based membrane forming curing compound conforming to ASTM C309, Type 1 non-resinous and applicable federal and state solvent emissions standards.
   1. Compatibility Requirements: Verify compatibility with resilient flooring and carpet adhesives or floor sealer compound. Do NOT use where slabs are scheduled to receive penetrating sealer or sealer/hardener, ceramic tile or quarry tile and exterior sidewalks.
   2. Acceptable Manufacturers:
      a. Conspec “High Seal”.
      b. Dayton-Superior "Safe Cure and Seal (J18)"
      c. Euclid "Aqua Cure VOX".
      d. Master Builders "Masterkure".
      e. L & M "Dress & Seal WB".
      f. Sonneborn “Kure-N-Seal W”.

D. Bonding Compound: Polyvinyl acetate, re-wettable type; Accolade, Euclid Chemical Co; Daraweld C, W.R.Grace; Sonocrete, Sonneborne-Contech.

PART 3 - EXECUTION

2.1 COORDINATION

A. Ensure all work required to be in place, and furnished by other sections, is coordinated and correctly placed prior to concrete placement.

2.2 FORMWORK INSTALLATION

A. Formwork Inspection:
   1. Verify lines, elevations and measurements before proceeding with formwork.

B. Formwork Preparation:
   1. Earth forms not permitted, unless written approval given by Owner.
   2. Minimize form joints. Symmetrically align joints and make water tight to prevent leakage of mortar.
   3. Arrange and assemble formwork to permit stripping, so that concrete is not damaged during its removal.

4. Arrange forms to allow stripping without removal of principal shores, where required to remain in place.

C. Formwork Erection:
1. Construct formwork and camber beams and slabs to maintain tolerances in accordance with ACI 301.
2. Provide bracing to ensure stability of formwork. Strengthen formwork liable to be over stressed by construction loads.
3. Provide temporary ports in formwork to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain. Close ports with tight fitting panels, flush with inside face of forms, neatly fitted so that joints will not be apparent in exposed concrete surfaces.
4. Provide chamfer strips on all exposed external corners.
5. Install void forms. Protect from moisture before concrete placement. Protect from crushing during concrete placement.
6. Build-in sleeves, anchors, inserts, bolts and other devices indicated or required. Provide sleeves 1/2" larger in diameter than piping to be sleeved, unless otherwise indicated. Install sleeves flush with finished surfaces. Coordinate and build in sleeves, thimbles, and other items furnished or set in place by other sections.
7. Do not displace or damage vapor barrier.

D. Preparation of form surfaces:
1. Apply form release agent on formwork in accordance with manufacturer's instructions. Apply prior to placing reinforcing steel, anchoring devices, and embedded items.
2. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust stained steel formwork is not acceptable.
3. Do not apply form release agent where concrete surfaces are scheduled to receive rough wood texture or special finishes which may be affected by agent. Soak contact surfaces of untreated forms with clean water. Keep surfaces wet prior to placing concrete.

E. Formwork Inserts, Embedded Parts, and Openings:
1. Provide formed openings where required for work embedded in or passing through concrete.
2. Coordinate work of other Sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.
3. Install accessories in accordance with manufacturer's instructions, level and plumb. Ensure items are not disturbed during concrete placement.
4. Verify lines, elevations and measurement before proceeding with formwork.

F. Formwork Cleaning:
1. Clean forms to remove foreign matter as erection proceeds.
2. Ensure that water and debris drain to exterior through clean-out ports.
3. During cold weather, remove ice and snow from forms. Do not use de-icing salts, calcium chloride or other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs. Do not use water to clean out completed forms, unless formwork and construction proceed within heated enclosure. Use compressed air to remove foreign matter.

G. Form Removal:
1. Notify Owner prior to removing formwork.
2. Do not remove forms, shoring and bracing until concrete has sufficient strength to support its own weight, and construction and design loads which may be imposed upon it.
3. Remove formwork progressively so no unbalanced loads are imposed on structure.
4. Do not damage concrete surfaces during form removal.
5. Store reusable forms for exposed architectural concrete to prevent damage to contact surfaces.
6. Exposed Concrete Surfaces:
   a. Remove formwork in same sequence as concrete placement to achieve similar concrete surface coloration.
   b. Clean surfaces of forms to be reused in Work.
   c. Split, frayed, delaminated, patched or damaged form facing material will not be acceptable for exposed surfaces.
   d. Apply new form coating compound as specified for new formwork.

2.3 VAPOR RETARDER INSTALLATION

A. Install vapor retarder under sand base under interior slabs on grade. Lap joints minimum 12" and tape seal or lap 16" without tape. Do not disturb or damage vapor barrier while placing concrete. Repair damaged vapor barrier. Vapor retarder installation must comply with the requirements of ASTM E1643-98.

2.4 JOINT INSTALLATION

A. Locate and form expansion control and contraction joints to pattern as shown on Drawings.

B. Place formed construction joints in floor slab pattern placement sequence. Set top screed to required elevations. Secure to resist movement of wet concrete.

C. Install joint fillers and sealants in accordance with manufacturer's instructions. Use primers of type recommended by joint filler and sealant manufacturer.

D. Place concrete continuously between predetermined construction and control joints. Do not break or interrupt successive pours such that cold joints occur.

E. Construction Joints:
1. Joints not shown on Drawings to be located so as not to impair strength or appearance of structure, as determined by Owner.
2. Provide key ways at least 1-1/2" deep in wall, and wall to footing construction joints.
3. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints. Provide dowels where directed.
4. Roughen and thoroughly clean surface of concrete, remove laitance, and wet surface before placing new concrete against joint. Slush vertical joints with neat cement grout immediately before placing new concrete.
5. Place construction joints in reinforced concrete only as indicated on reinforcing steel shop drawings.

F. Control Joints:
1. Slabs on Grade: Use joint inserts or saw cut.
   a. Saw cut control joints at 4-12 hours after pour completion. Use 1/8" thick blade, cutting 1/4 into depth of slab thickness.
   b. Place joint inserts in groove formed in concrete with metal straight edge.
2. Sidewalks: Score with finishing tool to 1/4 slab depth; 8 ft o.c. each way maximum, unless shown otherwise on Drawings.

G. Expansion or Isolation Joints:
1. Provide isolation joints at interior slabs-retaining walls and columns, exterior slabs on fill to vertical surfaces.
2. Form joint with joint filler from bottom of slab to within 1/2" of finished slab surface.

2.5 CONCRETE PLACEMENT

A. Inspection:
1. Verify formwork, anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, held securely, and will not cause hardship in placing concrete.

B. Preparation:
1. Thoroughly clean forms before placing concrete. Dampen masonry and porous earth in contact with concrete. Do not place concrete on water or frozen ground.
2. Prepare previously placed concrete by cleaning with steel brush and thoroughly wet and slush with neat cement grout immediately before placing new concrete.

C. Placing Concrete:
1. Notify Owner minimum 24 hours prior to commencement of concreting operations.
2. Place concrete as close as possible to final position. Prevent segregation. Place with maximum free drop of 5 feet. Compact during placing with internal vibrators (8000 vpm minimum). Work around reinforcement, embedded items and into form corners. Do not use vibrators to transport concrete within forms.
3. Place concrete within one hour after mix water has been added.
4. Place concrete in accordance with ACI 301, and as follows:
5. Cold Weather Placement:
   a. Conform to requirements of ACI 306R.
   b. Protect work from physical damage or reduced strength caused by frost, freezing, or low temperatures.
   c. If at 40 deg F or expected, uniformly heat aggregates and water before mixing, to obtain 50-80 deg F mixture temperature at point of placement.
   d. Do not use frozen materials or materials containing snow or ice, or place on frozen subgrade or subgrade containing frozen materials.
   e. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.
6. Hot Weather Placement:
   a. Conform to requirements of ACI 305R.
   b. Cool ingredients to maintain 90 deg F concrete temperature at time of placement.
   c. Mixing water may be chilled, or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing.
   d. Cover reinforcing steel with water-soaked burlap, to ensure steel temperature will not exceed ambient air temperature immediately before embedment in concrete.
   e. Wet forms thoroughly before placing concrete.
   f. Use water-reducing retarding admixture (Type D) when required by high temperatures.
7. Ensure reinforcement, inserts, embedded parts and formed joints are not disturbed during concrete placement.
8. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Owner upon discovery.
9. Maintain concrete cover around reinforcing as noted in ACI 318, Chapter 7.

2.6 EXISTING WORK

A. Where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels and pack with non-shrinking grout.

2.7 DEFECTIVE CONCRETE

A. Modify or replace concrete not conforming to required lines, details, and elevations.

B. Repair or replace concrete not properly placed or of the specified type.

C. Patch imperfections to match in place concrete

2.8 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01400.

B. Special Structural Testing and Inspection Services: Structural Testing and Inspection shall be performed by qualified parties as specified herein, and in accordance with the provisions of Section 01400. Include items required by the 2006 IBC, Section 1704, and other items which in the professional judgement of the Structural Engineer of Record, are critical to the integrity of the building structure.

C. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

D. Cure cylinders in same proximity to and protected and cured in same manner as in-place concrete from which sample was taken.

E. Sampling Fresh Concrete: ASTM C172, except modified for slump to comply with ASTM C94.
   1. Compression: ASTM C31 specimens, ASTM C39 tests; Four concrete test cylinders will be taken for every 100 or less cu yds of each class of concrete placed each day, or for each 5000 sq ft of surface area placed.
      a. One specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
      b. One additional test cylinder will be taken during cold weather and cured on site under same conditions as concrete it represents.
      c. Mold and store cylinders for laboratory-cured test specimens, except when field-cured test specimens are required.
      d. When strength of field-cured cylinders is less than 85% of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
      e. Strength level of concrete will be considered satisfactory if averages of sets of two consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.
   2. Slump: ASTM C143; one slump test will be taken for each set of test cylinders taken, and one test for each concrete load at point of discharge.
   3. Air Content: ASTM C173, volumetric method for lightweight or normal weight concrete; ASTM C231, pressure method for normal weight concrete; one for each set of compressive strength specimens.
   4. Concrete Temperature: Test hourly when temperature is 40 deg F and below, and when 80 deg F and above; and each time a set of compression test specimens made.

F. Test results:
   1. Submit test reports with information requested in Submittals portion of this Section.
   2. Report in writing on same day tests made.

G. Additional Tests:
   1. Testing service shall make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Owner.
   2. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42, or by other methods as directed.

2.9 CONCRETE FLOOR FINISHING

A. Screed exposed concrete floors and floors to receive resilient flooring, carpet, or thin-set ceramic and quarry tile to an even, level plane. Float and provide troweled finish in accordance with procedures in ACI 302.1R, and as recommended by ACI to achieve floor flatness and levelness specified. Uniformly slope to elevations shown on the Drawings to floor drains.

B. Maintain surface flatness and levelness of $F_F = 35$ and $F_L = 25$ (overall) with local maximum variation of 3/16" in 10 feet in all areas, except at floor drain slopes or as noted on plan in accordance with ACI 117-81 for Class AA surface finish tolerances. Fill, patch, and level all major depressions. Level any variations greater than 3/16".

C. A test surface to determine the average value shall be the entire floor.

D. A test section to determine the minimum local value shall meet the following criteria:
   1. No test section shall measure less than 4 ft. in width nor less than 15 ft. in length.
   2. No portion of the test surface shall be associated with more than one test section
   3. When testing a concrete floor, no test section boundary shall cross any construction joint

E. Verify floor flatness and levelness of first section within 72 hours of finishing. If floor slab does not meet minimum average values specified, do not proceed with further installations until corrective measures for installation and finishing are made to meet minimum average floor flatness and levelness, and are approved by the Owner.

F. Corrective measures, acceptable to the Owner, may be made to floor slabs scheduled to receive finish materials.

G. Corrective measures such as grinding, planeing, surface repair or retopping will not be permitted for floor slabs scheduled for clear sealer/hardener finish

H. In areas with floor drains, maintain floor level at walls and slope surface uniformly to drains at 1/4" per foot.

I. Broom finish exterior walks, stairs, and miscellaneous slabs according to ACI 302, Section 8.3.11.

2.10 CURING

A. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

B. Maintain ambient temperature at 55 degrees F for 7 days for normal concrete and 3 days for High Early Strength concrete.

C. Protect freshly deposited concrete from premature drying and excessively hot or cold temperatures.

D. Changes in temperature of concrete shall not exceed 5 deg F in any one hour or 50 deg F in any 24 hour period.

E. Cure formed surfaces by leaving formwork in place during entire curing period, or if forms are removed during curing period, by one of the methods specified below for unformed surfaces.

F. Keep steel forms heated by sun and wood forms in contact with concrete wet during curing period.

G. Moisture Cover Method: Apply moisture-retaining cover as soon as finishing operations are complete and concrete is sufficiently hard to be undamaged by covering. Sprinkle concrete as necessary during application of covering. Patch holes and tears.

H. High Solids and Sealing Compound: Apply as soon as finishing operations are complete, free water on the surface has disappeared and no water sheen can be seen. Apply two coats at right angles to each other.

I. Membrane Curing Compound:
   1. Install in accordance with manufacturers' instructions.
   2. Do not use membrane curing compounds on surfaces to be covered with the following: liquid chemical hardener, waterproofing, damp proofing, flooring, painting, and other coatings and finish materials.

J. Ponding:
   1. Maintain 100 percent water coverage over slab areas, continuously for 7 days.

K. Spraying:
   1. Spray water over slab areas; maintain wet for 7 days.

L. Absorptive Mat:
   1. Spread absorptive mat over slab areas. Lap edges and ends 12". Spray with water until mat saturation. Maintain saturation for 7 days.
   2. Saturate burlap side of burlap-polyethylene mat. Place over slab areas, burlap side down; lap edges and ends 12". Maintain in place for 7 days.

M. Polyethylene Film:
   1. Spread polyethylene film over slab areas. Lap edges and ends 3" and seal with pressure sensitive polyester tape.
   2. Maintain in place for 7 days.

2.11 TREATMENT

A. Apply concrete hardener, slip-resistant coating and sealer on floor surfaces as scheduled. Apply in accordance with manufacturer's instructions, and as follows.

B. Apply sealer to floors thoroughly cured, dry, clean, and free of loose dust, dirt, oil, and traces of curing compounds.
   1. Close spaces in which sealer is being applied to traffic, and keep closed 48 hours minimum after last application is completed.
   2. Clean and acid etch floors with an 18 baume commercial muriatic acid diluted one to one, and thoroughly rinse with water. Solvent clean floors and acid etch again as necessary.
   3. Adequately ventilate during and after application.

4. Do not apply sealer when temperature is below 50 deg F.

3.12 PATCHING AND CLEANING FORMED SURFACES

A. Patch tie holes and defective areas immediately after form removal.

B. Clean exposed concrete to remove laitance, efflorescence and stains.

C. Rough Form Finish: Patch holes and defects; otherwise leave surfaces with texture imparted by forms.

D. Smooth Form Finish: Patch holes and defects; completely remove fins by rubbing with wood blocks.

3.13 QUANTIFICATION OF RELATIVE HUMIDITY AT 40% OF CONCRETE THICKNESS

A. Provide in-situ concrete relative humidity and surface pH testing to all concrete specified to be covered with floor coverings or resinous coatings.

B. Testing shall take place after allowing concrete to dry for a minimum of 28 days. Testing is to be scheduled no less than 1 and no more than 6 weeks prior to scheduled flooring installation.

C. The test site should be maintained at the same temperature and humidity conditions as those anticipated during normal occupancy. These temperature and humidity levels should be maintained for 48 hours prior and during test

period. When a building is not under HVAC control, a recording hygrometer or data logger shall be in place recording conditions during the test period. A transcript of this information must be included with the test report.

D. The number of in-situ relative humidity test sites is determined by the square footage of the facility. The minimum number of tests to be placed is equal to 3 in the first 1,000 sq.ft. and 1 per each additional 1,000 square feet.

E. Drill test holes to a depth equal to 40% of the concrete thickness. Hole diameter shall not exceed outside diameter of the probe by more than 0.04". Drilling operation must be dry.

F. Insert a relative humidity probe (sensor) to the full depth of test hole. Place cap over probe.

G. Permit the test site to acclimate, or equilibrate for 1-2 hours prior to taking relative humidity readings.

H. Remove the cap, insert the cylindrical reading device, and press button on the device to obtain reading from the in-situ probe.

I. Read and record temperature and relative humidity at the test site.

J. When results are over 90% relative humidity, remediate using a standard remediation method.

3.14 PROTECTION

A. Protect finished work under provisions of Section 01600.

B. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

PART 4 - SCHEDULES

4.1 FORMWORK SCHEDULE

Location	Form FinishMaterial
Exposed	SmoothPlywood, steel, gfr plastic.
Unexposed	Semi-smooth Lumber, plywood, steel, gfr plastic.

4.2 CONCRETE MIX SCHEDULE

Mix	Strength psi	Agg max	Slump in	Air %	Type Weight
A	4000	3/4	3-4	N/A	Standard
B	4000	3/4	3-4	5-7	Standard

4.3 CONCRETE LOCATION SCHEDULE

Mix	Location
A	All concrete, except as specified below.
B	Concrete exposed to weather, except as specified below.
C	Interior slabs on grade.
D	Spread and continuous footings.
E	Masonry grout.

4.4 CURING SCHEDULE

Type	Location/Finished Floor
Moisture Retaining	Slabs to receive sealers, ceramic tile or quarry tile.
Absorptive Mat	Other areas or Membrane

4.5 FLOOR SLAB FINISH SCHEDULE

Finish	Location/Flooring
Float	Full-bed-set tilework or terrazzo.
Trowel	Exposed-to-view, seamless, thin-set tilework, resilient, paint, thin film.
Broom or Belt	Exterior platforms, sidewalks, steps and ramps.
Exposed Aggregate	Exterior curb ramps. Non-
Slip	Interior stair treads, platforms and ramps.
Chemical-Hardener unfinished	Exposed interior, floor areas.
Sealer-Dustproofer	Wherever chemical hardener used.

END OF SECTION

SECTION 06400 - PLASTIC LAMINATE CASEWORK AND COUNTERTOPS

PART 1 – DESCRIPTION

A. Furnish and install plastic laminate casework and countertops as shown on the drawings and specified herein.
B. Work included:
   1. Casework - plastic laminate faced.
   2. Plastic laminate covered countertops for wood and laminate casework.
   3. Plastic laminate covered shelves.
   4. Standard hardware and accessories.
   5. Plastic laminate window stools throughout building at exterior windows as detailed.
C. Related work specified elsewhere:
   1. Rough carpentry: Section 6100
   2. Gypsum Drywall: Section 9250

PART 2 - QUALITY ASSURANCE

A. Custom plastic laminate faced casework shall match in design, material, finish and detail the stock plastic laminated casework. The materials, workmanship and installation of all casework provided under this section shall be the responsibility of this contractor.
   1. The contractor providing the work described herein, may be a custom casework contractor with a casework manufacturer as a subcontractor/supplier; or a stock casework with a custom casework manufacturer as a subcontractor/supplier.
B. Any casework manufacturers requesting approval shall provide to Owner, all information and specifications of the products they wish to use in bidding, ten days prior to bid date. Approval will be contingent upon whether the products meet the required specifications.
C. The Owner reserves the right to disapprove any subcontracting fabricator proposed for this project. The casework contractor shall submit to the Owner, prior to fabrication, a letter signed by a responsible officer of the fabricator indicating satisfactory evidence of having completed comparable work for the past five years on similar projects utilizing equipment, methods and workmanship meeting the standards specified in this section.

D. If requested by the Owner, manufacturers requesting approval shall submit full size production line samples of the following units at least ten days prior to bid opening.
   1. One cabinet base unit, 36" wide with door and drawer, complete with laminate top to fit.

E. Reference standards:
   1. Architectural Woodworking Institute (AWI) "Quality Standards".
   2. National Electrical Manufacturers Association (NEMA) "LD 1 thru LD3" High Pressure Decorative Laminates.
   3. Federal Specifications (FS) "LLL-H-00810: Building Board (Hardboard), Hard Pressed, Vegetable Fiber".
   4. American National Standard (ANSI) A208.1-79 "Mat-Formed Wood Particleboard".
   5. Commercial Standards (CS) "C.S. 35: Adhesives".
F. Reference standards:
   1. Architectural Woodworking Institute (AWI) "Quality Standards".
   2. National Electrical Manufacturers Association (NEMA) "LD 1 thru LD3" High Pressure Decorative Laminates.
   3. Federal Specifications (FS) "LLL-H-00810: Building Board (Hardboard), Hard Pressed, Vegetable Fiber".
   4. American National Standard (ANSI) A208.1-79 "Mat-Formed Wood Particleboard".
   5. Commercial Standards (CS) "C.S. 35: Adhesives".

PART 3 - SUBMITTALS

A. Certifications: Letter of subcontractors qualifications and experience within the past five years and references of work completed.
B. Color Selection: Complete range of color, textures and patterns of the proposed plastic laminate manufacturer, based upon the preliminary color selections listed hereinafter, with Owner's approval. Final approval shall be contingent upon providing colors, textures and patterns matching preliminary selections.

C. Shop Drawings: Submit shop drawings of items specified herein. Indicate: plan views, elevations, sections and details of each item; location in the building of each item; conditions in relation to adjacent materials and construction; methods of assembling sections; location and installation requirement size(s); shape and thickness of materials, joints and notations of special features; sink locations; and drawings required to illustrate deviations from the contract requirements.
D. Rough in drawings: submit separate utility rough in drawings which indicate points of connection to each utility involved. Reference dimensions from building components.

PART 4 - PRODUCTS DELIVERY, HANDLING AND STORAGE

A. Schedule casework for fabrication and delivery to avoid delay in work progress. Delivery to job site shall not be earlier than one month before casework can be installed. Verify delivery date with general trades contractor.

B. Receive, unload, check, store, protect and distribute materials specified in this section.

C. Store materials to maintain the moisture content of the wood members between 6% and 15%. Store in areas or rooms with temperatures at 70'F ± 10'F.

D. Store under cover in a ventilated building not exposed to extreme temperature and humidity changes. Do not store or install casework until concrete, masonry and plaster work is dry.

PART 5 - JOB CONDITIONS

A. Prior to fabrications of items of casework which are dependent upon building dimensions, take accurate field measurements of location of walls, drop soffits, columns, piers and other applicable building elements. Major discrepancies between dimensions given on the drawings and field dimensions shall be brought to the attention of the general trades contractor. Compensate for minor dimensional changes so that fabricated items can be delivered to the job, and can be scribed to fit properly.

B. In no instance shall any casework be stored or installed in any area unless the area is broom clean, closed in and possessing a relative humidity below 50% at 70'F.

PART 6 - WARRANTY

A. Warranty in writing that defects due to use of improper materials or workmanship in casework provided under this contract for the period of one year from the date of substantial completion of the work, shall be rectified promptly by the casework contractor at his own expense upon notification of condition.

PART 7 - GENERAL

A. Casework, both stock and custom shall be plastic laminate construction consisting of high pressure decorative laminate bonded to 3/4" thick particle board.
   1. Fabrication shall comply with applicable requirements for "Custom grade" as indicated in Section 400 of the AWI architectural woodwork quality standards and guide specifications.

B. Cabinet units shall be assembled at the mill, insofar as access openings to installation location will permit. Where items must be built into sections, design the units so they can be assembled at the site into one integral item, with exposed joints flush, tight and uniform. Similar adjoining doors and drawers shall be in alignment and each door and drawer shall operate smoothly, without bind or excessive play.

C. Casework units shall be complete with bases, shelves, counter and work tops, finish and operating hardware, drawer accessories and miscellaneous accessories as indicated on the drawings and specified herein.

D. Coordination work:
   1. Division 9: Provide physical openings for recessed casework.
   2. Section 6100: Provide grounds and blocking necessary for attachment and support of wallmounted casework.
   3. Plumbing Prime Contractor: provide lay-in sinks, faucets and fittings; templates for cutouts for installation; provide supply and waste lines including traps to rough in points based on information supplied by the casework contractor; and provide final connections.
      a. Division 15: Provide stainless steel sinks with integral with tops and backsplashes, include tailpieces, drains and strainers.
   4. Electrical prime contractor: provide electrical fixtures and equipment noted on drawings including related boxes, conduit and conductors. Provide electrical components complete, terminating through the back of the casework unit either with a junction box or a 2" conduit stub. Allow conductors to protrude 8" to permit final connection by Division 16.
   5. Division 16: Locate rough-ins based on information given on casework rough-in drawings and be responsible for work necessary to make final connections.
   6. Division 9650: Apply resilient base to casework after casework has been installed.
   7. Division 5500: Provide steel support braces.

E. Definitions shall conform to the following:
   1. Exposed portions are those visible from a normal point of view when doors and drawers are closed. Interiors of open cabinets, and open shelving are considered exposed.
   2. Semi-exposed portions are those areas not considered exposed, but which are visible from a normal point of view when solid doors and drawers are open. Backs of hinged doors, drawer parts except the exposed exterior front, and shelving in the storage areas are considered semiexposed.
   3. Concealed portions include sleepers, web

frames, dust panels and other surfaces not visible after installation.

PART 8 - MATERIALS

A. Particle board: 45 lbs. Minimum density and of balance construction, with moisture content less than 8%. Particle board shall conform to ANSI A208.1 and meet or exceed CS-236-66, FS LLL-B-800A and ASTM D1037-78.
   1. Surfaces shall be smooth with all chips, shavings or flakes well scoured so that there shall be no visible telegraphing of the core face through the plastic laminate.
   2. Square and rectangular cutouts shall have radiused corners not less than ½".
   3. At cut edges, exposed or not and where cutouts occur, the edges shall be completely sealed to prevent moisture absorption. Cutouts for pipes shall be round.
   4. Meet the following performance requirements: Submit compliance date from the manufacturer prior to fabrication.

      a. Screw holding face: 371 lbs.
      b. Modulus of rupture: 2400 psi
      c. Modulus of elasticity: 450,000 psi
      d. Internal bond: 90 psi
      e. Surface hardware: 90 psi

B. Edging: Flat edge design for cabinet body in color matched laminate or PVC. Color as selected by Owner.

C. Plastic Laminate: High pressure decorative laminate surfacing material meeting the minimum NEMA Standards for abrasion resistance, heat resistance, stain resistance, moisture resistance, dimensional stability and general rules for fabrication and installation.
   1. Plastic laminate materials shall be as selected by the Owner from full product line of national manufacturers such as Formica, Wilsonart, Pionite, Nevamar and Arborite.
   2. Exposed horizontal work surfaces: NEMA GP50, PF (Post-forming) satin surface.
   3. Exposed vertical work surfaces: NEMA GP 28 laminate.
   4. Semiexposed surfaces: 10 mil polyester laminate in conformance to ASTM D1300, factory bonded at 200 psi at 300'F, minimum. Color shall be manufacturers white.
   5. Backing sheet: NEMA BK20 and shall be used where laminate covered work is not restrained from warping or twisting by the method of attachment or by supports. Minimum standard of AWI Custom work shall apply.
   6. Bonding adhesive: Water resistant type and as recommended by the approved plastic laminate manufacturer. Plastic laminate shall be applied to the core in the shop, using commercial methods, application and presses.
   7. Sealant used for sealing particle board or plywood edges shall be HYBOND 80 by Pierce Stevens Corporation.

D. Assembly adhesives used in assembly, installation and other applications, shall be one of the following:
   1. HYBOND 80
   2. HYBOND WHITE
   3. CANPLAST 100

E. Provide hardware as follows: This is not intended to be a complete listing, but as a guide to establish quality:
   1. Hinges shall be cast steel cup and hinge concealed hinges #75M5550 by BLUM

      a. Hinges shall have independent three way adjustment of doors.

      b. One pair of hinges per door of 30" or less, one and one half pair of hinges per door of 48" and one hinge for every 12" of door over 48".

      a. Each hinge shall be removable by means of a clip mechanism lever attached to the hinge.

      b. Hinges shall be mounted into corresponding hinge plates.
      c. Hinges shall have 125 ' free movement of swing and be self closing within two inches of close.
      d. Hinges shall have a lifetime warranty against defects from workmanship and materials.
      e. Hinges shall be installed into door panels by means of a pre-drilled hole and press fitted into panel substrate.
   4. Pulls for all doors and drawer fronts shall be manufacturers standard bent wire pull, brushed chrome finish, three inch centers. Nomenclature for this ABP865-26D by AMEROCK.
   5. Drawer slides shall be side mounted, bottom supported, 4 point suspension slides with nylon roller bearing and epoxy coating.
   6. All file drawers shall have either Pendaflex or file followers.
   7. All shelf clips shall be BLUM nylon covered steel pin (5mm) that will mount into pre-drilled end panels for a support of at least 250 lbs.
   8. Locks, noted on drawings, shall be cam tumbler by NATIONAL LOCK.

9. Clothes rods and mounting flanges shall be Knape-Voght #770 and #734.
10. Optional sliding doors are mounted on steel tracks and use ball bearing sheaves mounted in the doors.
11. Grommets shall be spring loaded closure type in assorted sizes.

PART 9 - CONSTRUCTION

A. All cabinets shall be of 3/4" thick MCP by Domtar, finished ends and dowel pinned to tops, bottoms or backs, shall be laminated with plastic laminate and edged with matching PVC.

1. End panels shall consist of a single panel of MCP drilled and dowel pinned to tops, bottoms or braces by way of fluted hardwood dowel pins nested in white glue.
2. All cabinet boxes shall be case clamped for a minimum of seven minutes in a Holzer case clamp to insure squareness.
3. End panels shall be drilled for shelves, bottoms, tops and braces using the 32mm drilling system. All components will be drilled in corresponding patterns.
4. End panels shall be rabbited at the rear for acceptance of 3/8" thick MCP back. The back will be mounted using mechanical fasteners. The back shall be removable.
5. End panels shall have integral toe kicks and shall have a front of 3/4" MCP mechanically fastened to the end panels.

B. Doors shall be of 11/16" thick laminated panel products with the front face laminated in the Owners color selection. The semi-exposed side shall be covered by white HPL plastic laminate. The edges shall be covered by PVC or self-edged.

C. Drawers shall be constructed of 1/2" thick MCP, rabbited, glued and mechanically fastened for a strong bond. Bottoms shall be of 3/8" thick MCP mechanically fastened to the drawer box frame. Top edges shall be covered in white PVC edging. Drawer fronts are same construction as doors. Drawer fronts shall be removable from drawer box for easy alignment. Drawers shall have epoxy coated, nylon roller bearing, side mounted, bottom supported slides by BLUM.

D. Shelves shall be of 3/4" thick MCP and edged with matching PVC edging. Shelves shall not be constructed over 42" in length.

E. Braces shall be of 3/4" thick MCP and shall span the width of the cabinet box. Braces shall be edged on visible sides with PVC edging. On sink or range base cabinets the front brace shall be mounted vertically and shall be laminated to match the cabinet exterior.

F. Backs shall be of 3/8" thick MCP and be rabbited in and mechanically fastened to the end panels.

G. Wall cabinets shall be of 3/4" thick MCP and shall be dowel pinned in the same manner as the bases. Wall backs are 3/8" thick rabbited and mechanically fastened to end panels.

H. Finished backs shall be of 3/4" MCP laminated with plastic laminate on face and edged with PVC.

I. Top supports shall be of 3/4" MCP laminated on both sides and edged with PVC or plastic laminate.

PART 10 - COUNTERTOPS

A. Countertops and backsplash shall be custom made with square, self-edge and shall be constructed of 3/4" thick medium density fiberboard (MDF) or 45# density particleboard (CS 236-66: Type 1, Grade B, Class 2) covered on all exposed surfaces with horizontal grade 10/HGS, .050" thickness, high pressure laminate as manufactured by a nationally known laminate company.
   1. Colors and patterns of plastic laminate shall be as selected by the Owner from full product line of national manufacturers such as Formica, Wilsonart, Pionite, Nevamar and Arborite.
   2. Provide cutouts properly sized and located in tops for sinks and rims by others.
   3. Provide end splash, flush with all edges of countertop, where countertop abuts wall surfaces.

PART 11 - BRACING

Where countertops have no casework below for support, bracing or "cleats" shall be constructed 1½" x 1½" x length and covered by GP 28 plastic laminate on all exposed sides. These cleats shall be mounted at walls with mechanical fasteners to support the weight of the countertop.

PART 12 - WINDOW STOOLS

Plastic laminated window stools shall be 22mm moisture-resistant chipboard, Class E1, according to DIN EN 312/5, finished on top, bottom and sides with horizontal grade (HP) high pressure laminate as manufactured by a nationally known laminate company, using moisture-resistant adhesives. Provide sealant to back exposed edge of window stools, and caulk continuously between window and the laminate stool.
Colors and patterns of plastic laminate shall be as selected by the Owner from full product line of national manufacturers such as Formica, Wilsonart, Pionite, Nevamar and Arborite.

PART 13 - COORDINATION

B. Coordinate work of this section with related work

of other sections as necessary to obtain proper installation of all items.

C. Verify site dimensions of cabinet location in buildings prior to fabrication.

D. Do not install casework until all concrete, masonry and plaster work is dry.

PART 14 - INSTALLATION

A. Installation shall consist of assembling to form complete units, placing, leveling, scribing, trimming and anchoring.
   1. Filler between wall and casework shall not exceed 1" unless noted otherwise and shall be recessed 1/16" + from the face of casework.
   2. Plastic-laminate covered ceiling enclosures shall be flush with the face of the doors and 1/8" proud on the sides of exposed ends or backs.

B. Fasten items to building construction as detailed or as otherwise required to provide a secure, permanent installation.

C. Where fastening spacings or sizes are not shown, use spacings and sizes of bolts, screws, etc., which will develop the full strength of the members being fastened. Thus failure due to over stress must occur in the members before occurring in the fastenings.
   1. Fastening to concrete shall be by anchor bolts embedded in masonry or by self drilling masonry anchor.
   2. Fastening to masonry shall be of similar manner.
   3. Fastening to plaster or drywall construction shall be into wood studs or blocking placed there early in the construction. Toggle bolts may be used only in such cases where no blocking can be found, but fasteners must still penetrate solid wall supports for a secure installation.

PART 15 - PROTECTION

Upon installation of casework and countertops, all installed materials shall be covered with appropriate protection from further construction. The General Contractor will be responsible for repairing or replacing any product damaged by subsequent construction and finish work, with no additional cost to the Owner.

END OF SECTION

SECTION 07200 - THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Thermal insulation.
      a. Spray Foam Insulation at exterior walls
      b. Batt or blanket insulation at interior walls.
      c. Fiberglass Blown-In insulation in ceiling.

1.2 RELATED WORK

A. Section 13121 Pre-Engineered Timber Column Structure.

1.3 SUBMITTALS

A. Submittal Procedures: Section 01300, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
B. Submittal Drawings:
   1. Show insulation type, thickness, and R-value for each location.
C. Manufacturer's Literature and Data:
   1. Description of each product.
   2. Adhesive indicating manufacturer recommendation for each application.
D. Sustainable Construction Submittals:
   1. Recycled Content: Identify post-consumer and pre-consumer recycled content percentage by weight.
   2. Low Pollutant-Emitting Materials: Show volatile organic compound types and quantities.

1.4 DELIVERY

A. Deliver products in manufacturer's original sealed packaging.
B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, production run number, and manufacture date.
C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

1.5 STORAGE AND HANDLING

A. Store products indoors in dry, weathertight facility.
B. Protect products from damage during handling and construction operations.
C. Protect foam plastic insulation from UV exposure.

1.6 WARRANTY

A. Construction Warranty: Contractor’s one-year labor and material

PART 2 - PRODUCTS

1.1 R-Value

   a. R-21 Spray Foam exterior walls
   b. R-13 Batt insulation interior wall s
   c. R-38 Blown in ceiling

2.2 ACCESSORIES

A. Fasteners:
   1. Staples or Nails: ASTM F1667, zinc-coated, size and type to suit application.
   2. Screws: ASTM C954 or ASTM C1002, size and length to suit application with washer minimum 50 mm (2 inches) diameter.
   3. Impaling Pins: Steel pins with head minimum 50 mm (2 inches) diameter.

a. Length: As required to extend beyond insulation and retain cap washer when washer is placed on pin.
b. Adhesive: Type recommended by manufacturer to suit application.

B. Insulation Adhesive: Nonflammable type recommended by insulation manufacturer to suit application.
C. Tape: Pressure sensitive adhesive on one face.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine and verify substrate suitability for product installation.
B. Protect existing construction and completed work from damage.
C. Clean substrates. Remove contaminants capable of affecting subsequently installed product's performance.

3.2 INSTALLATION - GENERAL

A. Install products according to manufacturer's instructions and approved submittal drawings.
1. When manufacturer's instructions deviate from specifications, submit proposed resolution for Contracting Officer's Representative consideration.

B. Install insulation with vapor barrier facing the heated side, unless indicated otherwise.
C. Install batt and blanket insulation with joints tight. Fill framing voids completely. Seal // penetrations, terminations, facing joints, // facing cuts, tears, and unlapped joints with tape.
D. Fit insulation tight against adjoining construction and penetrations, unless indicated otherwise

3.3 CLEANING

A. Remove excess adhesive before adhesive sets.

3.4 PROTECTION

A. Protect insulation from construction operations.
B. Repair damage.

END OF SECTION

SECTION 08110 – STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Non-rated steel doors and frames.

B. Fire rated steel doors and frames.

1.2 RELATED WORK

A. Section 08710 - Hardware: Hardware for doors and frames.

B. Section 09900 - Painting: Field painting of doors and frames.

1.3 REFERENCES

A. ANSI A224.1 - Test Procedure and Acceptance Procedure for Prime Painted Steel Surfaces.

B. ASTM A366 - Steel Carbon, Cold-Rolled Sheet, Commercial Quality.

C. ASTM A653 - "Spec for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process."

D. DHI (Door Hardware Institute) - The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.

E. NFPA 80 - Fire Doors and Windows.

F. NFPA 252 - Fire Tests for Door Assemblies.

G. SDI-100 - Standard Steel Doors and Frames.

H. SDI-105 - Recommended Erection Instructions for Steel Frames.

I. UL 10B – Standard for Safety for Fire Tests of Door Assemblies.

J. ADAAG - Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities.

1.4 QUALITY ASSURANCE

A. Provide doors and frames complying with Steel Door Institute "Recommended Specifications Standard Steel Doors and Frames" ANSI/SDI-100 and as herein specified.

B. Fire rated door and frame construction to conform to ASTM E152.

C. Installed frame and door assembly to conform to NFPA 80 for fire rated class indicated in Schedule.

1.5 REGULATORY REQUIREMENTS

A. Conform to applicable code for fire rated frames and doors.

1.6 SUBMITTALS

A. Material and Equipment Submittals: Submit the following under provisions of Section 01300.
1. Shop Drawings:

   a. Provide schedule of doors and frames using same opening numbers referenced on the drawings.

   b. Indicate frame gage and configuration, fire label, anchor type and spacing, location of cutouts for hardware, and reinforcement.

   c. Indicate door elevations, hardware group, core material, internal reinforcement, closure method, and cut outs for glazing and louvers.

1.7 DELIVERY, STORAGE AND PROTECTION

A. Protect products under provisions of Section 01600.

1. Protect doors and frames with resilient packaging sealed with heat shrunk plastic.

2. Break seal on-site to permit ventilation.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Amweld Building Products, Inc.
B. Ceco Corporation.
C. Curries Mfg., Inc.
D. Republic Builders Products Corp.
E. Steelcraft Mfg. Co.
F. Or Equal SDI Member as approved by the Owner.

2.2 STEEL DOORS

A. Exterior Doors: SDI-100 Level 3 - Extra Heavy Duty, Physical Performance Level A, Model 2 - Seamless; minimum 18 gauge zinc coated galvanized steel sheet faces complying with ASTM A653, G60; seamless, composite construction; polystyrene or polyurethane foam core bonded to the inside of both faces. Exterior doors shall have a minimum "U" value of 0.24.

B. Interior Non-Fire-Rated Doors: SDI-100 Level 2 – Heavy Duty, Model 2 - Seamless; minimum 18 gage cold rolled steel sheet complying with ASTM A366; seamless, composite construction; honeycomb core laminated to the inside of both face sheets.

1. Provide interior fire-rated doors with UL label as indicated on Room Opening Schedule.

2.3 STEEL FRAMES

A. Exterior Frames: Minimum 16 gauge galvanized steel complying with ASTM A653, G60.

B. Interior Frames: Minimum 16 gage cold rolled steel complying with ASTM A366 at all other locations.

2.4 ACCESSORIES

A. Rubber Silencers: Resilient rubber.

2.5 FABRICATION

A. Fabricate frames fully welded with corners fully mitered, including stop, to hairline accuracy with face joints continuously welded and ground smooth and flush.

B. Knocked-down Frames: Three piece type, designed specifically for use with drywall construction, with corners mitered and reinforced with a corner clip to provide firm interlocking of head and jambs. Equip frames with an adjustable jamb anchor, permitting adjustment after frame is installed, and base anchor device for fastening directly to stud near floor line.

C. Provide frames of required throat depth for wall thickness.

D. Fabricate frames and doors with hardware reinforcement plates welded in place. Comply with SDI-100 for minimum hardware reinforcing requirements. Provide mortar guard boxes.

E. Fabricate doors without seams on faces or vertical edges of door. Continuously weld vertical edge seams, and grind smooth.

F. Reinforce frames wider than 48" with roll formed steel channels fitted tightly into frame head, flush with top.

G. Prepare frame for silencers. Provide three single rubber silencers on strike jamb for single doors, and two single silencers on frame head at double doors.

H. Attach fire rated label to each frame and door unit, where required.

I. Reinforce top and bottom edges with a 14 gauge channel welded to face sheets.

J. Close top edge of exterior door flush with inverted 16 gauge steel channel closure. Seal joints watertight.

K. Provide floor clips for frames. Provide jamb anchors spaced not over 30" on center for frames. Furnish temporary spreader bars and bracing.

L. Thoroughly clean, phosphate treat, and apply one coat of rust inhibitive primer containing at least 50% rust inhibitive pigments. Prime frames under removable glazing stops and prime back side of removable stops.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install frames in accordance with SDI-105.

B. Install doors in accordance with DHI "The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames, and Builders Hardware".

C. Install fire rated doors and frames in accordance with NFPA 80.

D. Coordinate with masonry construction for anchor placement.

1. Masonry Construction: Install frames up to 60" high in masonry construction with minimum 2 jamb anchors each jamb; add an additional anchor for every 30" or fraction thereof.

2. Wallboard Construction: Install frames up to 60" high in wallboard construction with minimum 3 jamb anchors each jamb; add an additional anchor for every 24" or fraction thereof.

3.2 TOLERANCES

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

3.3 ADJUSTING AND CLEANING

A. Adjust hardware for smooth and balanced door movement.

END OF SECTION

SECTION 08350 - SECTIONAL OVERHEAD DOORS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Insulated Sectional Overhead Doors.

B. Electric Operators and Controls.

C. Operating Hardware, tracks, and support.

1.2 RELATED SECTIONS

A. Section 03300 - Cast-In-Place Concrete.

B. Section 16150 - Common Work Results for Electrical.

1.3 REFERENCES

A. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Wiring Connections: Requirements for electrical characteristics.
   1. 115 volts, single phase, 60 Hz.
      .

B. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Shop Drawings: Indicate plans and elevations including opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.

D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

E. Operation and Maintenance Data.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.

C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened labeled packaging until ready for installation.

B. Protect materials from exposure to moisture until ready for installation.

C. Store materials in a dry, ventilated weathertight location.

1.8 PROJECT CONDITIONS

A. Pre-Installation Conference: Convene a pre-installation conference just prior to commencement of field operations, to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

1.9 WARRANTY

A. Warranty: Manufacturer’s limited door and operators System warranty for 10 year against delamination of polyurethane foam from steel face and all other components for 3 years or 20,000 cycles, whichever comes first.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Overhead Door Corporation, or Equal

B. Substitutions:

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 INSULATED SECTIONAL OVERHEAD DOORS

A. Insulated Steel Sectional Overhead Doors:
1. Door Assembly: Metal/foam/metal sandwich panel construction, with PVC thermal break and weather-tight ship-lap design meeting joints.
    a. Panel Thickness: 2 inches (51 mm).
    b. Exterior Surface: Ribbed, textured.
    c. Exterior Steel: .015 inch (.38 mm), hot-dipped galvanized.
    d. End Stiles: 16 gauge with thermal break.
    e. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
        1) Standard cycle spring: 10,000 cycles.
    f. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
    g. Thermal Values: R-value of 17.50; U-value of 0.057.
    h. Air Infiltration: 0.08 cfm at 15 mph; 0.08 cfm at 25 mph.
2. Finish and Color: Two coat baked-on polyester with white exterior and white interior color.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
    a. Design pressure of _____ lb/sq ft (_____kPa).
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
    a. Interior mounted slide lock.
6. Weatherstripping:
    a. Flexible bulb-type strip at bottom section.
    b. Flexible Jamb seals.
    c. Flexible Header seal.
7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
    a. Size:
        1) 2 inch (51 mm).
    b. Type:
        1) Low headroom.
        .
8. Manual Operation: Pull rope.
    .
9. Electric Motor Operation: Provide UL listed electric operator, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
        1) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
        1) Push-button operated control stations with open, close, and stop buttons.
        2) Surface mounting.
        3) Interior location.
    c. Special Operation:
        1) Radio control operation.
        .

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not begin installation until openings have been properly prepared.

B. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

C. Verify electric power is available and of correct characteristics.

D. If preparation is the responsibility of another installer, notify Owner of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean adjacent surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install overhead doors and track in accordance with approved shop drawings and the manufacturer's printed instructions.

B. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.

C. Anchor assembly to wall construction and building framing without distortion or stress.

D. Securely brace door tracks suspended from structure. Secure tracks to structural members only.

E. Fit and align door assembly including hardware.

F. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

3.4 CLEANING AND ADJUSTING

A. Adjust door assembly to smooth operation and in full contact with weatherstripping.

B. Clean doors, frames, glass and polycarbonate according to manufacturer’s instructions.

C. Remove temporary labels and visible markings. Do not remove polycarbonate care and maintenance label required to maintain warranty.

3.5 PROTECTION

A. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

B. Protect installed products until completion of project.

C. Touch-up, damaged coatings and finishes and repair minor damage before Substantial Completion.

END OF SECTION

SECTION 08531 - VINYL WINDOWS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Vinyl Windows: **[Awning Windows] [Casement Windows] [Fixed, Radius and Geometric Windows] [Sliding Windows] [Single-Hung Tilt Windows].**

1.2 REFERENCES

A. American Architectural Manufacturer Association (AAMA) (for use in non-HVHZ areas)

1. AAMA/WDMA/CSA 101/I.S.2 /A440 - North American Fenestration Standard/Specification for windows, doors, and skylights (NAFS).
2. AAMA 307 - Specification for Laminates Intended for use on AAMA Certified Profiles.
   a. 4.2.1 Muriatic Acid Resistance.
   b. 4.2.1.1 Testing Methods.
      1) Test per AAMA 613, Section 7.6.1.1.
   c. 4.2.1.2 Performance Requirements.
      1) Requirements per AAMA 613, Section 7.6.1.2.
   d. 4.2.2 Mortar Resistance (24 Hour Pat Test).
   e. 4.2.2.1 Testing Methods.
      1) Test per AAMA 613, Section 7.6.2.1.
   f. 4.2.1.2 Performance Requirements.
      1) Requirements per AAMA 613, Section 7.6.2.2.
   g. 4.3 Detergent Resistance.
   h. 4.3.1 Testing Methods.
      1) Test per AAMA 613, Section 7.7.1.
   i. 4.3.2 Performance Requirements.
      1) Requirements per AAMA 613, Section 7.7.2.

B. National Fenestration Rating Council (NFRC):

1. NFRC 100; Procedure for Determining Fenestration Thermal Properties.
2. NFRC 200; - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.

C. Florida Building Code Test Procedures (Miami-Dade TAS) (Non-Impact HVHZ):

1. TAS 202; Criteria for testing Impact and Non-Impact Resistant Building Envelope Components using Uniform Static Air Pressure.

D. ASTM International.

1. ASTM E90 – Laboratory measurement of Airborne Sound Transmission of Building Partitions and Elements.
2. ASTM E1332 – Standard Classification for Rating Outdoor – Indoor Sound Attenuation.

1.3 SUBMITTALS

A. Submit under provisions of Section 0 13 00 – Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Shop Drawings: Submit shop drawings indicating details of construction, flashings and relationship with adjacent construction.

D. Selection Samples: For each factory-finished product specified, two complete sets of color chips representing manufacturer's full range of available finishes.

E. Verification Samples: For each factory-finished product specified, two samples, minimum size 6 inches (150 mm) square, representing actual finishes.

F. Design Data, Test Reports: Provide manufacturer test reports indicating product compliance with indicated requirements.

G. Closeout Submittals: Refer to Section 0 17 00 Execution and Closeout Requirements Closeout Submittals.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Minimum __ year(s) installing similar assemblies.

B. Certifications: AAMA certification label indicating assemblies meet the design requirements.

C. Mock-Up: Provide a mock-up for evaluation of installation techniques and workmanship.

1. Mock-ups shall incorporate surrounding construction, including wall assembly fasteners, flashing, and other related accessories installed in accordance with manufacturer's approved installation methods.
2. Do not proceed with remaining work until workmanship is approved by Architect.
3. Modify mock-up as required to produce acceptable work.
4. At Substantial Completion, approved mockups may become part of completed work.
5. Demolish mockups and remove from site.
6. Pre-installation Meeting: Conduct pre-installation meeting on-site two weeks prior to commencement of installation.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations and industry standards.

B. Deliver and store assembly materials and components in manufacturer's original, unopened, undamaged containers with identification labels intact. Protect from damage.

1.6 PROJECT CONDITIONS

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

1.7 WARRANTY

A. Manufacturer's Standard Warranty: Assemblies will be free from defects in materials and workmanship from the date of manufacture for the time periods indicated below:

1. Basic Product Coverage - Window Unit: **[Owner Occupied Single-Family Residence: Lifetime] [Commercial: 10 years].**
2. Glazing:
   a. Insulated Glass: **[Owner Occupied Single-Family Residence: Lifetime] [Commercial: 10 years].**
   b. Laminated Glass: 5 years.
   c. Special Glazing: 5 years.
3. Colored Exterior: 10 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Jeld-Win or equal manufacturer.

2.2 VINYL WINDOWS – GENERAL

A. Design Requirements

1. Provide windows capable of complying with requirements indicated, based on testing manufacturer’s window that are representative of those specified and that are of test size required by AAMA/WDMA/CSA 101/I.S.2/A440.
2. Test Size: In compliance with requirements of AAMA/WDMA/CSA 101/I.S2/A440.
3. Structural Requirements: Provide assemblies complying with requirements indicated:
   a. Performance Class: As indicated on drawings.
   b. Performance Class: _____.
   c. Performance Grade: As indicated on drawings.
   d. Performance Grade: _____.
4. NFRC Requirements: Provide assemblies complying with the following total window ratings:
   a. U-Factor: _____ in accordance with NFRC 100.
   b. Solar Heat Gain Coefficient (SHGC): _____ in accordance with NFRC 200.
   c. Visible Transmittance (VT): _____ in accordance with NFRC 200.
   d. Acoustic Requirements: Provide assemblies complying with the following:
      1) STC: _____.
      2) OITC: _____.

B. Installation Accessories:

1. Flashing: Refer to Section 07600 - Flashing and Sheet Metal.
2. Sealants: OSI Sealants (OSI QUAD Max, OSI QUAD Foam) by Henkel Corporation.
3. Sealants: Refer to Section 07920 - Joint Sealants.
4. Sealants: Manufacturer recommended sealants to maintain watertight conditions.

C. Materials:

D. Laminate Exterior Finishes:

1. AAMA 303 – Voluntary Specification for Poly (Vinyl Chloride) (PVC) Exterior Profile Extrusions.
   a. Boil and Heat Resistance Test.
2. Vertical Heat Build-Up (HBU) – Less than 45° F (ASTM D4803).
3. Pencil Hardness – "F" (ASTM D3363).

E. Finishes:

1. Interior Finishes:
   a. Standard Vinyl:
   b. 1) Finish: **[As selected by Architect] [White (Standard)] [Desert Sand].**
2. Exterior Finishes:
   a. Standard Vinyl:
      1) Finish: **[As selected by Architect] [White (Standard)] [Desert Sand].**
   b. Optional FiniShield™ Laminate Vinyl:
      1) Finish: **[As selected by Architect] [Laminated Black] [Laminated Bronze].**

2.3 VINYL WINDOW ASSEMBLIES

A. Basis of Design: Premium Vinyl: **[Awning Windows] [Casement Windows] [Fixed, Radius and Geometric Windows] [Sliding Windows] [Single-Hung Tilt Windows].**

B. Window Fabrication:

1. Window Type: Awning Windows.
   a. Frame: Fusion Welded Corners.
   b. Sash: Fusion Welded Corners.
   c. Glass: Mounted with silicone glazing compound.
2. Window Type: Casement Windows.
   a. Frame: Fusion Welded Corners.
   b. Sash: Fusion Welded Corners.
   c. Glass: Mounted with silicone glazing compound.
3. Window Type: Fixed, Radius and Geometric Windows.
   a. Frame: Fusion Welded Corners
   b. Glass: Mounted with silicone glazing compound
4. Window Type: Sliding Windows.
   a. Frame: Fusion Welded Corners.
   b. Sash: Fusion Welded Corners.
   c. Glass: Mounted with silicone glazing compound.
5. Window Type: Single-Hung Tilt Windows.
   a. Frame: Fusion Welded Corners.
   b. Sash: Fusion Welded Corners.
   c. Glass: Mounted with silicone glazing compound.

C. Frames:

1. Jamb Depth: **[Awning windows: 3 1/4" inch (82.55mm)] [Casement windows: 3 1/4" inch (82.55mm)] [Fixed, Radius and Geometric windows: 3 inch (76.2mm)] [Sliding windows: 3 inch (76.2mm)] [Single-Hung Tilt windows: 3 inch (76.2mm)].**

D. Sashes:

1. Sash thickness: **[Awning Windows: 2.33" inch (59.18mm)] [Casement Windows: 2.33" (59.18mm)] [Sliding Window: 1.16" inch (29.46mm)] [Single-Hung Tilt Windows: 1.16" inch (29.46mm)].**

E. Exterior Trim: **[Nail Fin (Standard)] [Box] [5/8" Flange] [J-Channel] [Snap-In Brickmould] [2 3/8" Flange Extender].**

F. Frame Accessories: None.

G. Weatherstripping: **[Awning Windows: .250" Fin pile combined with sweep seals] [Casement Windows: .250" Fin pile combined with sweep seals] [Fixed Windows: N/A] [Sliding Windows: .250" Fin pile] [Single-Hung Tilt Windows: .250" Fin pile].**

H. Hardware:

1. Awning Windows
    a. Hinges: **[Standard hinge (Standard)] [Coastal hardware].**
    b. Lock: Single actuating handle locks
        1) Finish: **[As selected by Architect] [White (Standard)] [Desert Sand].**
2. Casement Windows
    a. Hinges: **[Standard hinge (Standard)] [Coastal hardware].**
    b. Operator: **[Standard (Standard)] [Coastal package] [Maximum Opening Hinge].**
    c. Lock: Multipoint lock.
        1) Finish: **[As selected by Architect] [White (Standard)] [Desert Sand].**
    d. Secondary Vent Stop: **[No Window Opening Control Device] [Window Opening [Window Opening Control Device ASTM F2090 Compliant].**
3. Fixed, Radius and Geometric Windows: None.
4. Sliding Windows
    a. Sliding System: Rollers
    b. Lock: Style Cam-Lock
        1) Finish: **[As selected by Architect] [White (Standard)] [Desert Sand].**
5. Single-Hung Windows
    a. Balance: Spiral Balance System
    b. Lock: Style Cam Lock
        1) Finish: **[As selected by Architect] [White (Standard)] [Desert Sand].**

I. Glazing for Windows:

1. Glazing Type: Insulated glass.
    a. Construction: Two panes of glass utilizing continuous roll formed stainless steel spacer and dual seal sealants.
    b. Strength: **[Annealed glass (Standard)] [Tempered glass].**
    c. Overall Nominal Thickness: 7/8" inch
    d. Glass Coating: **[As selected by Architect] [SunResist™ (Standard)] [SunStable™] [Turtle Glass] [No Low-E].**
    e. Air Space: **[None (Standard)] [Argon].**

J. Insect Screens

1. Screen Type: Screen (Standard).
    a. Screen Mesh Type: **[Charcoal] [Gray] Fiberglass screen cloth (18 by 16 mesh) set in painted roll formed aluminum frame.] [Black BetterVue fiberglass screen cloth (18 x 18) set in painted roll formed or extruded aluminum frame].**
    b. Screen Options: Standard Screen Frame.
2. Screen Type: Bundled Screen.
    a. Screen Mesh Type: **[Charcoal] [Gray] Fiberglass screen cloth (18 by 16 mesh) set in painted roll formed aluminum frame.] [Black BetterVue fiberglass screen cloth (18 x 18) set in painted roll formed or extruded aluminum frame].**
    b. Screen Options: Standard Screen Frame.
3. Screen Type: No Screen.
4. Frame Finish: Color match window frame extrusion.
5. Full or Half Screen: Half Screen.

K. Grilles for Windows:

1. Simulated Divided Lites (SDL):
    a. Exterior Muntins
        1) Material: Extruded vinyl permanently applied to exterior and interior of insulating glass unit.
        2) Profile: Contour.
            (a) Width: 7/8 inch (22mm).
        3) Pattern: As scheduled and indicated on Drawings.
        4) Finish: Match finish.

2. Simulated Divided Lites (SDL) without Shadowbar:
    a. Exterior Muntins
        1) Material: Extruded vinyl permanently applied to exterior and interior of insulating glass unit.
        2) Profile: Contour.
            (a) Width: 7/8 inch (22mm).
        3) Pattern: As scheduled and indicated on Drawings.
        4) Finish: Match finish.
3. Grilles Between the Glass (GBG):
    a. Material: **[Made of roll formed aluminum suspended within the air cavity].**
    b. Material: **[Laser Grid suspended within the air cavity].**
    c. Profile: Flat.
        1) Width: **[5/8 inch (15.9mm)] [7/8 inch (22mm)].**
    d. Profile: Contour.
        1) Width: **[5/8 inch (15.9mm)] [1 inch (25.4mm)].**
    e. Pattern: As scheduled and indicated on Drawings.
    f. Finish: Color match window frame extrusion.
4. 7/8 inch (22.2mm) Contour SDL (slim) Out / 1 inch Contour GBG
    a. Exterior Muntins
        1) Material: Extruded Mikron vinyl permanently applied to exterior of insulating glass unit.
        2) Pattern: As selected by Architect
        3) Profile Width: 7/8 inch (22mm).
        4) Finish: Match finish
    b. GBG: 1 inch (25.4mm) pattern matched GBG.

PART 3 EXECUTION

3.1 GENERAL

A. Install windows in accordance with manufacturer's installation guidelines and recommendations. All windows have P.E. certified anchor details and requirements.

3.2 EXAMINATION

A. Inspect window prior to installation.

B. Inspect rough opening for compliance with window manufacturer recommendations. Verify rough opening conditions are within recommended tolerances.

3.3 PREPARATION

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

3.4 INSTALLATION

A. Insert window into rough opening:

1. Shim side jambs, head and sill straight.
2. Inspect window for square, level and plumb.
3. Fasten window in accordance with certified anchor drawing through shim (per anchor drawings) and into rough opening.
4. Test and adjust for smooth operation of window.
5. Ensure weep holes are clear of debris for proper drainage.

3.5 CLEANING

A. Clean the exterior surface and glass with mild soap and water.

3.6 PROTECTION

A. Protect installed windows from damage.

END OF SECTION

SECTION 087100 - DOOR HARDWARE

PART 1 – GENERAL

SECTION INCLUDES

A. Hardware for hollow steel doors.
B. Thresholds.
C. Weatherstripping, seals and door gaskets.

1.02 REFERENCE STANDARDS

A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines.
B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design.
C. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council.
D. BHMA A156.1 - American National Standard for Butts and Hinges; Builders Hardware Manufacturers Association, Inc.; 2006 (ANSI/BHMA A156.1).
E. BHMA A156.4 - American National Standard for Door Controls - Closers; Builders Hardware Manufacturers Association, Inc.; 2008 (ANSI/BHMA A156.4).
F. BHMA A156.7 - American National Standard for Template Hinge Dimensions; Builders Hardware Manufacturers Association; 2003 (ANSI/BHMA A156.7).
G. BHMA A156.8 - American National Standard for Door Controls - Overhead Stops and Holders; Builders Hardware Manufacturers Association, Inc.; 2010 (ANSI/BHMA A156.8).
H. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems, Builders Hardware Manufacturers Association; 2012 (ANSI/BHMA A156.22).
I. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute.
J. ICC A117.1 - Accessible and Usable Buildings and Facilities; International Code Council; 2009 (ANSI).
K. NFPA 101 - Life Safety Code; National Fire Protection Association.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products onto which door hardware will be installed.

1.04 SUBMITTALS

A. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project.
B. Hardware Schedule: Detailed listing of each item of hardware to be installed on each door. Use door numbering scheme as included in the Contract Documents. Identify electrically operated items and include power requirements.
C. Keying Schedule: Submit for approval of Owner.
D. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
E. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.

1.05 Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer. QUALITY ASSURANCE

A. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware with 10 years of experience.
B. Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC) to assist in the work of this section.

1.06 DELIVERY, STORAGE, AND HANDLING

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

1.07 WARRANTY

A. Provide five year warranty for door closers and locksets.

PART 2 – PRODUCTS

2.01 DOOR HARDWARE – GENERAL

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

B. Provide all items of a single type of the same model by the same manufacturer.

C. Provide products that comply with the following:
   1. Applicable provisions of federal, state, and local codes.
   2. Accessibility: ADA Standards and ICC A117.1.
   3. ANSI/ICC A117.1, American National Standard for Accessible and Usable Buildings and Facilities.
   4. Applicable provisions of NFPA 101, Life Safety Code.

2.02 HINGES

A. Hinges: Provide hinges on every swinging door.
   1. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
   2. Provide ball-bearing hinges at all doors having closers.
   3. Provide hinges in the quantities indicated.
   4. Provide non-removable pins on exterior outswinging doors.
   5. Where electrified hardware is mounted in door leaf, provide power transfer hinges.

B. Butt Hinges: Comply with BHMA A156.1 and A156.7; standard weight, unless otherwise indicated.

C. Quantity of Hinges Per Door:
   1. Doors From 60 inches High up to 90 inches High: Three hinges.
   2. Doors 90 inches High up to 120 inches High: Four hinges.

D. Manufacturers - Hinges:
   1. Assa Abloy McKinney: www.assaabloydss.com.
   2. Hager Companies: www.hagerco.com.
   3. Ives, an Allegion brand: www.allegion/us.
   4. Stanley Black & Decker: www.stanleyblackanddecker.com.

2.03 LOCKS AND LATCHES

A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
   1. Hardware Sets indicate locking functions required for each door.
   2. If no hardware set is indicated for a swinging door provide an office lockset.
   3. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
   4. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.

B. Lock Cylinders: Manufacturer's standard tumbler type, six-pin standard core.
   1. Provide cams and/or tailpieces as required for locking devices required.

C. Keying: Grand master keyed, unless otherwise required by Owner.
   1. Key to existing keying system.
   2. Supply keys in the following quantities:
      a. 2 master keys.
      b. 2 grand master keys.
      c. 2 change keys for each lock.

2.04 CYLINDRICAL LOCKSETS

A. Manufacturers - Cylindrical Locksets:
   1. Assa Abloy Corbin Russwin, Sargent, or Yale: www.assaabloydss.com.
   2. Best Access Systems, division of Stanley Security Solutions: www.bestlock.com.

3. Schlage, an Allegion brand: www.allegion.com/us.

2.05 FLUSHBOLTS

A. Flushbolts: Lever extension bolts in leading edge of door, one bolt into floor, one bolt into top of frame.
   1. Pairs of Swing Doors: At inactive leaves, provide flush bolts of type as required to comply with code.
   2. Floor Bolts: Provide dustproof strike except at metal thresholds.

B. Self-Latching Flushbolts: Automatically latch upon closing of door; manually retracted.

C. Coordinators: Provide on doors having closers and self-latching or automatic flushbolts to ensure that leaves close in proper order.

D. Manufacturers - Flushbolts:
   1. Hager Companies: www.hagerco.com.
   2. Ives, an Allegion brand: www.allegion.com/us.
   3. Triangle Brass Manufacturing Co., Inc: www.trimcobbw.com.

2.06 EXIT DEVICES

A. Manufacturers:
   1. Von Duprin, an Allegion brand: www.allegion.com/us.

2.07 CLOSERS

A. Closers: Complying with BHMA A156.4.
   1. Provide surface-mounted, door-mounted closers unless otherwise indicated.
   2. Provide a door closer on every exterior door.
   3. Provide a door closer on every fire- and smoke-rated door. Spring hinges are not an acceptable self-closing device unless specifically so indicated.
   4. On pairs of swinging doors, if an overlapping astragal is present, provide coordinator to ensure the leaves close in proper order.
   5. At outswinging exterior doors, mount closer in inside of door.

B. Manufacturers - Closers:
   1. LCN, an Allegion brand: www.allegion.com/us.

2.08 STOPS AND HOLDERS

A. Stops: Complying with BHMA A156.8; provide a stop for every swinging door, unless otherwise indicated.
   1. Provide wall stops, unless otherwise indicated.
   2. If wall stops are not practical, due to configuration of room or furnishings, provide overhead stop.
   3. Stop is not required if positive stop feature is specified for door closer; positive stop feature of door closer is not an acceptable substitute for a stop unless specifically so stated.

B. Wall Stops: Wrought, concave style.

C. Overhead Holders/Stops: Heavy-duty type.

D. Manufacturers - Overhead Holders/Stops:
   1. Glynn-Johnson, an Allegion brand: www.allegion.com/us.

E. Manufacturers - Wall and Floor Stops/Holders:
   1. Hager Companies: www.hagerco.com.
   2. Triangle Brass Manufacturing Co., Inc: www.trimcobbw.com.
   3. Ives: www.allegion.com.

2.09 GASKETING AND THRESHOLDS

A. Gaskets: Complying with BHMA A156.22.
   1. On each door in smoke partition, provide smoke gaskets; top, sides, and meeting stile of pairs. If fire/smoke partitions are not indicated on drawings, provide smoke gaskets on each door identified as a "smoke door" and 20-minute rated fire doors.
   2. On each exterior door, provide weatherstripping gaskets, unless otherwise indicated; top, sides, and meeting stiles of pairs.
      a. Where exterior door is also required to have fire or smoke rating, provide gaskets functioning as both smoke and weather seals.

3. On each exterior door, provide door bottom sweep, unless otherwise indicated.

B. Thresholds: At each exterior door, provide a threshold unless otherwise indicated.

C. Fasteners At Exterior Locations: Noncorroding.

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

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.

3.02 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

B. Use templates provided by hardware item manufacturer.

C. Do not install surface mounted items until finishes applied to substrate are complete.

D. Mounting heights for hardware from finished floor to center line of hardware item shall be as follows, unless otherwise indicated
   1. For steel doors and frames: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames."

E. Set exterior door thresholds with full-width bead of elastomeric sealant on each point of contact with floor; anchor thresholds with stainless steel countersunk screws.

3.03 ADJUSTING

A. Adjust hardware for smooth operation.

3.04 CLEANING

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

END OF SECTION

SECTION 08800 – GLAZING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Glass and glazing for doors

1.2 RELATED SECTIONS

A. Section 07900 - Joint Sealers: Sealant and back-up materials.

1.3 REFERENCES

A. ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.

B. ASTM C1036 - Specification for Flat Glass.

C. ASTM C1048 - Specification for Heat Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.

D. ASTM E773 - Test Method for Seal Durability of Sealed Insulating Glass Units.

E. ASTM E774 - Specification for Sealed Insulating Glass Units.

F. CPSC 16CFR-1201 - Consumer Product Safety Commission, Safety Standard for Architectural Glazing Materials.

G. FS DD-M-411 - Mirrors, Plate Glass, Framed and Unframed.

H. Flat Glass Marketing Association (FGMA) Glazing Manual.

I. Insulated Glass Certification Council (IGCC).

1.4 QUALITY ASSURANCE

A. Comply with safety glazing requirements of ASTM Z97.1 and CPSC 16CFR1201.

B. Conform to Flat Glass Marketing Association (FGMA) Glazing Manual for glazing installation methods.

C. Provide insulating glass units permanently marked with certification label of Insulating Glass Certification Council (IGCC) indicating compliance with Class CBA.

1.5 SUBMITTALS

A. Material and Equipment Submittals: Submit the following under provisions of Section 01300:
   1. Product Data:
      a. Glass Units: Provide product data indicating compliance with specified requirements. Include information on size limitations, special handling or installation requirements.
      b. Glazing Sealant: Provide data on glazing sealant. Identify colors available.

B. Quality Assurance Submittals: Submit the following under provisions of Section 01400:
   1. Manufacturer's Certificate: Submit sealed glass unit manufacturer's certificate indicating units meet or exceed specified requirements.

C. Closeout Submittals: Submit the following under provisions of Section 01700.
   1. Warranty: As specified in this Section.

1.6 WARRANTY

A. Insulating Glass: Provide written ten year manufacturer's warranty, including coverage of sealed glass units from seal failure due to manufacturing defects, as evidenced by interpane dusting or misting, and replacement of same.

PART 2 - PRODUCTS

2.1 GLASS MATERIALS

A. **GL-1**: LoE Coated Tempered Insulated Glass Units; IGCC Class CBA when tested according to ASTM E773 and E774; dual sealed unit with primary polyisobutylene seal, secondary silicone seal. Provide 1/4” clear glass outer lite and 1/4” clear glass inner lite conforming to ASTM C1048 Type I, Class 1, q3, Kind FT, horizontally tempered; with Sungate 500 LoE coating on #3 surface and 1/2" airspace; total unit thickness of 1".

B. **GL-2**: LoE Coated Insulated Glass Units; IGCC Class CBA when tested according to ASTM E773 and E774; dual sealed unit with primary polyisobutylene seal, secondary silicone seal. Provide 1/4” clear glass outer lite and 1/4” clear glass inner lite conforming to ASTM C1036 Type I, Class 1, q3; with Sungate 500 LoE coating on #3 surface and 1/2" airspace; total unit thickness of 1".

2.2 GLAZING ACCESSORIES

A. Silicone Glazing Sealant (SLNT-7): Specified in Section 07900.

B. Setting Blocks: Neoprene; 80-90 Shore A durometer hardness.

C. Edge Blocks/Shims: Neoprene; 60-70 Shore A durometer hardness.

D. Glazing Tape: Preformed butyl compound coiled on release paper; properly sized for application; black/bronze color. Tremco, 440 Tape.

E. Glazing Clips: Manufacturer's standard type.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify surfaces of glazing channels or recesses are clean, free of obstructions, and ready for work of this Section.

B. Beginning of installation means acceptance of substrate.

3.2 ALUMINUM ENTRANCES AND STOREFRONTS

A. Glaze aluminum entrances and storefronts in accordance with manufacturer's glazing instructions.

3.3 INTERIOR COMBINATION METHOD (TAPE AND SEALANT)

A. Cut glazing tape to length and install against permanent stops, projecting 1/16" above sightline.

B. Place setting blocks at 1/4 points.

C. Rest glass on setting blocks and push against tape to ensure full contact at perimeter of pane.

D. Install removable stops, spacer shims inserted between glass, and applied stops at 24" intervals, 1/4" below sightline.

E. Fill gap between pane and applied stop with silicone sealant to depth equal to bite of frame on pane to uniform and level line.

F. Trim protruding tape edge.

3.4 CLEANING

A. After installation, mark pane with an "X" by using plastic tape or removable paste.

B. Remove glazing materials from finish surfaces.

C. Remove labels after work is completed.

END OF SECTION

SECTION 09250– GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Metal non-load bearing stud wall framing.

B. Gypsum board and accessories.

C. Glass mat gypsum sheathing.

D. Taped and sanded joint treatment.

1.2 PRODUCTS FURNISHED AND INSTALLED (BUT SPECIFIED UNDER OTHER SECTIONS)

A. Section 07200 – Thermal Insulation.

B. Section 07900 - Joint Sealers: Acoustical Sealant.

1.3 RELATED SECTIONS

A. Section 05400 - Cold Formed Metal Framing: Load bearing framing systems.

B. Section 06100 - Rough Carpentry: Wood blocking and framing.

C. Section 07840 - Firestopping; for requirements for sealing of penetrations in fire-rated partitions.

D. Section 07900 - Joint Sealing; for joint sealant product specifications.

E. Section 08110 – Hollow Metal Doors and Frames.

F. Section 09900 - Painting: Surface finish.

1.4 REFERENCES

A. ASTM A641 - Zinc-Coated (Galvanized) Carbon Steel Wire.

B. ASTM C475 - Joint Treatment Materials for Gypsum Wallboard Construction.

C. ASTM C645 - Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board.

D. ASTM C754 - Installation of Framing Members to Receive Screw Attached Gypsum Wallboard, Backing Board, or Water Resistant Backing Board.

E. ASTM C840 - Application and Finishing of Gypsum Board.

F. ASTM C1002 - Steel Screws for the Application of Gypsum Board.

G. ASTM C1177, "Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing

H. ASTM C1396, “Standard Specification for Gypsum Board”.

I. ASTM D226 - Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

J. GA-201 - Gypsum Board for Walls and Ceilings.

K. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board.

L. Gypsum Association (GA) "Recommended Specification: Levels of Gypsum Board Finish" GA-214 jointly published by AWCI, CISCA, GA, and PDCA.

1.5 QUALITY ASSURANCE

A. Construct gypsum drywall partition and ceiling systems according to gypsum board manufacturer's current printed specifications.

B. Provide products of one manufacturer for each major product type, such as gypsum board or steel studs.

C. Requirements of Regulatory Agencies:
1. Where a fire resistance rating is required, construct to achieve required fire resistance rating according to applicable UL listed assemblies.

1.6 SYSTEM DESCRIPTION

A. Determine the gauge of studs according to stud manufacturer's printed literature. Limit stud deflection to L/240 at 5 psf.

1.7 SUBMITTALS

A. Material and Equipment Submittals: Submit the following under provisions of Section 01 33 00:
1. Product Data:
   a. Gypsum Board Materials: Provide product data on gypsum board and joint treatment materials.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages, containers or bundles bearing brand name, applicable standard

designation, and name of manufacturer.

B. Store materials under cover and keep them dry and protected from damage. Stack gypsum board flat to prevent sagging.

A. Cold-Rolled Channel Bridging: C shaped channel with minimum ½" wide flanges.

1. Minimum Base Metal Thickness: 16 Gauge.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Establish and maintain environmental conditions for application and finishing gypsum board to comply with ASTM C840.

1. No finishing shall be started until the interior temperature has been maintained at a minimum of 50 deg. F. for a period of at least 48 hours before thereafter until the permanent heating system is completely operational.

2. Provide adequate ventilation to eliminate excessive moisture.

PART 2 – PRODUCTS

2.1 GYPSUM BOARD MATERIALS

A. Standard Gypsum Board: Complying with ASTM C 1396; 5/8" thick unless indicated otherwise; ends square cut, tapered and rounded edges. Subject to compliance with requirements, provide one of the following:

1. Certainteed: 'ProRoc.'
2. G-P Gypsum: 'ToughRock.'
3. Lafarge: 'Regular Drywall.'
4. National Gypsum Co.: 'Gold Bond Brand Gypsum Board.'
5. United States Gypsum Co.: 'Sheetrock Brand Gypsum Panels – SW.'

B. Fire Rated Type 'X' Gypsum Board: Complying with ASTM C 1396; UL rated fire-resistant type; 5/8"; ends square cut, tapered and rounded edges. Subject to compliance with requirements, provide one of the following:

1. Certainteed: 'ProRoc Type X.'
2. G-P Gypsum: 'Tough-Rock Fireguard.'
3. Lafarge: 'Firecheck Type X Drywall.'
4. National Gypsum Co.: 'Gold Bond Brand Fire-Shield.'
5. United States Gypsum Co.: 'Sheetrock Brand Firecode Core.'

2.2 GLASS MAT FACED GYPSUM SHEATHING

A. General: Glass mat faced gypsum sheathing, 1/2" material for 16" or less spacing o.c. and 5/8" material for greater than 16" o.c. spacing, with the following attributes:
1. Core: Silicone-treated water resistant gypsum.
2. Facing: inorganic glass mat with alkali-resistant coating.
3. Compliance: ASTM C1177.

B. Manufacturer's and Products:
1. G-P Gypsum Corporation, a subsidiary of Georgia-Pacific Corporation, type 'Dens-Glass Gold'.
2. Comparable products by other manufacturer's that meet or exceed the properties of the specified product, and are reviewed and approved by the Architect.

2.3 JOINT MATERIALS

A. Regular and Fire Rated Interior Gypsum Board Joint Material: Ready mixed, drying type, vinyl based joint material conforming to ASTM C475.
1. Georgia-Pacific, G-P Bedding Compound with G-P Tape, G-P Topping Compound.
2. Gold Bond Building Products, Sta-Smooth Joint Compound with Q-W Tape, Topping Compound.
3. United States Gypsum, Ready-Mixed Joint Compound-Tapping with Perf-A-Tape, Ready-Mixed Joint Compound-Topping.

2.4 ACCESSORIES

A. Corner Beads: ASTM C1047, Cornerbead, galvanized steel corner bead with 1-1/4" perforated legs.
1. Clinch-On Products, Cornerbead.
2. Gold Bond Building Products, Wall Board Corner Bead.
3. United States Gypsum, Dur-A-Bead No. 103.

B. Control Joints:
1. Gold Bond Building Products, E-Z Strip.
2. United States Gypsum, Control Joint No. 93.

C. Edge Trim: ASTM C1047, LC Bead, galvanized steel "J"-shaped channel.
1. Clinch-On Products, Inc., U-Bead.
2. Gold Bond Building Products, No. 100 Wallboard Casing.
3. United States Gypsum, 200-A Metal Trim.

D. Laminating Adhesive: Joint compound specifically recommended by gypsum board manufacturer for laminating gypsum board.

E. Screws: ASTM C1002.

F. Polyethylene Vapor Retarder: Specified in Section 07200.

G. Sound Attenuation Insulation: Specified in Section 07200

H. Acoustical Sealant: Specified in Section 07900.

PART 3 - EXECUTION

3.1 EXAMINATION

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

B. Firestopping: Coordinate gypsum board Work with firestopping work at control joints, expansion joints and other penetrations through fire rated rated walls, smoke barrier walls, fire rated ceilings, and structural floors. Construct openings for firestopping assemblies to size indicated in the applicable UL systems.

1. Refer to Section 07840 - Firestopping and Divisions 15 and 16 for sealing of mechanical and electrical penetrations in fire-rated partitions.

3.2 GYPSUM BOARD INSTALLATION

A. Install gypsum board in accordance with GA 216 and with ASTM C 840.

B. Erect single layer standard gypsum board in most economical direction, with ends or edges occurring over firm bearing.

C. Erect single layer fire rated gypsum board vertically, with edges or ends occurring over firm bearing.

D. Use screws when fastening gypsum board to metal furring or framing. Drive screws to provide screw head penetration without breaking the surface paper or stripping the member around the screw shank.

E. Double Layer Applications:
1. Secure second layer to first with laminating adhesive and sufficient mechanical support to hold in place. Apply laminating adhesive in accordance with manufacturer's instructions.

F. Install control joints as follows and in locations approved by Architect for visual effect:
1. Not to exceed 24'-0" in either direction for ceilings and not to exceed 30'-0" on center for partitions.
2. Where gypsum board abuts any dissimilar wall or ceiling assembly and where gypsum board construction changes within the same plane.
3. Where control joint occurs in continuous wall surface.
4. Where gypsum board construction abuts an exterior wall.
5. Where wall of different fire ratings abut or align in the same plane.
6. Make joint 1/4" wide with supports noncontinuous over joint.

G. Do not bridge building expansion joints with gypsum board. Install expansion joints as required.

H. Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abutts dissimilar materials.

3.3 SEALING

A. Seal partition perimeter joints where fire rated and acoustically insulated partitions are shown on the Drawings. Seal joints in backer board occurring behind control joints.

B. Seal around pipes, ducts, conduit, and other items penetrating non-rated gypsum board partitions. Seal backs and sides of electrical boxes.

C. Refer to Section 07840 - Firestopping and Divisions 15 and 16 for sealing of mechanical and electrical penetrations in fire-rated partitions.

D. Seal joints, cut edges, nail and screw heads, and punctures in water resistant gypsum board with a waterproofing sealant recommended by gypsum board manufacturer.

3.4 JOINT TREATMENT

A. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes in accordance with GA-216 and joint compound manufacturer's instructions.

B. Feather coats onto adjoining surfaces so that camber is maximum 1/32".

C. Tape surfaces behind adhesive applied ceramic tile using specified joint compound. Final finishing is not required on joints behind ceramic tile.

D. Tape and finish exterior gypsum ceiling board with specified joint compound in accordance with GA-216 and joint compound manufacturer's instructions.

E. Levels of finishing shall comply with those established by reference in GA-214 except as follows:

1. For level 4 gypsum board finish, embed tape in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads, and accessories. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects and ready for decoration.

3.5 GLASS MAT FACED GYPSUM SHEATHING

A. Screw attach gypsum sheathing to framing using cadmium-plated fasteners. Provide size and spacing as recommended by sheathing manufacturer.

B. Apply sealant at sheathing perimeter and at interface with other materials.

C. Verify sealant compatibility with adjacent materials.

3.6 TOLERANCES

A. Maximum Variation from True Flatness: 1/8" in 10 feet in any direction, non-cumulative.

END OF SECTION

SECTION 09300 TILING

PART ONE - GENERAL

1.1 Summary

1.1.1 Section includes general administrative and procedural requirements governing execution for tiling. Section includes glazing for products and applications, including those specified in other Sections where tiling requirements are specified by reference to this Section including but not limited to, the following:

- **a.** Tile
- **b.** Stone Thresholds
- **c.** Tile accessories
- **d.** Misc. setting materials
- **e.** Metal Strips

1.2 Related Documents

1.2.1 Construction Documents and general provisions of the Agreement Between Owner and Construction Manager and the Guaranteed Maximum Price (GMP) Amendment, including Division 00 General Conditions of the Contract for Construction and Supplementary Conditions and other Division 01 Specification Sections, applicable to this Section. All methods herein are to follow all applicable state and local code as well as installation standards.

1.2.2 Comply with the requirements of the various specifications and standards referred to in the contract Plans and Specifications, except where they conflict with the specific requirements of these contract Plans and Specifications. Such reference specifications and standards.

1.3 Reference Standards

1.3.1 American National Standards Institute (ANSI)
a. ANSI A108/A118/A136.1/A137.1 – American National Standard Specifications for the Installation of Ceramic Tile

1.3.2 American Society for Testing and Materials (ASTM)

1.3.3 Tile Council of North America (TCNA)
a. Handbook for ceramic, porcelain, glass and stone tile installation.

1.3.4 International Standards Organization
a. Classification for Grout and Adhesives

1.4 Submittals

1.4.1 All submittals shall be made in accordance to section 01 33 00 and as specified herin. Contractor is to submit the following to Owner and/or Consultant for approval prior to construction and fabrication:

1.4.1.1 Shop Drawings indicating installation methods, to include plans, elevations, component details and attachments to other work. Indicate required field dimensions, materials, finishes, substructure, profiles of each trim type, bedding, joint details and connections to adjoining work

1.4.1.2 Submit three (3) samples for each type, class, finish and color:

1. Submit one sample 12 x 12 inch in size, per each type, class, finish, color.
2. Grout: submit samples of each color
3. Submit at least one complete grouted tile intersection per each type, class, finish and color.
4. 6” lengths of stone thresholds
5. 6” lengths of metal edge strips

1.4.1.3 Manufacturer's Certification to verify materials comply with specified requirements and suitable for intended application.

1.4.1.4 Product data for each product. Submit manufacturer's specifications, catalog cuts, color range of tile, data sheets, installation instructions, and maintenance instructions.

1.4.1.5 Setting materials, sealants, grouts and other misc. product required for complete installation: provide manufacturer product data and installation instructions.

1.4.1.6 Warranty

1.4.1.7 Maintenance material submittals: Furnish extra materials, trim and grout that match and are from same production runs as products installed and that are packaged with protective covering with labels describing contents for storage.

1.5 Quality Assurance

1.5.1 Control Samples: Tile shall match the Engineer's control samples in all respects. Control samples require the Engineer's approval before they may be used as a standard.

1.5.2 Perform Work in accordance with TCA Handbook for Ceramic Tile Installation and the herein referenced standards for all tile installations.

1.5.3 Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.5.4 Source Limitations: Obtain each material required for any one type and color of tile work from a single source to minimize variations in appearance and quality.

1.5.5 All work of this Section shall be performed by skilled installers of the trade and shall be of the highest quality specializing in installation of the products specified in this section with minimum five years of documented experience. Comply with applicable Industry Standards for all work and materials as specified. Such Industry Standards are to include but not be limited to the applicable provisions or standards in this section.

1.5.6 Mock-Up - Typical Floor Panel: The Contractor shall install a typical floor panel, approximately 3-feet square in an appropriate location. Mock-up shall include joint treatment and other accessories as required for a finished installation. Keep panel damp until mortar has set; dry slowly to attain true appearance of finished work. Maintain accepted panel as the standard for completed work. Provide a typical floor panel for each different type of tile flooring and floor design indicated. Mock- up will be provided for evaluation of surface preparation techniques and application workmanship for each type using manufacturer approved installation methods. Do not proceed with production work until workmanship and finishes are approved by Architect and/or Owner and/or designer. Mock-up may remain as part of the work.

1.5.7 Mock-Up - Typical Wall Panel: The Contractor shall install a typical wall panel, approximately 3 feet by 4 feet, in an appropriate location. Mock-up shall include joint treatment, trim shapes, wainscot cap when applicable, cove base, and other accessories as required for a finished installation. Keep panel damp until mortar has set; dry slowly to attain true appearance of finished work. Maintain accepted panel as the standard for completed work. Provide a typical wall panel for each different type of tile wall and wall design indicated. Mock-up will be provided for evaluation of surface preparation techniques and application workmanship for each type using manufacturer approved installation methods. Do not proceed with production work until workmanship and finishes are approved by Architect and/or Owner and/or designer. Mock-up may remain as part of the work.

1.6 Coordination

1.6.1 Coordinate installation of all tiling. Furnish shop drawings, templates, and directions for a complete installation. Deliver all required items, product and setting materials to project site in time for installation.

1.7 Delivery, Storage and Handling

1.7.1 Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.

1.7.2 Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.7.3 Environmental Limitations: Do not proceed with installation when ambient and substrate temperature conditions are outside limits permitted by material manufacturers. Do not install solvent-based products in an unventilated environment. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

PART TWO - PRODUCTS

2.1 General

2.1.1 Acceptable manufacturer/supplier as specified in contract drawings and/or Interior Design drawing set and specifications or an Owner approved equal. Approved equals and/or substitutions will only be approved for Work if submitted and approved in accordance with provisions of Section 01 25 00.

2.2 Materials

2.2.1 ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated. Provide tile complying with Standard grade requirements unless otherwise indicated.

2.2.2 ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCA installation methods specified in tile installation schedules, and other requirements specified.

2.2.3 Low-Emitting Materials: Tile flooring systems shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.2.4 Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

2.2.5 Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated. Where tile is indicated for installation on exteriors or in wet areas, do not use back- or edge- mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in- service performance.

2.2.6 Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by pre- coating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

2.2.7 Trim: Include matching stops, returns, trimmers, caps, and special shapes required to produce complete, neatly finished installation. Provide cove base at intersection of floors and walls. Tops of wainscots shall have bullnose shape.

2.2.8 Wall Tile and Base: Machine-made wall tile of sizes, thickness, colors, and textures indicated, matching the Engineer's control samples for the location. Provide cove base with straight top at floors where there is tile wall above and cove base with bullnose top at floors where there is no tile above.

2.2.9 Marble Thresholds: flush or raised thresholds of profile and dimensions indicated, cut accurately to correct door-opening dimensions.

2.2.10 Setting bed, adhesives and other substrate applied materials materials: Refer to manufacturer recommended materials or as instructed by Architect.

2.2.11 Grout: ANSI A118.6, colors as indicated. If indicated colors are not available from manufacturer’s standard colors, custom colors shall be provided. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.

2.3 Products

2.3.1 All products provided for installation shall be the products specified by designer and/or Architect unless noted otherwise. If material is no longer available or if a substitution is required, then, refer to section 01 25 00 for Substitution Procedures.

2.3.2 Verify with drawing documents and schedules for tile specification number designations and product information as follows:

1. Composition
2. Size

3. Thickness
4. Finish
5. Color/Pattern
6. Grout Color
7. Trim Units – if not specified it is the responsibility of the contractor to suggest compatible trim and submit for approval prior to installation.

2.3.3 Trim: furnish matching trim to produce a complete installation. All trim shall be from the same tile collection unless noted otherwise. Trim units must be coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining tile. Shape provided may be but not limited to the following:

1. Cove base
2. Base Cap
3. Wainscot Cap
4. Inside corners
5. Outside Corners
6. Quarter Round

2.3.4 Non-ceramic trim: if matching trim is not available to complete installation, provide metal trim in finish style and dimensions to suite conditions such as:

1. Exposed wall tile edges
2. Exposed floor tile edges
3. Transitions to other finishes
4. Terminations and/or threshold transitions Acceptable

manufacturers:

1. Schluter-Systems
2. Substitutions: See Section 01 25 00

2.3.5 Thresholds: Fabricate to size and profiles indicated or required to provide transition between adjacent floor finishes and as follows:

1. Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to 1/16 inch above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 1/2 inch or less above adjacent floor surface.

2.4 Misc. Setting Materials

Provide and install additional items for a sound installation. Additional setting materials for installation include but not limited to the following:

2.4.1 Waterproof membrane: Manufacturer's standard product, selected from the following that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

1. Chlorinated Polyethylene Sheet
2. PVC Sheet
3. Polyethylene Sheet
4. Fabric-Reinforced, Modified-Bituminous Sheet
5. Fluid-Applied Membrane
6. Latex-Portland Cement:

2.4.2 Crack Isolation Membrane: Manufacturer's standard product that complies with ANSI A118.12 for standard performance and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

1. Chlorinated Polyethylene Sheet
4. Fabric-Reinforced, Modified-Bituminous Sheet
5. Fabric-Reinforced Fluid-Applied Membrane
6. Latex-Portland Cement:

2.4.3 Setting Materials:

1. Portland Cement Mortar (Thickset) Installation Materials
2. Thinset, Dry-Set Portland Cement Moratr: ANSI A118.1.
3. Thinset, Latex-Portland Cement Mortar: ANSI A118.4.
4. Epoxy Adhesive: ANSI A118.3.
5. Medium-Bed, Latex-Portland Cement Mortar: ANSI A118.4, ISO C2TS1.
6. Water-Resistant Organic Adhesive: ANSI A136.1. Water-resistant organic adhesive only shall be used for the application of wall tile over W/R gypsum board backing surfaces.
7. Cleavage Membrane

2.4.4 Grout Materials: Sand-Portland Cement Grout: ANSI A108.10, composed of white or gray cement and white or colored aggregate as required to produce color indicated.
1. Standard Cement Grout: ANSI A118.6
2. Polymer-Modified Tile Grout: ANSI A118.7
3. Water-Cleanable Epoxy Grout: ANSI A118.3

2.4.5 Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.

2.4.6 Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications; stainless-steel, ASTM A 666, 300 Series exposed-edge material.

2.4.5 Temporary Protective Coating: Product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile, mortar, and grout products; and easily removable after grouting is completed without damaging grout or tile.

2.4.6 Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

2.4.7 Grout Sealer: Manufacturer's standard silicone product for sealing grout joints and that does not change color or appearance of grout.

2.4.8 Cementitious Backer Board and Backer Board Accessories: ASTM C1325 or ANSI A118.9 for use as backing for tile.

PART THREE - EXECUTION

3.1 Examination

3.1.1 Do not begin installation until substrates have been properly prepared.

3.1.2 Examine subfloor and substrate surfaces to receive tile. Subfloor and substrate surfaces shall be firm, dry, clean, and free from defects or irregularities that may
impair bond or jeopardize the quality of the work, and no tile work shall be performed over affected areas until suitable corrections have been made.

3.1.3 Verify that concrete substrates for tile floors installed with adhesives bonded mortar bed or thin-set mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
1. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
2. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.

3.1.4 If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of decorative metal.

3.1.5 Examine materials before installation. Reject materials that are defective and/or damaged.

3.1.6 Proceed with installation only after unsatisfactory conditions have been corrected.

3.1.7 Verify openings for glazing are correctly sized and within acceptable tolerance.

3.1.8 Verify that work of other trades, in or behind the tile, is installed before proceeding with tilework such as: installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.

3.1.9 Confirm that metal stud spacing and gage comply with ceramic tile installation requirements.

3.2 Preparation

3.2.1 Protect surrounding work from damage.

3.2.2 Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with adhesives or thin-set mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.

3.2.3 Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.

3.2.4 Install backer board if required in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.

3.2.5 Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 Installation

3.3.1 Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.

1. For the following installations, follow procedures in the ANSI A108 Series of tile installation standards for providing 95 percent mortar coverage:

a. Exterior tile floors.
b. Tile floors in wet areas.
c. Tile swimming pool decks.
d. Tile floors in laundries.
e. Tile floors composed of tiles 8 by 8 inches or larger.
f. Tile floors composed of rib-backed tiles.

3.3.2 Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

3.3.3 Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

3.3.4 Provide manufacturer's standard trim shapes or non-ceramic trim where necessary to eliminate exposed tile edges.

3.3.5 Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.

1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile

sheets so joints between sheets are not apparent in finished work.

2. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.

3. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.

3.3.6 Joint Widths: Unless otherwise indicated, install tile with the following joint widths:

1. Ceramic Mosaic Tile: 1/16 inch.

2. Quarry Tile: 3/8 inch.

3. Paver Tile: 3/8 inch.

4. Glazed Wall Tile: 1/16 inch.

5. Decorative Thin Wall Tile: 1/16 inch.

3.3.7 Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.

3.3.8 Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.

3.3.9 Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.

1. At locations where mortar bed (thickset) would otherwise be exposed above adjacent floor finishes, set thresholds in latex-portland cement mortar (thin set).

2. Do not extend cleavage membrane waterproofing or crack isolation membrane under thresholds set in dry-set portland cement or latex-portland cement mortar. Fill joints between such thresholds and adjoining tile set on cleavage membrane waterproofing or crack isolation membrane with elastomeric sealant.

3.3.10 Metal Edge Strips: Install where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with or below top of tile and no threshold is indicated.

3.3.11 Grout Sealer: Apply grout sealer to cementitious grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.

3.3.12 The finished work shall not exceed the following deviations from level and plumb, and from elevations, locations, slopes, and alignments indicated:

1. Floors: 1/8 inch in 8 feet in any direction; plus or minus 1/8 inch at any location; 1/32 inch offset at any location.

2. Walls: 1/8 inch in 8 feet in any direction; plus or minus 1/8 inch at any location; 1/32 inch offset at any location.

3.4 Protection, Cleaning and Repairs

3.4.1 Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove epoxy and latex-portland cement grout residue from tile as soon as possible.

2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

3. Remove temporary protective coating by method recommended by coating manufacturer and that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent drain clogging.

3.4.2 Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.

3.4.3 Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

3.4.4 Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

3.4.5 Remove and replace any items which are broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

END OF SECTION

SECTION 09900 - PAINTING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces:

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

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

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

1.2 RELATED SECTIONS

A. Section 07181 – Water Repellent Coatings.

B. Section 09250 - Gypsum Board Systems: Surface preparation of gypsum board.

1.3 REFERENCES

A. ASTM D16 - Definitions of Terms Relating to Paint, Varnish, Lacquer, and Related Products.

B. ASTM D4442 – Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.

C. PDCA – Architectural Specifications Manual; Painting and Decorating Contractors of America.

D. SSPC – Steel Structures Painting Manual; Steel Structures Painting Council.

1.4 DEFINITIONS

A. "Paint" as used herein means coating systems, materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

B. Conform to ASTM D16 for interpretation of terms used in this Section.

1.5 QUALITY ASSURANCE

A. Material Quality: Provide the manufacturer's best quality trade sale paint material of the various coating types specified.

B. Applicator Qualifications: Firm experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

C. Paint Coordination: Provide finish coats which are compatible with prime paints used. Review other Sections of these Specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on characteristics of finish materials proposed for use, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and reprime as required. Notify the Owner, in writing, of anticipated problems using specified coating systems with substrates primed by others.

D. No claims as to the suitability of materials specified, or the applicator's inability to produce first class finishes with these materials will be considered unless such claims are made in writing prior to the start of the painting work.

E. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer, and use only within recommended limits.

1.6 REGULATORY REQUIREMENTS

A. Products must meet current local and federal VOC requirements.

1.7 SUBMITTALS

A. Comply with Section 01300, Submittals.

B. Product data: For each paint system indicated. Include primers and miscellaneous materials.

1. Provide the manufacturer's technical information including label analysis and instructions for handling, storage, and application of each material proposed for use.

2. List each material and cross-reference the specific coating, finish system, and application. Identify each material by the manufacturer's catalog number and general classification.

3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).

C. Samples: Submit for approval (2) two paper-backed samples, standard draw-down type, of each color and sheen combination indicated. Samples will be reviewed for sheen as well as for color.

1. Clear or semi-transparent wood finishes if specified: Submit on wood specified, as a complete system with stain if any.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptance.

B. Container labeling to include manufacturer's name, type of paint, brand name, brand code, coverage, surface preparation, drying time, cleanup, color designation, and instructions for mixing and reducing.

C. Store paint materials at minimum ambient temperature of 45 deg. F and a maximum of 90 degrees F, in well ventilated area, unless required otherwise by manufacturer's instructions.

D. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 45 deg. F for 24 hours before, during, and 48 hours after application of finishes, unless required otherwise by manufacturer's instructions.

B. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50ºF (10ºC) and 90º F (32ºC).

C. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45º F (7º C) and 95º F (35º C).

D. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85%; or at temperatures less than 5º F (3º C) above the dew point; or to damp or wet surfaces.
1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.

E. Do not apply paint systems in areas where dust is being generated.

1.10 EXTRA MATERIALS

A. Provide a one gallon container of each color and surface texture to Owner.

B. Label each container with color, texture, and room locations, in addition to the manufacturer's label.

C. Store in Owner's designated storage area.

PART 2 - PRODUCTS

2.1 PRIMERS

A. Rust Inhibiting Primer:
1. Moore, IronClad Retardo Rust Inhibitive Paint 163.
2. Pratt and Lambert, Effecto Rust Inhibiting Primer.
3. Sherwin-Williams, KemKromik Metal Primer B50, B66-310 Series.

B. Galvanized Metal Primer:
1. Moore, IronClad Galvanized Metal Latex Primer 155.
2. Pratt and Lambert, Galvanized Metal Latex Primer.
3. Sherwin-Williams, Galvite HS B50W230 Paint or ProCryl Universal Primer, B66-310 Series.

2.2 FINISH PAINTS

A. Exterior Gloss Alkyd Enamel:
1. Moore, Impervo Enamel 133.
2. Pratt and Lambert, Effecto Enamel.
3. Sherwin-Williams, Industrial Enamel, B54.

2.3 MISCELLANEOUS MATERIALS

A. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application. Comply with procedures specified in PDCA P4.

1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly clean and dry.
2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

1. Notify the Owner about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

A. General: Remove existing and new hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items, if necessary, to completely paint the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.

B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease prior to cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

C. Surface Preparation: Clean and prepare surfaces to be painted according to the manufacturer's instructions for each particular substrate condition and as specified. Provide barrier coats over incompatible primers or remove and re-prime. Notify Owner in writing about anticipated problems using the specified finish-coat material with substrates primed by others.

D. Mildew Removal: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach or commercial mildew removers. Rinse with clean water and allow surface to dry.

E. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.

F. Copper Surfaces Scheduled for a Paint Finish: Remove contamination by steam, high pressure water, or solvent washing.

G. Gypsum Board Surfaces: Fill minor irregularities in interior gypsum board with spackle and irregularities in exterior gypsum ceiling board with exterior joint compound according to requirements of Section 09250. Sand smooth, level with surface, when dry. Avoid raising nap of paper. Remove dust prior to painting.

H. Unprimed Ferrous Metals: Clean un-galvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.

I. Primed Ferrous Metals: Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer.

J. Unprimed Galvanized Metal: Clean galvanized surfaces with non-petroleum-based solvents so surface is free of oil and surface contaminants before priming. Clean and touch up chipped and abraded areas in shop coats with primer before applying specified field coats.

K. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil, grease and form release agents with a solution of tri-sodium phosphate or appropriate commercial solvent; rinse well and allow to dry. Remove stains caused by weathering or corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

L. Metal Doors Scheduled for Painting: Seal top and bottom edges with primer.

3.3 PROTECTION

A. Protect elements surrounding the work of this Section from damage or disfiguration.

B. Repair damage to other surfaces caused by work of this Section.

C. Furnish drop cloths, shields, and protective methods to prevent spray or droppings from disfiguring other surfaces.

D. Remove empty paint containers from site.

3.4 APPLICATION

A. Apply materials according to manufacturer's instructions. Apply each coat at rate recommended by manufacturer for the type of surface and with a dry film thickness not less than that recommended.

B. Allow each coat to dry thoroughly before sanding or applying subsequent coats. Lightly sand each coat of varnish and enamel applied to wood or metal with fine sandpaper and wipe clean with a tack rag before next coat is applied. Avoid cutting through edges.

C. Before applying second coat to concrete, touch up hot spots and allow to dry.

D. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

E. Prime back surfaces of interior and exterior woodwork with primer paint.

F. Prime back surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.

3.5 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

A. Refer to Division 15 and Division 16 for schedule of color coding and identification banding of equipment, ductwork, piping, and conduit.

B. Paint shop primed equipment.

C. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

D. Prime and paint equipment visible in finished work, including insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are prefinished.

E. Replace identification markings on mechanical or electrical equipment when painted accidentally.

F. Paint interior surfaces of air ducts, and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint, to limit of sight line. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.

G. Paint exposed conduit and electrical equipment occurring in finished areas.

H. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.

I. Color code equipment, piping, conduit, and exposed ductwork in accordance with requirements indicated. Color band and identify with flow arrows, names, and numbering.

J. Replace electrical plates, hardware, light fixture trim, and fittings removed prior to finishing.

3.6 ADJUSTING AND CLEANING

A. As Work proceeds, promptly remove paint where spilled, splashed, or spattered.

B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.

C. Collect cotton waste, cloths, and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

D. Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not in compliance with specified requirements, until such requirements are met.

E. At the completion of work of other trades, touch- up and restore damaged and defaced painted surfaces.

1. Costs for this touch-up painting shall be charged to the trade responsible for such damage, and at no additional cost to the Owner.
2. Notify the Contractor immediately upon such discovery.

PART 4 - SCHEDULES

4.1 PAINTING SYSTEMS SCHEDULES – GENERAL

A. Painting schedules outline the primary paint systems required. For substrates and conditions not scheduled, provide paint systems recommended by paint manufacturers. Submit proposed paint material product data for approval.

4.2 EXTERIOR PAINT SYSTEMS

A. **EPS-1:** Exterior Galvanized Ferrous Metal:

1 coat	Galvanized Metal Primer.
2 coats	Gloss Alkyd Exterior Enamel

B. **EPS-2:** Exterior Ungalvanized Ferrous Metal, including, but not limited to, Steel Doors and Frames, Bollards, Roof Access Ladder, Downspout Protectors and Gas Piping:

1 coat	Rust Inhibiting Primer (if un-primed).
2 coats	Gloss Alkyd Exterior Enamel

4.3 EXTERIOR PAINT COLOR SCHEDULE

A. As indicated and scheduled on Drawings.

END OF SECTION

DIVISION 13 – SPECIAL CONSTRUCTION

SECTION 13121 – Pre-Engineered Timber Column Structure

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Pre-Engineered factory and field fabricated Timber Column Structure
B. Prefinished metal roofing and siding panels
C. Prefinished metal trim items
D. Prefinished soffits
E. Pre finished gutters and downspouts
F. Insulation, interior framing and liner package

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

A. None

1.03 RELATED SECTIONS

1.04 REFERENCE STANDARDS

A. Preservative Treated Lumber
   1. American Wood Protection Association (AWPA)
      a. Commodity Specification C2 (2001), Preservative Treatment By Pressure Processes
      b. Use Category System U1, User Specification for Treated Wood
      c. UC4A (Important Structural – Ground Contact)
      d. UC4B (Structural Support – Ground Contact)
      e. Items treated under AWPA standards shall bear the quality mark of an independent testing agency or service
   2. International Code Council Evaluation Service (ICC-ES)
      a. Items treated under ICC-ES reports shall meet or exceed the applicable standard and shall bear the quality mark of an independent testing agency or service
   3. Federal Specification TT-W-571-J.

B. Framing Lumber
   1. Lumber Grading Rules and Wood Species
      a. National Design Specification for Wood Construction, current edition
      b. Northeastern Lumber Manufacturer's Association, Inc. (NELMA)
      c. Southern Pine Inspection Bureau (SPIB)
      d. West Coast Lumber Inspection Bureau (WCLIB)
      e. Western Wood Products Association (WWPA)

C. Wood Trusses
   1. All lumber used in the design of wood trusses shall be kiln dried to maximum 19% moisture content and graded in accordance with the current grading rules. Design stresses allowed are those listed in the current editions of the respective Lumber Association's grading rules.
   2. The design of wood members shall be in accordance with the formulas published in the 2001 edition of the National Design Specification for Wood Construction.
   3. Light metal toothed connector plates and joint design shall conform to specifications as set forth in the 2002 edition of Truss Plate Institute's Design Specification for Metal Plate Connected Wood Trusses (TPI-2002).
      a. Connector plates shall be fabricated in accordance with applicable ICC-ES standards.

1.05 SYSTEM DESCRIPTION

A. Clear span
B. Bay spacing of
C. Primary framing
   1. Columns
   2. Trusses
   3. Wind bracing
D. Secondary framing
   1. Perimeter baseboards and preservative treatment
   2. Wall girts
   3. Purlins
   4. Overhang rafters and fascia
   5. Ancillary blocking or furring as required
E. Roof Covering
   1. Prefinished ribbed metal panels
   2. Other roof coverings as required
F. Wall Covering
   1. Prefinished ribbed metal panels
   2. Other wall coverings as required
G. Insulation and Liner package
   1. Vapor retarder
   2. Wall stripping
   3. Prefinished ribbed metal panels

1.06 DESIGN REQUIREMENTS

A. Roof Design Loads
   1. Top Chord Live Load: (25 PSF)
   2. Top Chord Dead Load: (4 PSF)
   3. Bottom Chord Dead Load: (2 PSF)
   4. Bottom Chord Point Loads: (None)
   5. Unbalanced Snow Loads: (None)
B. Wind Speed
   1. (115) MPH. Exposure "(B)"
C. Roof and wall system shall be able to withstand the imposed loads with maximum allowable deflection of L/180.
D. Assembly shall permit movement of components without buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.
E. Size and fabrication of wall and roof systems to be free of distortion or defects that would be detrimental to appearance or performance.

1.07 SUBMITTALS

A. Submit under provisions of Section 01340
B. Provide four (4) sets of the following bearing the seal of a Professional Engineer, registered in the State of (Iowa)
   1. Complete and detailed shop and erection drawings showing size and location of each part and component, certifying that the building design meets specified roof and wind loading requirements
   2. Truss engineering analysis and design data, including the following:
      a. Axial forces and bending moments for each member
      b. Basic plate design value
      c. Design analysis of each joint showing that proper plates have been applied
   3. Manufacturer's standard color chart

1.08 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01700

1.09 QUALITY ASSURANCE

A. Fabricate members in accordance with standard industry practice

1.10 QUALIFICATIONS

A. Contractor shall have a minimum of five years documented experience in the manufacture and erection of this type of structure.
B. Design structural components under direct supervision of a Professional Engineer experienced in design of this work and licensed in the State (Iowa).
C. Employ adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper and safe performance of the work.
D. Contractor shall be responsible for all materials, whether furnished by himself or a subcontractor, and proper storage of the same.

1.11 REGULATORY REQUIREMENTS

A. Contractor shall be responsible for compliance with all applicable building codes and ordinances covering the work.
B. Contractor shall cooperate with regulatory agencies or authorities to provide data as requested.

1.12 PRE-CONSTRUCTION MEETING

A. The meeting will convene no later than one week prior to commencing work under provisions of Section 01201

1.13 FIELD MEASUREMENTS

A. Field measurements shall be taken to verify that components match shop drawings.

1.14 DELIVERY, STORAGEAND HANDLING

A. Deliver and store prefabricated components (trusses, columns, steel panels and other items) so that they will not be damaged or deformed.
B. Stack materials on platforms, pallets or other structures covered with tarpaulins or other suitable weather-tight ventilated covering. Handle and store structural parts in a manner that will avoid deforming members or subjecting parts to excessive stresses.
C. Store roofing and siding panels to allow water to drain freely.
D. Panels shall not be stored in contact with other materials that may cause staining or discoloration.

1.15 PROJECT CONDITIONS

A. Coordination
B. Fit carpentry work to other work. Scribe and cope as required for accurate fitting.
C. Correlate location of furring, nailers, blocking and supports to allow for attachment of other work.

1.16 CERTIFICATIONS

A. In order for the bidder's proposal to be considered, the following certifications shall be tendered with the bid forms:
   1. Certification of the sheet steel supplier stating:
      a. Minimum thickness of metallic coating steel in decimal inch

b. Identification of all metallic coatings
c. Coating weight range
d. Verification that material supplied is in conformance with applicable ASTM standard as stated in the technical specification

2. Certification of paint supplier stating:
   a. Generic chemistry of exterior side topcoat
   b. Percentage of polyvinylidene difluoride (PVDF) in resin
3. Certification of sheet steel coater stating:
   a. Nominal paint film thickness in mils (one mil equals one thousandth of an inch)
4. Certification of treated lumber stating:
   a. Preservative type
   b. Preservative retention in the wood (pounds per cubic foot of wood)
   c. Depth of assay zone
   d. Compliance of preservative and its retention in wood with AWPA or ICC-ES standards
5. Warranty
   a. Sample copy of warranty to be issued at completion of project
   b. Verification that warranty meets or exceeds the requirements stated in the technical specification

B. Failure to supply the required submittals will result in the bidder's proposal being rejected as non- responsive.

1.17 WARRANTY

A. The building manufacturer shall supply a warranty to the Owner which shall provide that the manufacturer will:
   1. For a period of fifty (50) years:
      a. Absorb repair or replacement costs, including materials and labor, if any preservative treated lumber fails due to decay or insect attack
      b. Repair, or at its discretion, replace free of charge the building framework, including roofing and/or siding panels, if directly damaged by snow loads.
   2. For a period of thirty-five (35) years:
      a. Repaint any roofing or siding panel on which, under conditions of normal weather, the paint has separated from the panels due to flaking or peeling.
      b. Repaint any roofing or siding panels on which, under conditions of normal weathering, chalking greater than a rating of 8 (ASTM D4212 Method 'A') or color change greater than five (5) units (ASTM D2244) has occurred.
   3. For a period of ten (10) years:
      a. Repaint any roofing or siding panel on which, under conditions of normal weather, exhibit corrosion resulting in red rust greater than 1/2 inch from any sheared edge which is clearly visible in casual observation.
   4. For a period of five (5) years:
      a. Repair, or at its discretion, replace free of charge the building framework, including roofing and/or siding panels, if directly damaged by wind loads, unless damage is caused by flying or falling objects.
      b. Repair any roof leaks due to defects in materials or workmanship.
   5. For a period of one (1) year:
      a. Repair other building parts that prove to be defective in materials or workmanship.
   6. The manufacturer shall not be liable for damage due to deterioration caused by interior chemical vapors and/or dust, deterioration from proximity to salt water body or aggressive exterior atmosphere, damage by flying or falling objects, or collateral damage to interior walls, ceiling, partitions, equipment and/or contents, or cost of preparation of the site.

PART 2 PRODUCTS

2.01 MANUFACTURERS – BUILDING SYSTEM

A. Manufacturers offering similar systems
   1. As approved by owner
   2. See certification procedure 1.16.

B. Substitutions to or deviations from these specifications:
1. None.

2.02 MATERIALS – FRAMING

A. Post frame building column consisting of minimum 18" diameter cast-in-place concrete footing, laminated wood footing.
a. STANDARDS
1. Building Code Requirements for Structural Concrete by the American Concrete Institute (ACI 318).
2. Manual of Steel Construction, Load and Resistance Factor Design by The American Institute of Steel Construction (AISC).
C. The National Design Specification for Wood Construction (NDS) by The American Forest and Paper Association (AF&PA).

2.1 FOUNDATION SYSTEM
A. Manufacturer:
B. Models:
1. 5x8 Mechanically Laminated Column (4½"x7¼")

B. Wood Trusses
The National Design Specification for Wood Construction (NDS) by The American Forest and Paper Association (AF&PA).B. Wood Trusses
1. Lumber
a. Top Chord: Southern Yellow Pine of size and grade to meet design requirements
b. Bottom Chord: Southern Yellow Pine of size and grade to meet design requirements
c. Webs: Southern Yellow Pine of size and grade to meet design requirements
2. Trusses shall be constructed of surfaced lumber (S4S) and compliant with SPIB visual and structural grade requirements
3. Plates: Connector plates shall meet design requirements and shall be compliant with applicable ICC-ES standards and specifications
4. Design and fabricate trusses and connections to withstand snow, wind and all dead loads.
5. Fabricate trusses in plant, using mechanical or hydraulic fixtures as required to bring members into contact. Install plates in accordance with manufacturer's instructions.

C. Baseboards
1. 2" x 8" No. 1 Southern Yellow Pine with 1/2" x 7/16" notch
2. Pressure treated with wood preservative to a retention in compliance with applicable AWPA or ICC-ES standards and specifications and kiln dried after treatment to 19% maximum moisture content
3. Preservative shall penetrate 100% of sapwood.

D. Wall girts
1. First nailer (girt) above baseboard: 2" x 6" No. 2 or better Spruce-Pine-Fir (SPF) with 1/2" x 3/4" notch in bottom.
2. Balance of nailers: 2" x 4" 2100 MSR (minimum) SPF.
3. Overhang top nailer: 2" x 6" No. 2 or better SPF.

E. Base reinforcement
1. 7/16" x 32" OSB panels installed between the baseboard and first nailer and located in notches.

F. Purlins and truss ties
1. 2" x 4" No. 2 or better SPF

G. Overhang framing
1. Provide factory fabricated rafter frames.
2. Provide 2" x 6" No. 2 or better SPF factory beveled fascia boards.

H. Wind bracing
1. 2" x 6" No. 2 or better SPF from endwall column to first truss back.

I. Framing around openings
1. 2" x 4" No. 2 or better SPF around personnel doors.
2. 2" x 6" No. 2 or better SPF around overhead door openings

J. Headers
   1. Provide built-up headers as required for proper installation.
K. Incidental Framing
   1. 2" x 4" and/or 2" x 6" No. 2 or better SPF
L. Interior framing
   1. 2" x 4" No. 2 or better SPF

2.03 MATERIALS – PREFINISHED METALS

A. Roofing panels (Fluoroflex 1000®)
   1. Panel substrate shall be 0.019" minimum thickness commercial steel sheet with G90 (zinc) coating per ASTM A653 or AZ55 (aluminum/zinc) coating per ASTM A792.
   2. The weather side of the panel shall receive a nominal two tenths mil polyurethane primer and a nominal eight tenths mil topcoat of 70$ polyvinylidene difluoride (PVDF) resin to achieve a total nominal paint film thickness of one mil.
   3. Color selection of siding panels shall be from the manufacturer's standard color chart.
   4. The non-weather side paint system shall consist of a two coat finish with a total nominal thickness of one-half mil.
B. Siding Panels (Fluoroflex™ 1000)
   1. Panel substrate shall be 0.019" minimum thickness commercial steel sheet with G90 (zinc) coating per ASTM A653 or AZ55 (aluminum/zinc) coating per ASTM A792.
   2. The weather side of the panel shall receive a nominal two tenths mil polyurethane primer and a nominal eight tenths mil topcoat of 70$ polyvinylidene difluoride (PVDF) resin to achieve a total nominal paint film thickness of one mil.
   3. Color selection of siding panels shall be from the manufacturer's standard color chart.
   4. The non-weather side paint system shall consist of a two coat finish with a total nominal thickness of one-half mil.
C. Wainscot Panels (Fluoroflex™ 1000)
   1. Panel substrate shall be 0.019" minimum thickness commercial steel sheet with G90 (zinc) coating per ASTM A653 or AZ55 (aluminum/zinc) coating per ASTM A792.
   2. The weather side of the panel shall receive a nominal two tenths mil polyurethane primer and a nominal eight tenths mil topcoat of 70$ polyvinylidene difluoride (PVDF) resin to achieve a total nominal paint film thickness of one mil.
   3. Color selection of siding panels shall be from the manufacturer's standard color chart.
   4. The non-weather side paint system shall consist of a two coat finish with a total nominal thickness of one-half mil.
D. Metal Trim Items (Fluoroflex™ 1000)
   1. Die-formed steel from the same quality material as the siding panels

2.04 MATERIALS – OTHER

A. Corner bracing
   1. Provide 1-1/4" wide high tensile steel strapping in all unobstructed corners in an "X" configuration.
B. Roofing and siding fasteners
   1. EPDM washered, painted, center drive stainless steel screws for ribbed steel panels
C. Closure strips
   1. Closed cell foam.
D. Sealant
   1. 100% neutral curing silicone sealant, and
   2. paintable sealant where required
E. Insulation provided by SECTION 07200
F. Vapor Retarder
   1. 4 mil. thick polyethylene sheets

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify site conditions under provisions of Section 01015.

3.02 ERECTION – FRAMING – GENERAL

A. Erect framing in accordance with manufacturer's established construction procedures.
B. Make all components and building plumb, square, straight and true to lines, according to industry standards (See 3.08).
C. Provide adequate temporary bracing to assure structure remains plumb and square until permanent bracing is installed.
D. Altering of structural members will not be permitted.

3.03 ERECTION – FRAMING

A. Column
   1. Auger a hole to depth (48" minimum) with diameter as required by the building manufacturer.
   2. Back fill with 4000 PSI concrete.
   3. Install manufacturer's recommend quantity and size pneumatically driven fasteners.
B. Baseboards
   1. Install 2" x 8" treated plank, at grade, using builder's recommended fasteners.
C. Wall girts
   1. Install 2" x 6" notched nailer to receive OSB panel.
   2. Install 2" x 4" nailers with on-center spacing as shown on building plans.
   3. Install 2" x 6" overhang nailer at the top.
D. Trusses
   1. Set trusses in plane with the center member of the upper column using lifting methods as approved by the manufacturer.
   2. When properly positioned, install two ½" diameter machine bolts and manufacturer-recommended 20d ring shank nails through two of the upper column laminates and the truss heel.
   3. Brace trusses as recommended by the manufacturer.
E. Purlins
   1. Install 2" x 4" purlins at 24" on-center (maximum) and attached to trusses with 60d ring shank nails.
F. Wind bracing
   1. Install 2" x 6" angled bracing at locations recommended by the manufacturer.
G. Incidental framing
   1. Install 2" x 4" or 2" x 6" blocking as required according to building manufacturer's recommendations.
H. Interior framing
   1. Install 2" x 4" baseboard at 4" above grade and case in metal trims
   2. Install 2" x 4" horizontal stripping at 36" o.c. (max) in areas receiving ribbed steel panels
   3. Install 2" x 4" horizontal stripping at 16" o.c. in areas receiving gypsum board if applicable

3.04 ERECTION – PREFINISHED MATEALS – GENERAL

A. Roofing Panels
   1. Install panels perpendicular to supports, aligned straight with end fascia
   2. Fasten panels to purlins with screw fasteners.
B. Siding and wainscot panels
   1. Install panels perpendicular to supports, aligned level and plumb to industry standards (See 3.08).
   2. Fasten panels to wall girts with screw fasteners.
C. Trim items
   1. Install trim items at the base, wainscot transition, corners, top of steel siding, fascia, gables and ridge using appropriate fasteners.

D. Vent-A-Ridge
   1. Install over ridge trim using screw fasteners.
   2. Insure that a minimum of 2" clear throat opening is maintained.

E. Soffits
   1. Install soffits to interlock with trim items at top of steel siding and at fascia.
   2. Use solid soffit at end overhang.
   3. Use a combination of solid and perforated soffits to provide balanced ventilation at side overhangs.

F. Gutter and downspouts
   1. Install gutters with spikes and ferrules (with washers) spaced 24" on-center.
   2. Silicone sealant and silicone rubber gaskets shall be used at laps to maintain leak prevention and to relieve stress due to thermal movement.

G. Filler strips
   1. Provide closed cell foam filler strips at the top and bottom of the roofing panels. F. Gutter and downspouts

H. Interior Panels
   1. Install panels perpendicular to supports, aligned level and plumb
   2. Fasten panels to wall girts with 1" painted screws
   3. Fasten panels to lower truss chords with 1" painted screws

3.08 TOLERANCES

A. Framing Members
   1. 1/4" from level.
   2. 1/8" from plumb

B. Siding and roofing
   1. 1/8" from true position

END OF SECTION

PLAN BID SET

for

Hannen Lake Park Shop Building

1949 Benton/Iowa Road
Blairstown, IA 52209

Project:

BCC 012023

Owner:

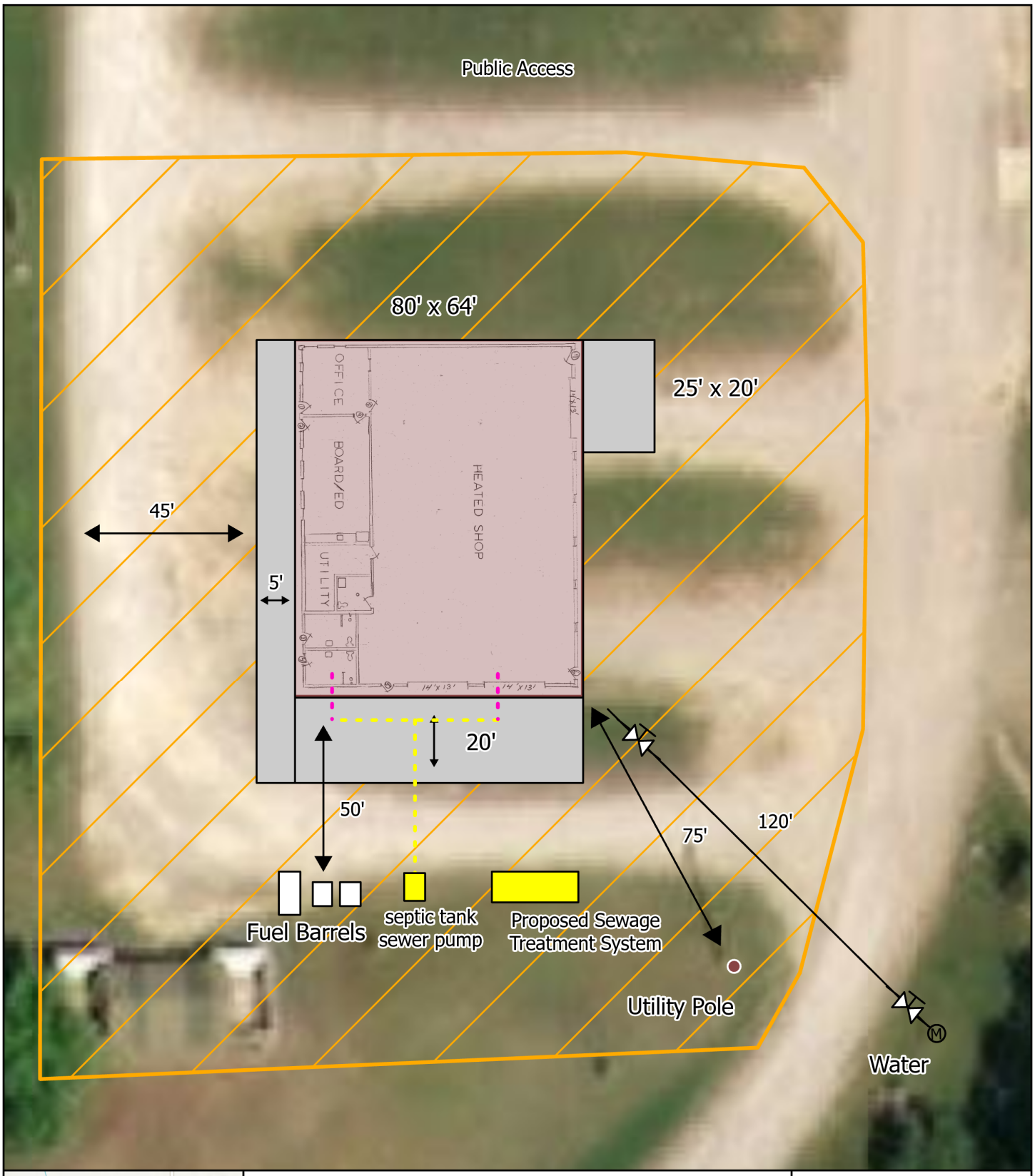
Benton County Conservation
5718 20th Avenue Drive
Vinton, IA 52349

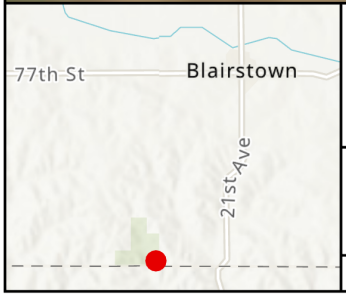
Contact:

Larry Reiter
319-269-8725

Shelby Williams
swilliams@bentoncountyparks.com

10 January 2023





Hannen Shop Layout

Maxar, Microsoft, Esri, NASA, NGA, USGS, Iowa DNR, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA

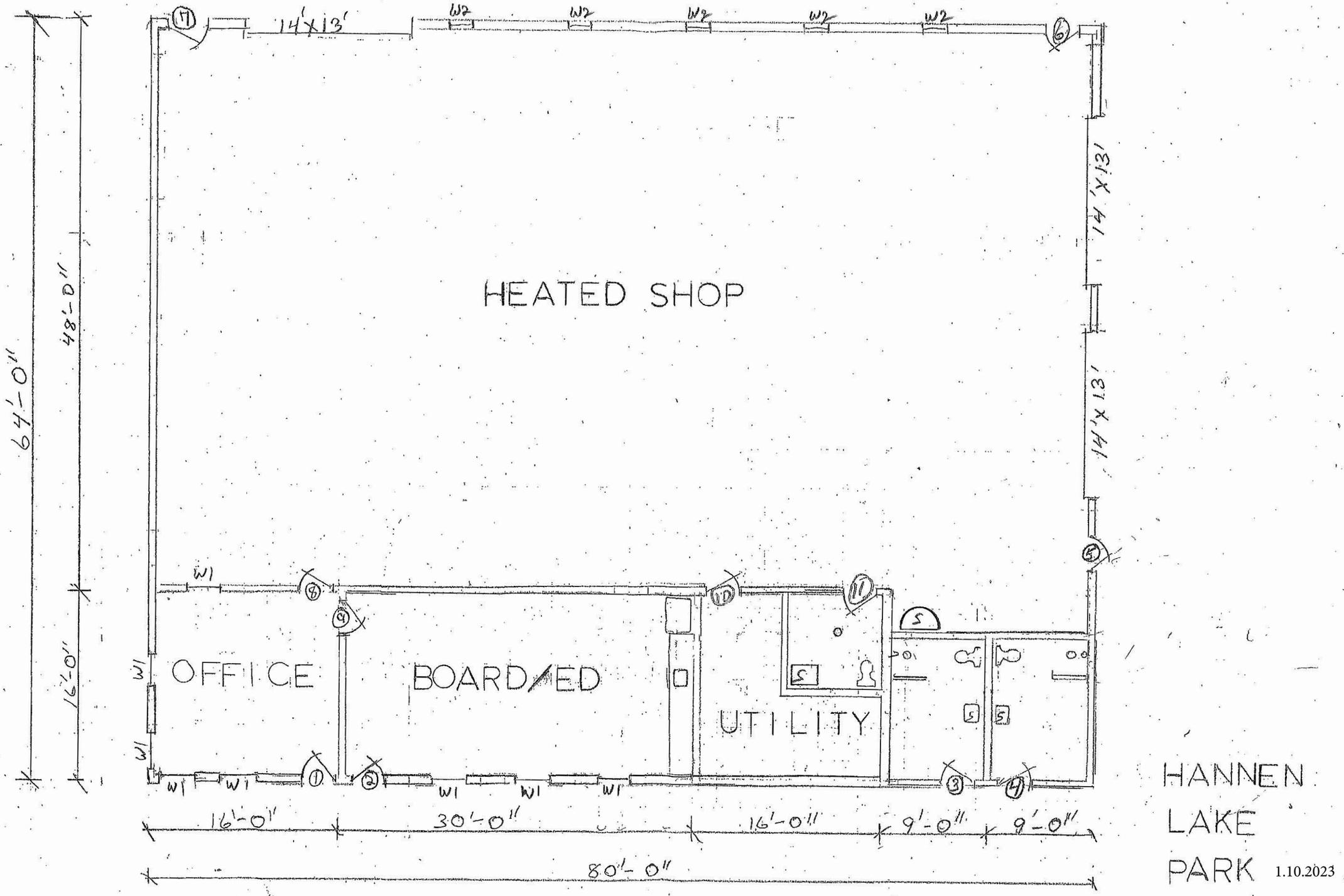
2023

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

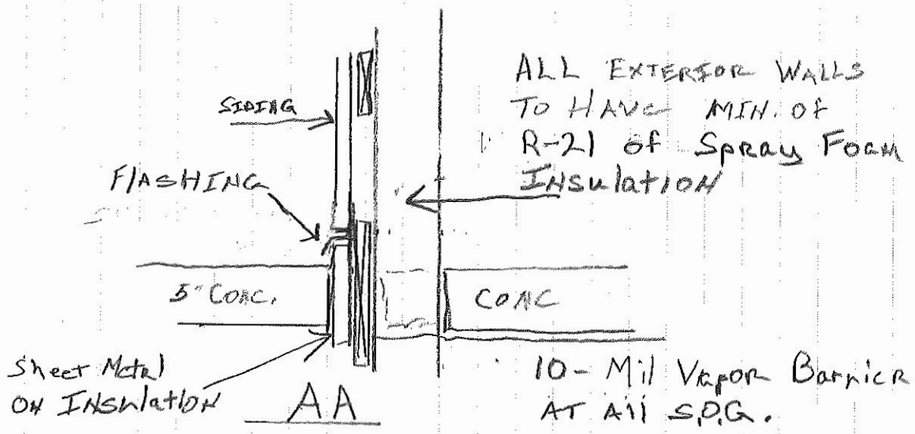
Building
Concrete
Bid Package 5
Bid Package 6
Construction Zone

0 10 20 Feet

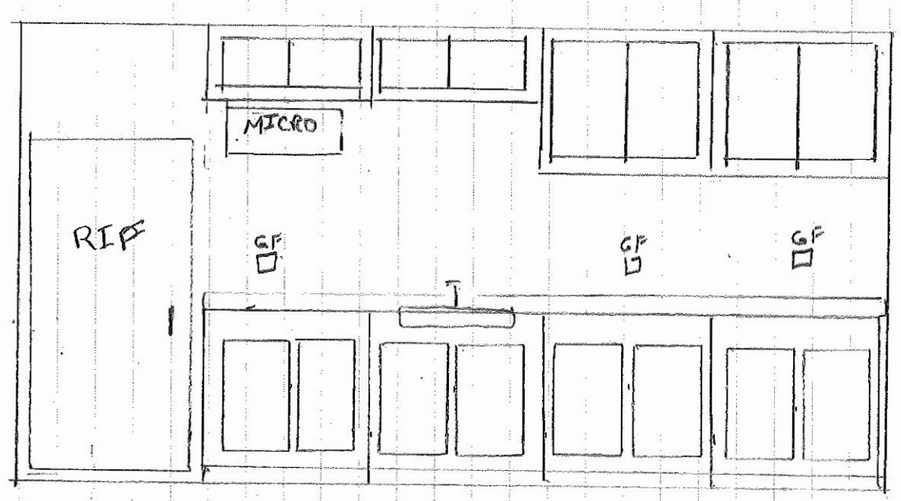
N



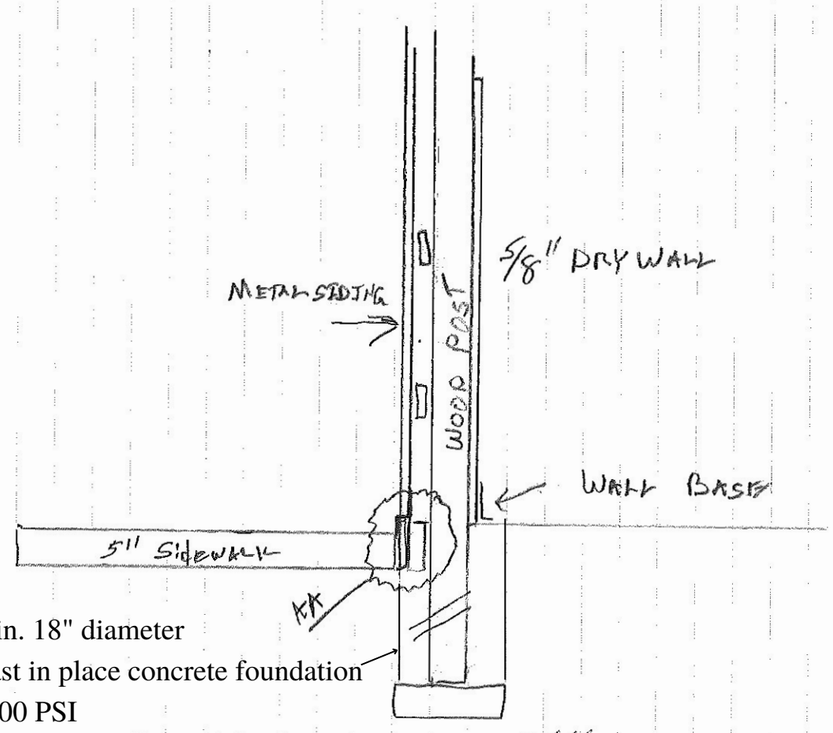
HANNEN LAKE PARK 1.10.2023



EXTERIOR
AT CONCRETE S.O.G

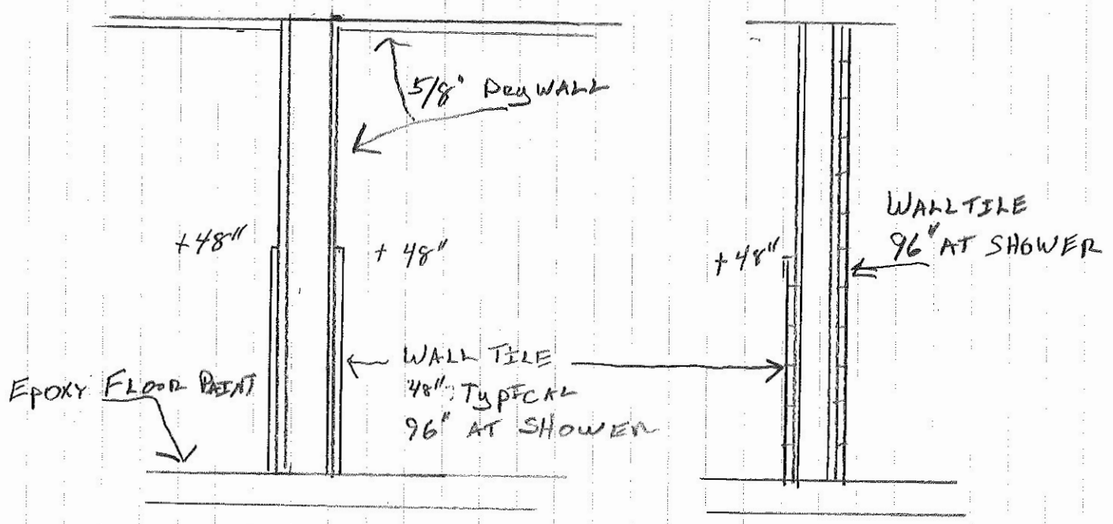


BOARDROOM



Min. 18" diameter
Cast in place concrete foundation
4000 PSI

EXTERIOR WALL AT OFFICE



BATH ROOM WALL TILE

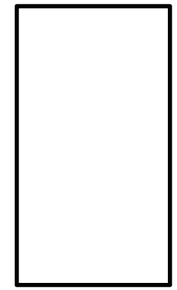
HANNEN
LAKE
PARK

1.10.2023

HANNEN LAKE PARK SHOP BUILDING
PLAN BID SET

ROOM FINISH SCHEDULE

ROOM	FLOOR	WALL BASE	WALLS				CEILING	Notes
			NORTH	SOUTH	AST	WEST		
OFFICE	SEALED CONC.	VINYL	GYP-P	GYP-P	GYP-P	GYP-P	GYP-P	GYP-P = GYPSUM BOARD PAINTED
BOARD / ED	SEALED CONC.	VINYL	GYP-P	GYP-P	GYP-P	GYP-P	GYP-P	
UTILITY	SEALED CONC.	NONE	GYP-P	GYP-P	GYP-P	GYP-P	GYP-P	
STAFF RESTROOM	SEALED CONC.	VINYL	GYP-P	GYP-P	GYP-P	GYP-P	GYP-P	
MENS SHOWER	SEALED CONC.	TILE	TILE & GYP-P	TILE & GYP-P	TILE & GYP-P	TILE & GYP-P	GYP-P	SEE PHOTO
WOMENS SHOWER	SEALED CONC.	TILE	TILE & GYP-P	TILE & GYP-P	TILE & GYP-P	TILE & GYP-P	GYP-P	SEE PHOTO
SHOP AREA	SEALED CONC.	METAL	LINER PANEL	LINER PANEL	LINER PANEL	LINER PANEL	LINER PANEL	



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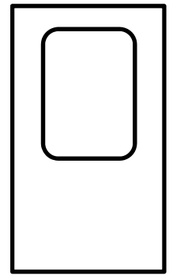


HG

HOLLOW METAL DOOR SCHEDULE

OPENING	ROOM	DOOR SIZE	DOOR TYPE	INSULATED GLASS	HINGES	CLOSER	ADA WEATHER SEALS	LEVER LOCK	LEVER LATCH	Notes
1	OFFICE	3' X 7'	HG	X	X	X	X	X		
2	BOARD / ED	3' X 7'	HG	X	X	X	X	X		
3	WOMENS SHOWER	3' X 7'	F		X	X	X	X		
4	MENS SHOWER	3' X 7'	F		X	X	X	X		
5	SHOP	3' X 7'	F		X	X	X	X		
6	SHOP	3' X 7'	F		X	X	X	X		
7	SHOP	3' X 7'	F		X	X	X	X		
8	OFFICE	3' X 7'	HG	X	X				X	
9	BOARD / ED	3' X 7'	HG	X	X			X		
10	UTILITY	3' X 7'	F		X			X		
11	STAFF RESTROOM	3' X 7'	F		X			X		

VINYL WINDOW SCHEDULE

OPENING	TYPE	QUANTITY	OPENING SIZE	Notes
W1	SINGLE HUNG	8	36" X 36"	
W2	FIXED	5	24" X 24"	

- Floor to ceiling tile in shower
- 48” tall wainscoting rest of the restroom

2'-0"

16'-0"

24'-0"

24'-0"

1:8

4/12 P

4/12 P

R-38 BLOWN-IN INSULATION
+14'-0" MIN.

G

LINER PANELS

R-38 BLOWN-IN INS.
+8'-0" MIN.

5/8" DRYWALL

R-13 INSULATION
LINER PANELS

R-21 SPRAY FOAM

OFFICE

HEATED SHOP

5/8" DRYWALL

R-21 SPRAY FOAM

4" CONC. W/ GRANULAR SUBBASE

6" CONC. W/ GRANULAR SUBBASE TYP.

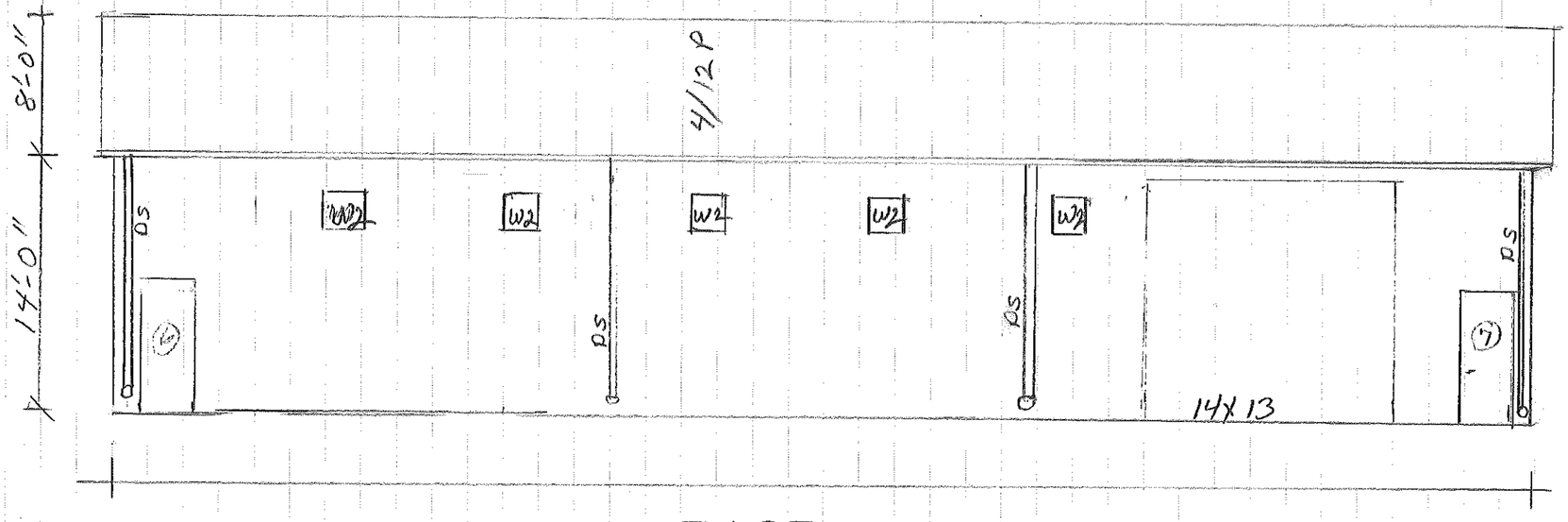
16'-0"

48'-0"

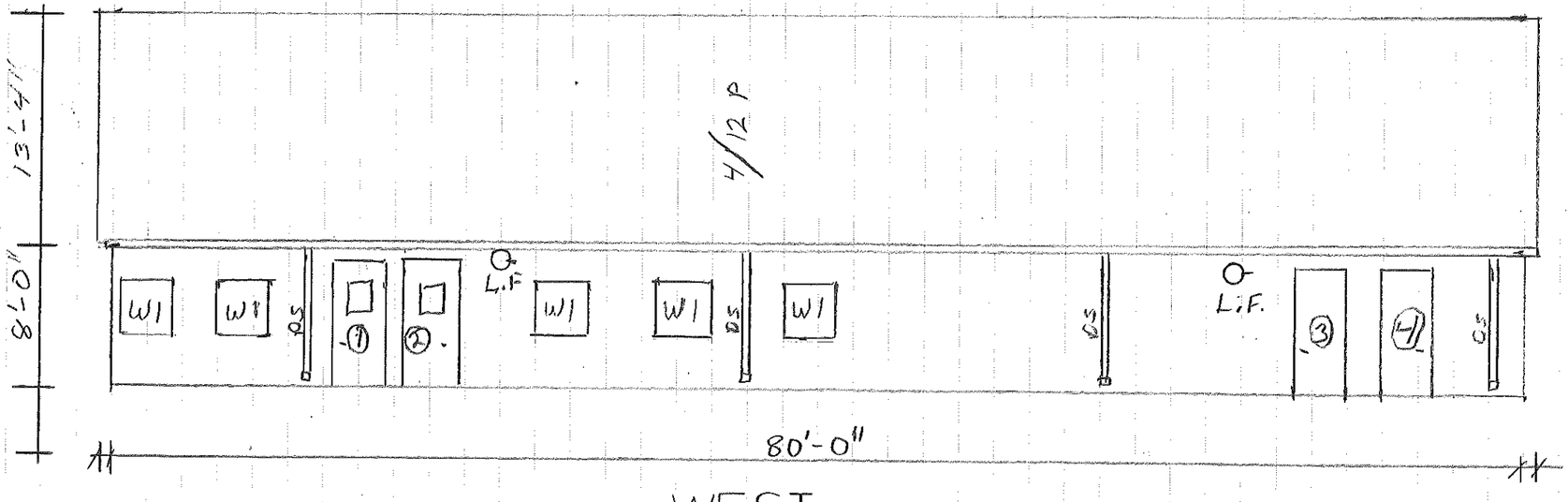
64'-0"

HANNEN
LAKE
PARK

1.10.2023



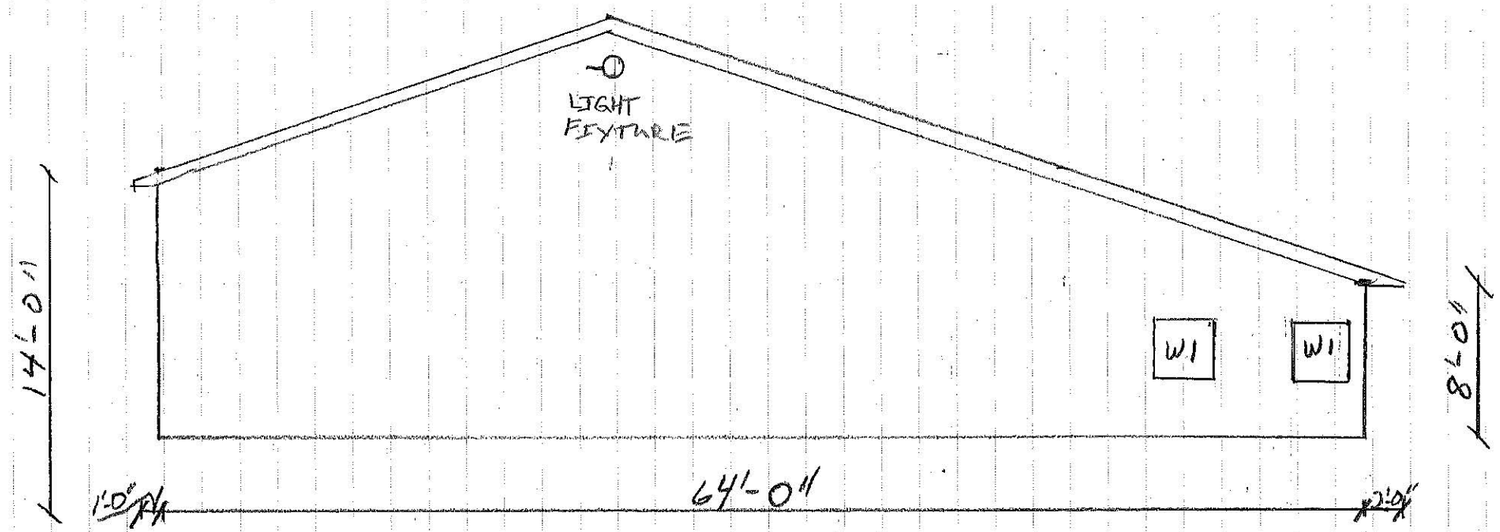
EAST



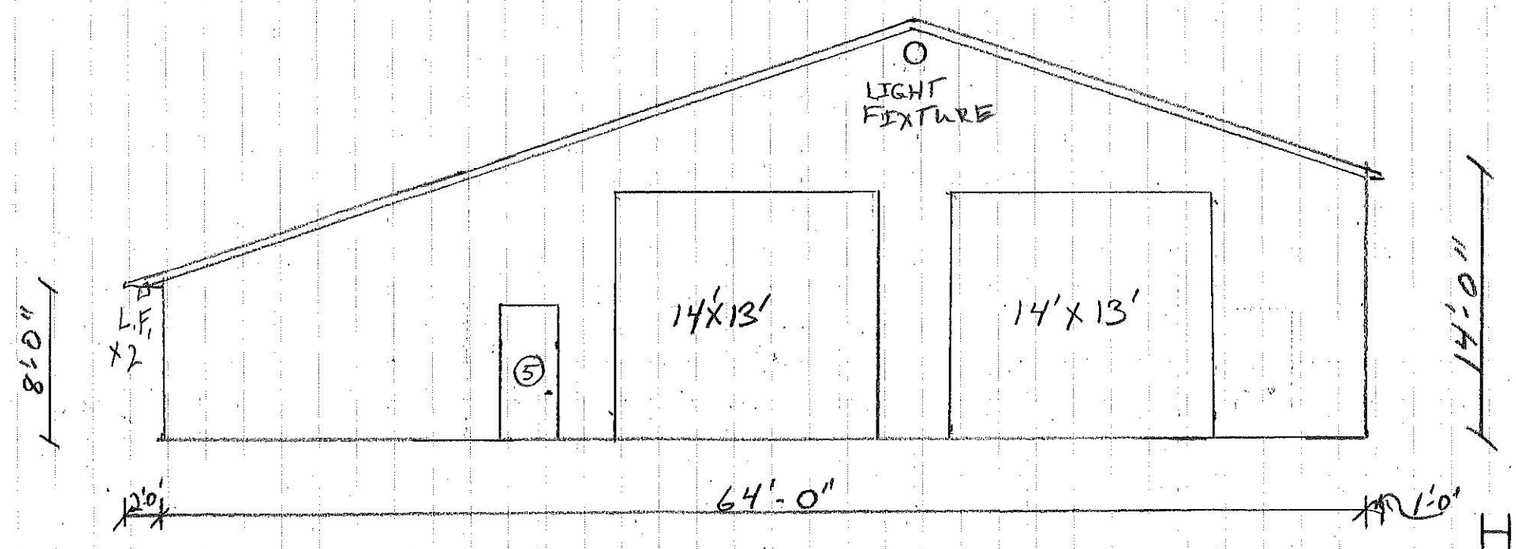
WEST

HANNEN
LAKE
PARK

1.10.2023



NORTH



SOUTH

HANNEN LAKE PARK 1.10.2023

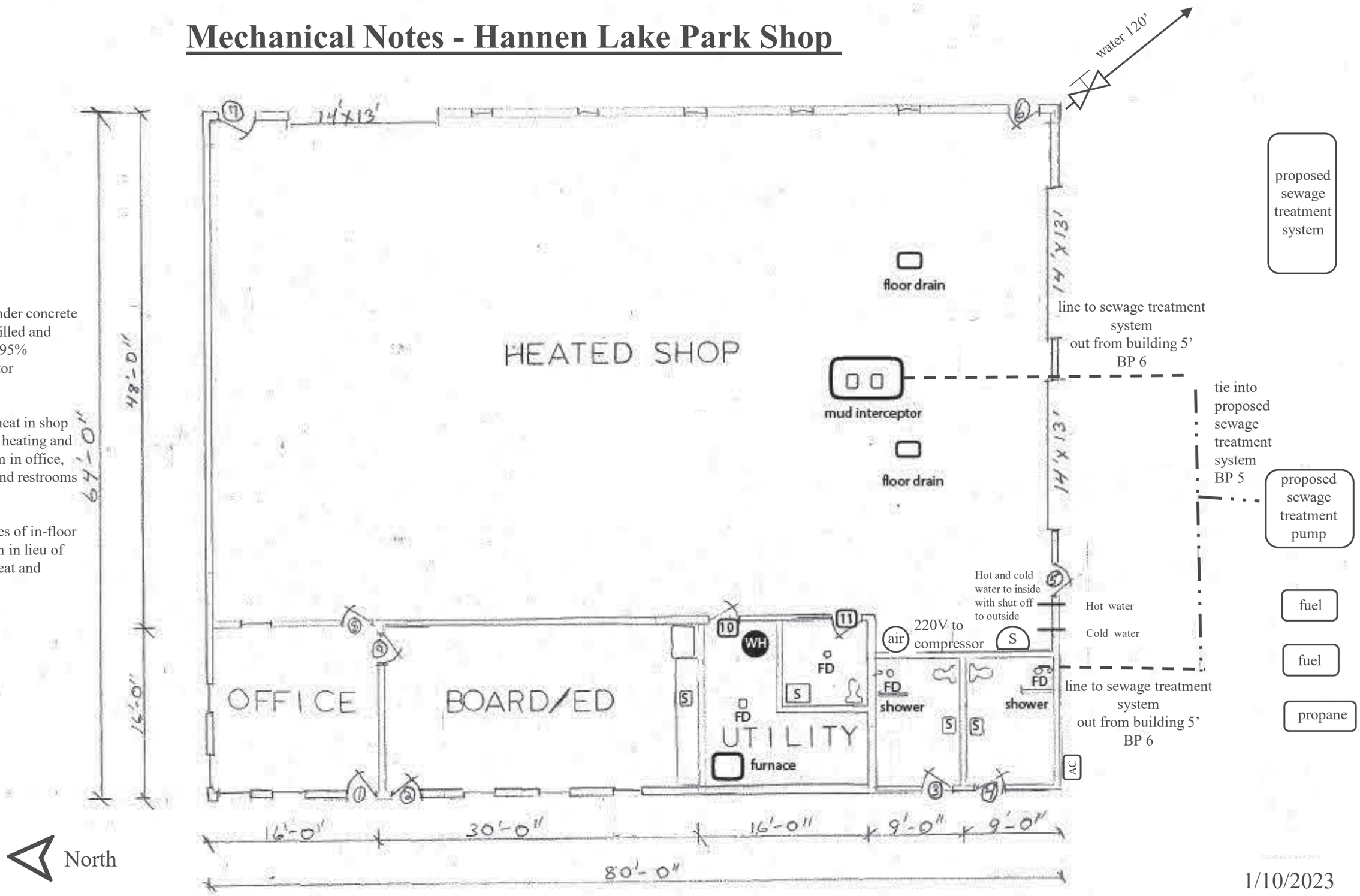
Mechanical Notes - Hannen Lake Park Shop

Notes:

-all utilities under concrete shall be backfilled and compacted to 95% standard proctor

base bid:
-radiant tube heat in shop and forced air heating and cooling system in office, board room, and restrooms

-alt bid 1:
provide 3 zones of in-floor heating system in lieu of radiant tube heat and forced air



1/10/2023

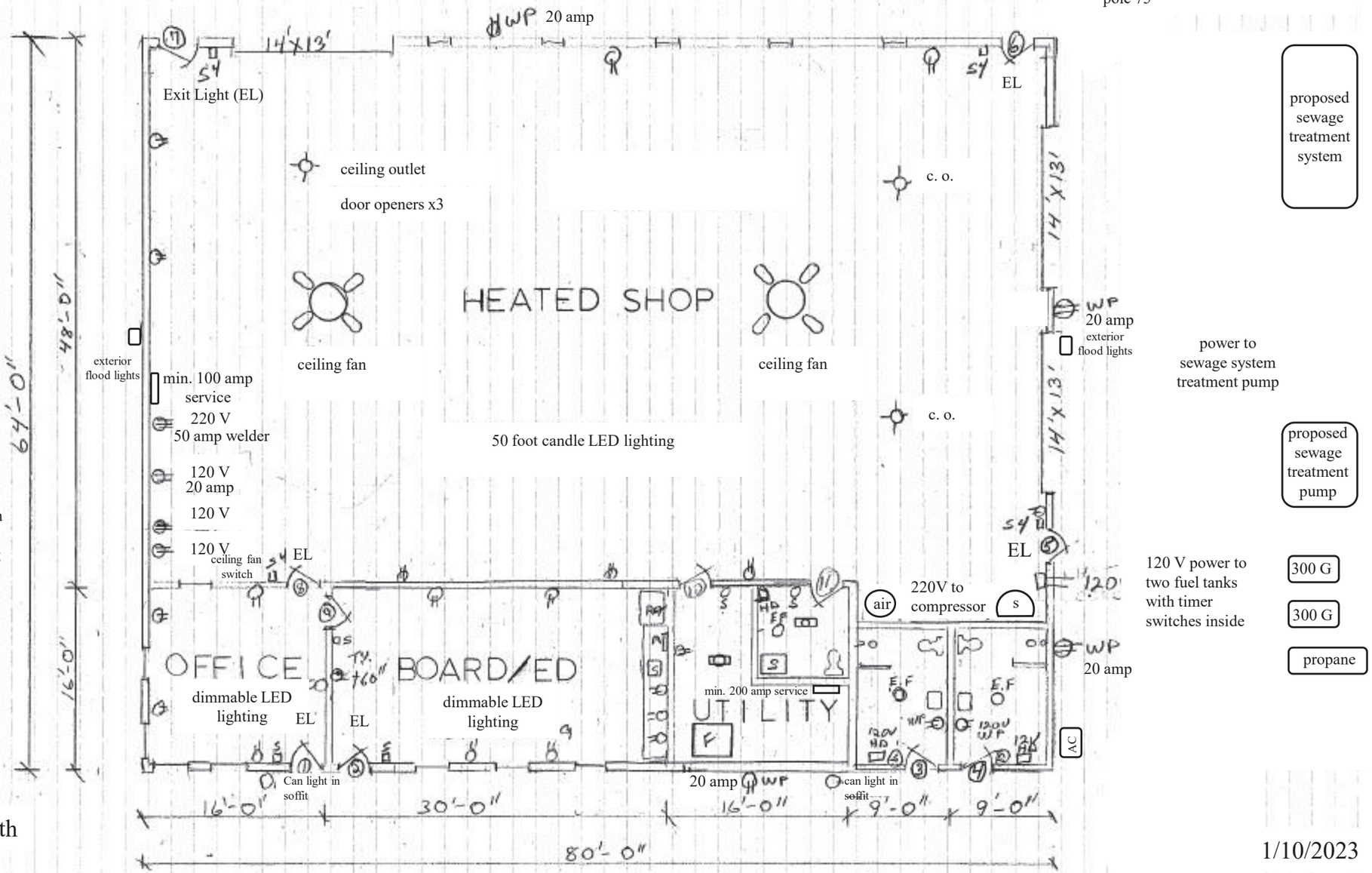
Electrical Notes – Hannen Lake Park Shop

Notes:

-120 V 20 amp circuit as required per code
-LED lighting all areas
-all exterior light fixtures on timer switch
-all restroom lights and fans on motion sensor
-Pass and Seymour or equal brand preference

base bid:
-radiant tube heat in shop and forced air heating and cooling system in office, board room, and restrooms

-alt bid 1:
provide 3 zones of in-floor heating system in lieu of radiant tube heat and forced air



1/10/2023