

Westview High School Team Rooms

BID Package Specifications

August 25, 2020

Prepared For:

Beaverton School District



Prepared by:

Convergence Architecture

Marshall Hilton Design



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- Not included.

END OF SECTION

SECTION 00 01 15

LIST OF DRAWINGS

NOTE: Users of this Project Manual shall check the Construction Documents with the List of Drawings to be sure each sheet is included.

LIST OF DRAWINGS (BID PACKAGE - DATED 08, 25, 2020)

ARCHITECTURAL

- A0 COVER SHEET AND LIFE SAFETY PLAN
- A1 FLOOR PLANS AND INTERIOR ELEVATIONS
- A8 DETAILS

END OF SECTION

SECTION 01 11 00**SUMMARY OF WORK****PART 1 - GENERAL****1.1 CONDITIONS AND REQUIREMENTS**

- A. The Bidding Requirements, provided under Division 0, and the Sections contained in Division 1 – GENERAL REQUIREMENTS of these Specifications apply to the Work specified in this Section.

1.2 SECTION INCLUDES

- A. Sections contained in Division 0 and Division 1 of the Specifications apply to the Work specified in this Section and in each Section of the Specifications. The Contractor shall instruct each of his Subcontractors to become fully familiar and comply with all requirements of these documents.
- B. The project and the Work of the Contract can be described in summary as follows:
 - 1. Interior selective demolition of existing restrooms at Westview High School as indicated on Drawings.
 - 2. Interior construction of new team rooms in former restrooms at Westview High School as indicated on Drawings and as specified herein.
- C. General:
 - 1. Do not interrupt electric, gas, water or other services to existing Owner occupied structures without prior notice to the District and then only at a definite time and for a definite duration approved by the District.
 - 2. Contractor shall schedule demolition and remodel to accommodate Owner's continued use of existing mechanical, plumbing and electrical services as required for Owner's continued occupancy and beneficial use of designated areas.
 - 3. Provide all services required. Protect and maintain existing utilities, active electrical conductors, sewers, pipes, and other active lines on school property.
 - 4. Utilities, pipes, sewers, electrical conductors and the like to be abandoned shall be capped in accordance with instruction of governing authority or as directed.
- D. Protections:
 - 1. Protect sidewalks, asphalt paving, concrete, shrubs and lawn areas at all times from spillage of materials used in carrying out the Work. Exercise care to preclude materials from clogging catch basins and yard drains. Leave all drainage items clean and in proper working condition.
 - 2. Clean, repair, resurface or restore existing surfaces to their original condition, or completely replace such surface to match existing, where damaged by construction operations.

1.3 ASBESTOS FREE CERTIFICATION

- A. Absolutely no materials containing asbestos are to be provided or installed as part of this Project. The Contractor shall ensure that no subcontractor or any of Contractor's own forces installs any materials containing asbestos. At final closeout of the Project, the Contractor shall provide to the School District certification that no materials containing asbestos have been installed in the Project and that the Project is asbestos free as required by the State of Oregon.
 - 1. Upload certification to Submittal Module on E-Builder to verify it meets the needs of the

District.

1.4 COORDINATION

- A. The Contractor is responsible for overall coordination of the Project.
- B. The Drawings and Specifications are arranged for convenience only and do not necessarily determine which trades perform the various portions of the Work.
- C. Coordinate sequence of the Work to accommodate Owner occupancy. If mechanical, electrical or plumbing work is to interrupt power or water usage, the District must be notified 72 hours in advance.
- D. Do all necessary Work to receive or join the Work of all trades.
- E. Verify location of existing utilities and protect from damage.
- F. Mechanical and Electrical Drawings: The mechanical and electrical drawings are diagrammatic. Additional offsets and bends may be required and are to be installed as may be required. The Architect may make minor adjustments in fixture, outlets, grille, louver or ventilator locations prior to rough-in work with no additional cost to the project.
- G. Calculate dimensions and measures for layout of work; do not scale the Drawings. Record deviations from Drawing information on existing conditions, and review with the Architect at time of discovery. Record actual conditions on project record drawings.
- H. Installer Inspection:
 - 1. Require installer of each major unit of work to inspect substrate and conditions for installation, and to report unsatisfactory conditions in writing. Correct unsatisfactory conditions before proceeding with installation.
 - 2. Inspect each product immediately before installation. Do not install damaged or defective products, materials or equipment.
 - 3. Start of installation shall be understood as acceptance of substrate conditions by the installer.
- I. Clearances: Review the Design Drawings for possible conflicts prior to rough-in. Contractor is responsible for verification that equipment will fit in the space provided. Resolve conflicts with the Architect prior to rough-in work.

1.5 CUTTING AND PATCHING

- A. Provide cutting, fitting and patching of the Work as required.
- B. Make its several parts fit properly together.
- C. Uncover Work to provide for installation of ill-timed Work.
- D. Remove and replace defective Work.
- E. Remove and replace Work not conforming to requirements of Contract Documents.
- F. Remove samples of installed Work as specified or where directed for testing.

- G. Install specified Work in existing construction.
- H. Uncover Work to provide for Architect's observation of Work covered prior to inspection or approval.
- I. Provide routine penetrations of non-structural surfaces for installation of piping, ducts, electrical conduit, and other mechanical and electrical items.

1.6 SUBMITTALS-All BSD contracts require use of E-Builder Process module.

- A. Submit schedule of all shop drawings, product data and samples specified in each individual section of the project manual. Coordinate construction schedule and installation dates of each product and assembly and allow ample time for Architect's review. Allow time for possible disapproval and resubmission.
- B. Deliver submittals (that need to be reviewed in person) to Convergence Architecture, 7302 N. Richmond Avenue, Portland, OR 97203.
- C. Transmit each item under Architect-accepted form. Identify Project, Contractor, Subcontractor, and 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 Architect review stamps.
- D. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- E. Coordinate submittal of related items with construction schedule for timely submittal to the Architect.
- F. After Architect's review of submittal, revise and resubmit as required, identifying changes made since previous submittal.
- G. Do not fabricate products or begin work that requires submittals until return of submittal with Architect acceptance.
- H. Timing of Submittals:
 - 1. Submittals – Within 10 days of Notice of Award of Contract:
 - a. A designation of the Work to be performed by the Contractor by his own forces.
 - b. List of Subcontractors and major materials suppliers for principal portions of the Work.
 - 2. Submittals – Prior to Notice to Proceed:
 - a. Executed Agreement.
 - b. Performance and Labor & Material Payment bonds per Oregon Law (ORS 279.029, 279.542, 701.430) with certified copy of Power of Attorney from Attorney-in-Fact executing bonds.
 - c. Certified copies of Contractor's Liability Insurance Policies (AIA Doc.G705)
 - 3. Submittals – Within 15 days After Notice to Proceed and Prior to first Payment Application, upload the following to the Submittal Module on E-Builder:
 - a. Schedule of values.
 - b. Schedule of submittals. Upload to Submittal Register on E-Builder.

- c. Copies of acquired building permit licenses etc. to complete the work of this contract.
 - d. Construction schedule.
- 4. Submittals – Prior to each Month's Payment:
 - a. Application and Certificate for Payment (AIA Document G702 and G703).
 - 1 Submit with back-up using Invoice Approval Process in E-Builder.
 - b. Notarized affidavit of payments to all subcontractors and major material suppliers.
 - c. Updated construction schedule.
 - d. Public Works Contractor Wage Certification per Oregon Law. Upload BOLI Payroll submittals to E-Builder.
- 5. Submittals – Prior to Substantial Completion: Notification to Architect that work of the Project is substantially complete, including a listing of items of work to be completed or corrected, together with certificate of occupancy or occupancy permit issued by the Local Building Department for the entire Project.
 - a. Attach Commissioning Reports for critical life safety systems to Substantial Completion notification on E-Builder I. Schedule of Values:
 - 1 Submit typed schedule on AIA Form G703. Contractor's standard form or media-driven printout will be considered on request.
 - 2 Provide breakdown per each specification section listed in the project manual.
 - 3 Upload draft of Schedule of Values to the Submittal Module on E-Builder.

J. See Section 01 33 00 SUBMITTAL PROCEDURES.

PART 2 – PRODUCTS

2.1 MATERIAL

- A. The Contractor warrants to the Owner that the materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

PART 3 – EXECUTION (Not Used)

END OF SECTION

01 14 00**WORK RESTRICTIONS****PART 1 - GENERAL****1.1 WORK RESTRICTIONS**

- A. Work Sequence:
 - 1. Complex schedules, phased construction and/or compressed schedules are common.
 - 2. Coordinate work sequence and phased construction requirements with BSD Representative.

1.2 CONTRACTOR USE OF PREMISES – GENERAL

- A. General: Owner will occupy portions of the building during the construction period. Do not interfere with the Owner's operations. Coordinate use of premises under the direction of the Owner.
- B. Use of Site:
 - 1. Assume full responsibility for the protection and safekeeping of Products under this Contract, stored on the Site.
 - 2. Confine operations at the site to the areas permitted. Portions of the site beyond areas on which work is indicated are not to be disturbed.
 - 3. Move any stored Products, under Contractor's control, which interfere with operations of Owner or separate contractors.
 - 4. Keep existing driveways and entrances serving the premises clear and available at all times.
 - 5. Do not use for parking for storage of materials.
 - 6. Maintain continuity of utility services to existing building.
 - 7. Lock automotive type vehicles and other mechanized or motorized construction equipment, when parked and unattended. Do not leave vehicles or equipment unattended with the motor running. Keys are not to be left in the vehicle.
 - 8. Do not encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas indicated.
 - 9. Limit access to prohibited locations and arrange schedules with BSD personnel.
 - 10. Define contractor areas for work, access, staging, storage, etc.
 - 11. Provide staging & logistics plan. Delineate on site plan. Submit Staging & Logistics Plan with submission of Construction Schedule.

1.3 CONTRACTOR USE OF PREMISE – EXISTING BUILDINGS

- A. Use of Site:
 - 1. Maintain the existing building in a safe and weathertight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.
 - 2. Keep public areas such as hallways, stairs, and toilet rooms free from accumulation of waste material, rubbish, or construction debris.
 - 3. Smoking or open fires will not be permitted within the building enclosure or on the premises.
 - 4. Contractor personnel prohibited from undesignated areas.
 - 5. Toilet facilities are the Contractor's responsibility to provide.

6. Limit/contain smoke, dust, dirt, noise – including radios to immediate work area.
7. Broom-clean work area daily.
8. Restore existing surfaces where damaged or modified by construction operations to their original condition.
9. Room may be designated for use as a field office if coordinated through the BSD representative. Room must be vacated by stipulated completion date, regardless of authorized adjustments to construction schedule.

1.4 OCCUPANCY REQUIREMENTS – EXISTING BUILDINGS

- A. Scheduling Requirements:
 1. Contractor shall organize and coordinate work in a manner that does not interfere with the normal operations of areas of the facility being occupied and used by the Owner.
 2. Contractor shall maintain safe and convenient public access to the toilet rooms at all times that the facility is normally open to the public.
 3. Contractor shall continuously maintain public entry to the portions of the building being used by the Owner. The Contractor shall also continuously maintain safe, direct and legal exiting routes from all areas of the building to the outside.
 5. Communications shall include:
 - a. DoaaElhaggan, construction Project Manager:
 - 1) Cell Phone: 503-863-9083
 - 2) Office Phone: 503-356-4433.
 - 3) Email: Doaa_El_Haggan@beaverton.k12.or.us
- B. Provide for continued occupancy, access, and egress. Existing utilities shall be maintained to the building. Provide minimum 24 hour notice for any disruption.
- C. Provide safety protection for occupants.

1.5 WORK SEQUENCE

- A. Coordinate the construction schedule and operations with the Owner's Designated Representative.
- B. The Contractor is responsible for employing an approved abatement contractor for the removal of hazardous materials at the school as necessary.

END OF SECTION

SECTION 01 23 00**ALTERNATES****PART 1 - GENERAL****1.1 GENERAL REQUIREMENTS**

- A. Description: Alternates indicated Bid Proposal, include changes in Work as described by the Alternates listed in this Section. Alternates may be either additive or deductive to the Base Bid. The alternate amount will either be added to or deducted from the Base Bid amount if the Owner decides to accept a corresponding change in either scope of work or in products, materials, equipment, systems, or installation methods described in the Contract Documents.
- B. Coordination: Coordinate related Work and modify or adjust surrounding Work that is affected by each accepted alternate and ensure that work is complete and fully integrated as required to complete the Project under each alternate.
- C. Note that the Information for Bidders requires that bidders bid upon all Alternates that may be indicated on the Bid Proposal. Bid the Alternate as Lump Sums which will be considered independently of each other.
- D. The Owner's electing to exercise any Alternate does not relieve the Contractor of timely completion of the project, within the periods indicated.
- E. Evaluation of Alternate Prices: Bid evaluation will be based on lowest total of base bid modified by Owner accepted alternates.
- F. Notification: 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 consideration at a later date.
- G. Schedule:
 - 1. A "Schedule of Alternates" is included at the end of this section.
 - 2. Specification Sections that may be referenced in each Alternate contain pertinent requirements for materials and installation to achieve the Work described by each Alternate.
 - 3. Include as part of each Alternate, miscellaneous devices, appurtenances and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION****2.1 SCHEDULE OF ALTERNATES**

- A. Additive Bid Alternate No. 1 – If Additive Bid Alternate No. 1 is exercised by the Owner, provide.
 - 1. Alternate No. 1:
 - a. Remove ceramic tile flooring, grind and seal existing concrete floors. As indicated on Sheet A1 FLOOR PLANS AND INTERIOR ELEVATIONS.

END OF SECTION

SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 – GENERAL

1.1 SUBSTITUTIONS

- A. Submit two copies of CSI substitution form attached at the end of this document to the Architect via E-Builder. Architect to forward any substitution to BSD representative for approval via E-Builder prior to acceptance by the Architect.
- B. Include in Request:
1. Complete data substantiating compliance of proposed substitution with Contract Documents.
 2. For Products:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturers literature.
 - c. Product description.
 - d. Performance and test data
 - e. Reference standards.
 - f. Samples, where appropriate.
 - g. Name and address of similar projects on which product was used and date of installation.
 - h. If item deviates from District standards.
 - 1) District Standards can be viewed at the District's website at www.beaverton.k12.or.us/depts/facilities. at Home Page, click on Facilities Development" for list of documents.
 - i. Maintenance requirements
 - j. Unit Cost
 3. For Construction Methods:
 - a. Detailed description of proposed method and Drawings illustrating methods.
 - b. Itemized comparison of proposed substitutions with product or method specified.
 - c. Data relating to changes in construction schedule.
 - d. Accurate cost data on proposed substitution in comparison with product or method specified.
 - e. If method deviates from District standards.
 - 1) District Standards can be viewed at the District's website at www.beaverton.k12.or.us/depts/facilities. At Home Page, click on "Facilities Development" for list of documents.
- C. Substitution after Award of Contract
1. Substitution of products will not normally be approved after Contract is executed. However, substitutions may be considered for one or more of the following conditions.
 - a. Unavailability beyond control of Contractor, such as strikes, lockouts, discontinuance by the manufacturer or his authorized supplier.
 - b. Requirements for compliance with final interpretation of code requirements or insurance regulations.
 - c. BSD or Architect requested substitution.
 - d. If it can be shown that specified product or system is not well suited for proposed application or that another is superior and/or less costly and has attached detailed documentation including cost savings/increase.

- e. Subsequent information or data discloses inability of specified product to perform properly in the design for which it was intended.
- f. Manufacturer or fabricator refusal to certify or guarantee performance of specified product as required.
- g. Subsequent information that a long delivery rate will not be compatible with Contract construction period.
- h. Proof for any of the above set forth conditions shall be submitted to the Consultant in writing with all pertinent data in the form of a Change Order Request for Consultant's and less costly substitution shall be credited to BSD's account.

END OF SECTION

BDS – WESTVIEW HIGH SCHOOL TEAM ROOMS

Issue Set: BID Package

Print Date:8/22/20

TO:**PROJECT:****SPECIFIED ITEM:**

Section	Page	Paragraph	Description
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PROPOSED SUBSTITUTION:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identification of applicable data portions. Attached data also includes description of changes to Contract Documents and proposed substitution requires for proper installation.

Undersigned certifies following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing, and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts available locally or readily obtainable for proposed substitution.

Undersigned further certifies function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by:

Name (Printed or typed)

General Contractor (if after award of Contract)

Signature

Firm Name

Address

City, State, Zip

Date

Tel:

Fax:

For use by A/E

Approved

Approved as noted

Not Approved

Received too late

By

Date

Remarks



Advancement
of Construction
Technology

The Construction Specifications Institute
September 1997
Northwest Region

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 – GENERAL

1.1 CONTRACT MODIFICATION PROCEDURES

A. Proposal Requests:

1. BSD-Initiated Proposal Requests:

- a. Architect will issue a detailed description of proposed changes in the work that may require adjustment to the Contract Sum or Contract Time via E-Builder.
- b. Request shall be presented on AIA Document G709 or similar form approved by BSD Representative.
- c. Proposal requests issued by Architect are for information only, and shall not be considered instructions to stop work or to execute the proposed change.
- d. Within 10 working days after receipt of proposal request, Contractor shall submit a quotation of cost adjustments to the Contract Sum and Contract Time necessary to execute the change via E-Builder.
- e. Contractor shall include an itemized breakdown of cost including quantities of materials, labor costs with breakdown by trade, costs of rental equipments, transportation, storage, etc.
- f. Contractor shall include an updated Construction Schedule via E-Builder that indicates the effect of the change including, but not limited to, changes in activity duration, start and finish dates, and activity relationships. Contractor shall utilize available total float before requesting an extension of Contract Time.

2. Contractor-initiated Proposal Requests:

- a. Contractor shall provide a complete description of the proposed change, indicating the effect of the proposed change on the Contract Sum and on the Contract Time.
- b. Contractor shall include an itemized breakdown of cost including quantities of materials, labor costs with breakdown by trade, costs of rental equipment, transportation, storage, etc.
- c. Contractor shall include an updated Construction Schedule that indicates the effect of the change including, but not limited to, changes in activity duration, start and finish dates, and activity relationships.
- d. Contractor shall utilize available total float before requesting an extension of Contract Time.

3. Proposal Request Log: Contractor shall maintain a current log of all proposal requests and submit same at each project meeting and with each application for payment via E-Builder. Each proposal request shall have a unique number for tracking purpose. The log shall, at minimum, show the proposal request number, date initiated, brief description, reference (i.e. RFI or supplemental instruction), estimated cost, estimated time, status, and reason for the proposal request (i.e. Unforeseen Condition / Regulatory Requirement / BSD Request / E&O).

B. Change Orders:

1. District and Consultant shall review the Proposal Requests submitted by the Contractor for revisions in the contract cost and the contract time, and may request the Contractor modify its proposal.

2. Upon acceptance of the Proposal Requests by the BSD Representative, Contractor, and Architect, the Architect will prepare the Change Order via E-Builder on the District's form attached for signatures by all parties.
- C. Construction Change Directives:
1. Construction Change Directive shall contain a complete description of the change in the work, and shall designate the method to be followed to determine changes in the Contract Sum or Contract Time.
 2. Documentation: Contractor shall maintain detailed records on a time and material basis of work required.
 3. Upon completion of the change in the work, the Contractor shall submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract for preparation of a Change Order by the Consultant.
 4. Payments to the Contractor shall not be made on a basis of a Construction Change Directive until it is made into a Change Order approved by BSD Representative, Contractor, and Consultant- portions of a Construction Change Directive shall not be eligible to be made into a Change Order for partial Payment.
- D. Minor Changes In The Work:
1. Architect may issue supplemental instructions authorizing minor changes in the work that do not involve adjustment to the contract sum nor the contract Time. Minor changes in the work shall use AIA Document G710, "Architect's Supplemental Instructions" or a similar form as approved by the BSD Representative and be submitted via E-Builder.

END OF SECTION

SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Forms and procedures for progress payments.

1.2 APPLICATION FORMS

- A. For applications for payment, AIA Document G702, supported by AIA Document G703, Continuation Sheet.
- B. Prepare the schedule of values in such a manner that each major item of Work and each subcontracted item of Work is shown as a line item broken down in terms of material and labor costs on AIA Document G703, Application and Certificate for Payment Continuation Sheet in similar format.
- C. The schedule of values shall be submitted for review by the Owner and Architect prior to the first application for payment via E-Builder; and may be used when, and only when, accepted in writing by the Owner and Architect. Use E-Builder Submittal Module.
- D. Payment request is to include the Contractor's Federal Tax Identification number and return address.
- E. Each Application for Payment shall be based upon the Schedule of Values submitted by the Contractor to the BSD Representative and the Architect within 10 days of the award of Contract. The Schedule of Values shall allocate the entire Contract Sum among the various portions of the Work and be prepared in such form and supported by such data to substantiate its accuracy as the BSD Representative and the Consultant may require: Format AIA G702 with G703 Schedule of Values.

1.3 PAYMENTS

- A. Owner will make progress payments on account of the Contract once monthly for the scheduled duration of the project based on the value of Work accomplished or materials in the job site, as stated in the schedule of values on the Application and Certificate for Payment. Complete and forward on or about the 20th day of each month.
- B. Submit via E-Builder forms requesting payment to Architect.
- C. Payments will be made on protected materials on hand at the job site properly stored, protected, and insured. Materials held offsite in a bonded and insured warehouse will be considered for payment if the application for payment contains an insurance certificate and bill of sale for materials stored offsite. Estimated quantities shall be subject to Architect's review and judgment.

1.4 EARLY PURCHASE AND PAYMENT OF MATERIALS AND EQUIPMENT

- A. Order materials and equipment requiring a long lead or waiting time early so as not to delay progress of the Work.
- B. The Contractor will be reimbursed for early order materials or items upon receipt and verification of quality and quantity against submittals and shipping documents by Owner's Representative. Receipt shall be to the job site or stored at Owner's other premises in an orderly and safe manner, secured from normal weather damage. Security remains the responsibility of the Contractor.
- C. When such items are procured by BSD, the items will be assigned to the General Contractor for receiving and installation.
- D. As part of the procurement of the items, the specifications will require the start of the product warranty/guarantee extended to coincide with the Project Substantial Completion date and be fully assignable to the General Contractor or its designee.

END OF SECTION

SECTION 01 31 00**PROJECT MANAGEMENT AND COORDINATION****PART 1- GENERAL****1.1 COORDINATION**

- A. The contractor shall coordinate scheduling, submittals, sequencing of the installation of interdependent elements, utility coordination, and space requirements for installation and maintenance of finished work and storage or staging areas for all trades. The mechanical, electrical, and electrical drawings are diagrammatic and may require special coordination between trades. The Contractor shall provide multidisciplinary coordination of drawings as necessary to insure proper space and layout of various portions of the work.
- B. Notes on various drawings are not meant to determine trade or work jurisdictions. As an example, there may be “architectural” items shown or indicated on mechanical, plumbing, and electrical drawings. Further, there may also be “mechanical”, “plumbing” or “electrical” items shown on architectural drawings. The Contractor is responsible to include all items in the bid cost regardless of which drawing they are indicated on.
- C. The Contractor shall coordinate all work with the Owner's representative to minimize conflict and insure the least inconvenience to the general public and adjoining properties. Claims for additional time or money resulting from a lack of coordination will not be considered.
 - 1. Directions shall originate only from the Owner's designated representative and/or the Architect. Communications with other BSD stakeholders are to be considered supplementary and not binding. Instructions, information, and/or direction from other BSD stakeholders are not official direction, and must be confirmed with the Owner's designated representative and/or the Architect.

1.2 SUPERVISION

- A. The Contractor shall provide a competent superintendent who is present on-site during all phases of construction and while work is in progress.

1.3 PRE-CONSTRUCTION CONFERENCE

- A. Purpose:
 - 1. To discuss items of interest in such detail that the Contractor shall have a clear understanding of the Owner's requirements, Contract Documents, and conditions affecting the Work. Items to be discussed include, but are not limited to:
 - a. Roles of Architect, Owner, Contractor, and Inspectors.
 - b. Procedures for handling change orders, requests for payment, and other administrative details.
 - c. Procedures for handling shop drawing, substitutions, inspections, etc.
 - d. Scheduling of the work.
 - e. Contractor's comments on any inaccuracies or ambiguities found in the Contract Documents.
 - f. To discuss any and all questions by the Contractor to make sure that the Contractor is aware of all conditions affecting the work prior to the awarding of the Contract.

2. For the General Contractor to discuss with the Owner, Architect, subcontractors, and other interested parties the design, methods, organization, schedule of the work, contract requirements, mutual understandings relative to the Contract Documents, and procedures of the Administration of the Contract. Items to be discussed include, but are not limited to:
 - a. Construction Schedule.
 - b. Project Coordination: Designation of responsible personnel.
 - c. Procedures and processing of submittals, pay requests, change orders.
 - d. Record Document maintenance.
 - e. Hazardous materials.
 - f. Review of existing building conditions.
- B. Date of Conference: Before actual construction begins, when scheduled by the Architect.
- C. Attendance: The Owner, Architect, Contractor, and his superintendent shall attend as well as subcontractors and suppliers designated by the Owner, Architect, or Contractor.
- D. Place: To be designated by the Owner.

1.4 PROJECT COORDINATION SUBMITTALS

- A. Schedule of Values: Submit within 15 days from Award of Contract. Provide in format approved by the Owner's Representative.
 1. Format: Identify each line item with number and title of the corresponding SPECIFICATION SECTIONS. Indexing by general division is not acceptable.
 2. Keep Schedule of Values current with progress of work, and provide as integral part of Application for Payment. Revise schedule to list Change Orders for each Application for Payment.
 3. Breakdown per phasing (if included in project). Submit via E-Builder.
- B. Construction Schedule:
 1. Submit Construction Schedule in line with published schedule contained in these bid documents within 20 days of Award of Contract and provide update at every week subcontractor coordination meeting. Schedule shall consist of a horizontal bar chart with separate designation for each major trade or operation, identifying first workday of each week. Clearly designate Critical Path of construction.
 2. Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities. Show projected percentage of completion for each item of work as of the first of each month. Submit via E-Builder.

1.5 SUBMITTAL PROCEDURES

- A. Submit information as required by each Section of the Specification. Coordinate with construction schedule and allow sufficient time for Architect and consultant review. Allow time for potential disapproval and re-submittal.
 1. The Contractor should expect a minimum review/processing time of seven (7) days for the Architect review and a minimum of fourteen (14) days for Architect's consultant and Owner's review.

1.6 SHOP DRAWINGS

- A. Submit drawings via E-Builder.

1.7 SAMPLES

- A. Submit full range of manufacturer's standard colors or custom colors where specified, textures and patterns for Architects final selection. Submit via E-Builder unless sample cannot be adequately reviewed without seeing the physical sample.
- B. Submit samples to illustrate functional characteristics of the product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing work.
- C. Include identification on each sample, giving full information.
- D. The Contractor shall clearly mark and identify applicable products, models, options and other data on manufacturer's standard data or catalog cuts. The Contractor shall provide supplemental data or information unique to this project. Where specified in other sections of the specification, assembly, installation, start-up, adjusting and finishing. The Contractor shall submit supporting reference data, affidavits and certifications that products meet or exceed the specified requirements.

1.8 PRODUCT DATA

- A. Mark each copy to identify applicable products, models, options, and other data; supplement manufacturer's standard data to provide information unique to the work.
- B. Submit via E-Builder.

1.9 WARRANTIES

- A. Prior to final payment, furnish one (1) original and two (2) copies of all warranties required for each item of materials where stipulated in the Contract Documents. Submit as part of the O&M deliverables.

1.10 LAYOUT OF THE WORK

- A. The Contractor shall survey and verify the conditions of the existing project site. The purpose of the survey is to record existing conditions prior to the construction for comparison with the Contract Documents.
- B. The Contractor shall report any conflicts to the Architect prior to the start of the Work. The Architect will provide revisions to the Contract Documents or issue instructions to deal with conflicts.
- C. The Contractor shall be responsible for remedying conflicts that could have been prevented by timely reviews of existing conditions. All remedies which vary from the Contract Documents shall be approved by the Architect and the Owner's Representative.

1.11 JURISDICTIONAL REPORTING REQUIREMENTS

- A. Certification of occupancy shall not be issued prior to all inspections normally required in the course of construction by the Authority Having Jurisdiction.

1.12 PROGRESS MEETINGS

- A. Purpose: Project meetings will be held each week, from beginning of construction to final acceptance, to discuss items of mutual interest regarding coordination and progress of the work.
 - 1. The Contractor shall fully brief the Architect and BSD Representative on the progress of the Work.
- B. Day of Week: To be mutually determined by the Architect, Owner, and the Contractor.
- C. Attendance: The Owner, Architect, Contractor, and his superintendent shall attend, or their representatives. Other subcontractors, suppliers, or manufacturer's representatives shall attend when requested by the Contractor, Owner, or Architect.
- D. Place: Project site or as otherwise designated by the Owner.
- E. Chairman: The Contractor shall chair the meeting.
- F. Meeting Date Changes: Contact Owner's Representative to request any changes in the meeting date; provide 24 hour notice. The Owner's Representative will set the new date.
- G. Meeting Report: The Contractor will later issue a meeting report to the Contractor and Owner. Submit via E-Builder.
- H. The Contractor shall be responsible for notifying subcontractors and other representatives of scheduled construction meetings where their attendance is requested.

1.13 PRE-INSTALLATION CONFERENCES:

- A. Pre-Installation Conferences: Contractor to arrange and conduct pre-installation conferences prior to initialization of work of major trades as required within the Specifications. Attendance shall include Owner's representative, Contractor, major sub-contractor(s), and Architect. Include technical representatives of product manufacturers and others recognized as expert or otherwise capable of influencing success of the installation. Review significant aspects of requirements for the work. Record discussion and distribute as plan of action. Review procedures, distribute schedule and discuss requirements pertaining to the work. Designate responsible personnel. Conduct walkover inspection of existing site.

END OF SECTION

SECTION 01 31 23

PROJECT MANAGEMENT DATABASE (E-BUILDER)

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Summary.
- B. General Requirements.
- C. System Requirements.
- D. System Access.
- E. System Use.

1.2 SUMMARY

- A. Project Management Communications: The Owner, Contractor and Architect shall use the Internet web based project management communications tool, E-Builder® ASP software and protocols included in that software during this project. The use of project management communications as herein described does not replace or change any contractual responsibilities of the participants.
- B. Purpose: The intent of using E-Builder® is to improve project work efforts by promoting timely initial communications and responses and to reduce the number of paper documents while providing improved record keeping by creation of electronic document files.

1.3 GENERAL REQUIREMENTS

- A. Project management communications is available through E-Builder® as provided by "E-Builder®" in the form and manner required by the Owner.
- B. The project communications database is on-line and fully functional. User registration, electronic and computer equipment, and Internet connections are the responsibility of each project participant. The sharing of user accounts is prohibited.
- C. Support: E-Builder® will provide on-going support through on-line help files.
- D. Authorized Users: Access to the web site will be by individuals who are licensed users as required by the Owner.
- E. Licenses Granted by Owner: Owner shall pay for and provide licenses for the following members of the project team:
 - 1. Lead member and backup member of Architect's design team responsible.
 - 2. Contractor's project manager or lead member and a back up member of Contractor's project staff.

3. Others as deemed appropriate by Owner.

1.4 SYSTEM REQUIREMENTS

- A. System Configuration:
 1. PC system 500 MHz Intel Pentium III or equivalent AMD processor.
 2. 128 MB Ram .
 3. Display capable of SVGA (1024 x 768 pixels) 256 colors display.
 4. 101 key Keyboard .
 5. Mouse or other pointing device.
- B. Operating system and software configuration:
 1. All software shall be properly licensed with vendors or developers. Use of "E-Builder" does not convey any rights or licensure for use of any software, hardware or internet service provider.
 2. Software Configuration:
 - a. Most current version of Microsoft Internet Explorer (current version is a free distribution for download). This specification is not intended to restrict the host server or client computers provided that industry standard HTTP clients may access the published content.
 - b. Most current version of Adobe Acrobat Reader (current version is a free distribution for download).
 - c. Other plug-ins specified by E-Builder® as applicable to the system (current versions are a free distribution for download from www.e-builder.net).
 - d. Users are recommended to have properly licensed versions of the standard Microsoft Office Suite (current version must be purchased) or the equivalent.

1.5 SYSTEM ACCESS

- A. Minimum Equipment and Internet Connection: In addition to other requirements specified in this Section, the Contractor shall be responsible for providing suitable computer systems for each licensed user at the users normal work location with high-speed Internet access, i.e. DSL, local cable company's Internet connection, or T1 connection.
- B. Authorized users will be contacted directly by the web site provider, E-Builder®, who will assign the temporary user password.
- C. Individuals shall be responsible for the proper use of their passwords and access to data as agents of the company in which they are employed.

1.6 SYSTEM USE

- A. Owner's Administrative Users: Owner administrative users have access and control of user licenses and all posted items. **DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!**
- B. Improper or abusive language toward any party or repeated posting of items intended to deceive or disrupt the work of the project will not be tolerated and will result in deletion of the

offensive items and revocation of user license at the sole discretion of the Administrative User(s). Costs incurred or associated with such issues shall be the financial responsibility of the party responsible for the transgression.

- C. Communications: Communication for this project for the items listed below shall be solely through E-Builder®:
 - 1. RFI, Requests for Information.
 - 2. Change Order Requests.
 - 3. Architect's Supplemental Instructions.
 - 4. Calendar of Events (meetings, events, open houses, public site tours etc.).
 - 5. All other communication shall be conducted in an industry standard manner.
- D. Document Integrity and Revisions:
 - 1. Documents, comments, drawings and other records posted to the system shall remain for the project record. The authorship time and date shall be recorded for each document submitted to the system. Submitting a new document or record with a unique ID, authorship, and time stamp shall be the method used to make modifications or corrections.
 - 2. The system shall identify revised or superseded documents and their predecessors.
 - 3. Server or Client side software enhancements during the life of the project shall not alter or restrict the content of data published by the system. System upgrades shall not affect access to older documents or software.
- E. Document Security: The system shall provide a method for communication of documents. Documents shall allow security group assignment to respect the contractual parties communication except for Administrative Users.
- F. Document Integration: Documents of various types shall be logically related to one another and discoverable.
- G. Notifications and Distribution: Document distribution to project members shall be accomplished both within the extranet system and via email as appropriate. Project document distribution to parties outside of the project communication system shall be accomplished by secure email of outgoing documents and attachments, readable by a standard email client.
- H. Ownership of Documents and Information: All documents, files or other information posted on the system shall become the property of the Owner.

END OF SECTION

SECTION 01 32 00**CONSTRUCTION PROGRESS DOCUMENTATION****PART 1 – GENERAL****1.1 CONSTRUCTION PROGRESS DOCUMENTATION**

- A. Progress Schedules & Reports. The Contractor, within ten calendar days after being awarded the Contract, shall prepare and submit for the information of the BSD Representative and the Consultant a Progress Schedule in critical path management (“CPM”) format satisfactory to the BSD Representative for the Work. The Progress Schedule shall conform to any requirements of the Specifications, shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, shall provide for expeditious and practicable execution of the Work, and shall be utilized and conformed to by the Contractor and its Subcontractors. Contractor shall comply with the Progress Schedule. The Progress Schedule is for District’s benefit, and to the full extent permitted by law, changes to or variations from the Progress Schedule shall not entitle the Contractor to an extension of the Contract Time or increase of Contract Sum.
- B. Meeting Minutes: Contractor shall be responsible for the preparation and distribution of meeting minutes. Submit via E-Builder.
- C. Progress photographs
 1. Contractor shall provide ground level color digital progress photos weekly for a permanent record of the project. Photos should be dated and include a description of the picture and the camera location. Submit via E-Builder to Progress Photo folder.
 2. As part of the submission of each request for payment Contractor shall provide one 8”x 10” print of each photo and a digital media containing all the photos from the previous month. The photos shall match the same period as the request for 1 payment.
- D. Documentation of existing conditions
 1. The Contractor will photograph existing conditions that could be damaged by construction. This will help the Owner and Architect to determine at the end of construction whether an area or item damage was preexisting or caused by the Contractor. Submit existing photos via E-Builder.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Submit overall construction schedule, 3-week work schedule, shop drawings, product data, samples, schedule of values, record documents, and products list as specified.
 - 1. Submit to Architect via E-Builder only through Contractor.
 - 2. Do not submit directly to Consulting Engineers without prior approval by the Architect for each individual submittal.
 - 3. The Architect/Consultant will forward a marked up set of submittals to the District Representative for review and approval after review by the Architect and Consultant(s).

1.2 QUALITY ASSURANCE

- A. Within 15 days of the Award of Contract, submit schedules of values, list of principalsubcontractors and suppliers, progress schedule, copies of building permits, and similar start-up authorization via E-Builder.

PART 2 - PRODUCTS

2.1 CONSTRUCTION SCHEDULE

- A. Content: Within 20 days of the award of contract, submit a comprehensive progress schedule indicating a time bar for each significant category of work to be performed via E-Builder. Show product and installation dates for major products. Show dates for each construction activity, Substantial Completion and punch list preparation, Final Completion, and Occupancy.
- B. Designate in the Construction Schedule, the dates for submission and review of Shop Drawings, product data and samples that are needed for the product. Show critical submittal dates or prepare a separate coordinated listing of critical submittal dates.
 - 1. Any critical path submittals shall be identified as critical in the E-Builder Submittal Module.
- C. Updating: Indicate progress of each activity and show revised completion dates. Provide listing of current and anticipated accelerations and delays. Describe proposed corrective action when required. Revise at intervals matching payment requests and redistribute with each payment request.

2.2 MEETING MINUTES

- A. Meeting minutes to be prepared by Contractor and distributed to all meeting attendees via E-Builder with 2 days. Action items uploaded to E-Builder by the end of that same day.

2.3 SCHEDULE OF VALUES

- A. Submit a Schedule of Values covering various parts of work including quantities aggregating the total sum of the Contract to E-Builder. Show dollar value and percent of total for each unit of work scheduled. This Schedule will be the basis for the Contractor's Application for Payment.
- B. Submit on the latest edition of AIA Document G703, Continuation Sheet, within 15 days of Award of Contract and with each payment request. Revise each time schedule is affected by change order or other revision.
- C. Upon request by the Architect, support values given with data that will substantiate their correctness.

2.4 PAYMENT REQUESTS

- A. Submit a request each calendar month to E-Builder. Use the latest edition of AIA Document G702, Application and Certificate for Payment, fully completed, notarized, and executed and G703, Schedule of Values.

2.5 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

- A. General:
 - 1. Review, stamp with Contractor's stamp, and sign each submittal to certify Contractor has reviewed submittal for compliance with Contract Documents prior to submitting to the Architect. Submittals issued without the Contractor's review may be returned to the Contractor without being reviewed by the Architect. Submit to E-Builder.
 - 2. Provide 3" x 4" clear space on each submittal for the Architect's stamp.
 - 3. Provide additional copies as required by governing authorities.
- B. Shop Drawings-Submit via E-Builder.
 - 1. Submit shop drawings showing connections, details, dimensions, finishes, fasteners, etc.
 - 2. Maintain 1 print as a mark-up copy for the "Record Drawings".
 - 3. In the event that the submittal is a partial submittal, identify related shop drawings to be submitted at a later date.
- C. Product Data-Submit via E-Builder.
 - 1. Submit manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other description data on manufactured products and systems.
 - 2. Mark to indicate the actual product to be provided. Show selections from among options in the manufacturer's printed product data.
 - 3. Maintain 1 copy at the project site for reference purposes.
- D. Office Samples-Submit via E-Builder:
 - 1. Maintain one returned set at the project site for purposes of quality control comparisons.
 - 2. Sample submittals are for Architect's observation of color, texture, pattern, and "kind".
- E. Miscellaneous Submittals: Submit via E-Builder of miscellaneous submittals as follows:
 - 1. Warranties: Submit executed copy for maintenance manual.

2. Field Records: Submit for inclusion in the submittal of "Record Documents".
3. Maintenance Manuals.
4. "Record Drawings": Submit a scanned PDF of the original maintained marked-up prints.
5. Construction Schedule and Schedule of Values.

2.6 3-WEEK WORK SCHEDULE

- A. Each week, provide to the Architect a 3-Week Work Schedule on a form approved by the Architect. Submit via E-Builder. Each 3-Week Work Schedule is to show the description of all phases of the work to be accomplished during the week submitted and the 2 following weeks. The 3-Week Work Schedule is to be updated every week and presented to the Architect. Indicate any suspected utility service interruption on the 3-Week Work Schedule.

PART 3 - EXECUTION

3.1 CONTRACTOR'S SUBMITTAL

- A. Review submittals prior to submission and provide stamp of approval signed or initialed by the Contractor indicating the Contractor has inspected the submittals and certifying that they are complete, correct, in compliance with the Contract Documents and suitable for the Project.
- B. Verify field measurements and other field construction criteria.
- C. Submit submittals required by each Specification Section to the Architect. Notify the Architect in writing at time of submission of deviation in submittals from requirements of the Contract Documents.
- D. The Architect/Consultant shall provide a marked up set of submittals to the District Representative for review and approval after review by the Architect/Consultant.
- E. Submittals shall be arranged by specification section with the specification sections identified on divider tabs. Product Submittals shall include catalog data sheet clearly marking the following information for the exact equipment being installed: manufacturer, type, style, complete catalog number, dimensions, physical description, and specifications for each item and each option submitted. Submittals shall reference equipment number as designated on Project Drawings, equipment schedules, or specifications for any and all equipment identified by unique designation in project documents. Contractor must submit the proposed startup documentation for the equipment upon submittal for that equipment. Include the manufacturer's recommended installation and startup procedures with associated checklists for each unique piece of equipment under a separate tab titled "Installation/Startup". These procedures and forms shall be for the specific piece of equipment to be provided.
 1. Submittals shall be divided out and listed separately in the E-Builder Submittal Register, and each submittal shall be uploaded separately to the Submittal Module in E-Builder.
- F. Submittals to be provided as a complete package.

3.2 ARCHITECT'S REVIEW

- A. Architect will review submittals for design concept and conformance with the Contract Documents and return submittals to the Contractor for distribution with corrections noted thereon.
- B. Stamp: The Architect will stamp each submittal to be returned with a uniform, self explanatory action stamp, appropriately marked and executed to indicate the status of the submittal. The stamp indicates and requires the follow action:
 - 1. No Exception Taken: No further action is required.
 - 2. Make Corrections Noted: Make the corrections upon fabrication of the material only.
 - 3. Rejected: The material submitted is not acceptable and another material submission is required.
 - 4. Revise and Resubmit: The material submittal is not acceptable and it is to be elaborated upon or corrected and resubmitted prior to material fabrication.
 - 5. Submit Specified Item: Submittal is rejected and the material specified is to be submitted.
 - 6. Checking is only for general conformance with the design concept of the Project and general compliance with the information given in the Contract Documents. Any action shown is subject to the requirements of the plans and specifications. Contractor is responsible for dimensions which shall be confirmed and correlated at the job site, fabrication processes and techniques of construction, coordination of Contractor's work with that of all other trades and the satisfactory performance of Contractor's work.
- C. Contractor's responsibility for deviations in submittals from requirements of the Contract Documents is not relieved by the Architect's review of submittals unless the Contractor has made written request for the deviations and the Architect gives written acceptance of specific deviations requested.

3.3 CORRECTIONS

- A. Immediately incorporate all required corrections in the submittals and resubmit for further review, if required.

3.4 TIME SCHEDULE FOR SUBMITTALS

- A. Construction Schedule: Submit to the Architect via E-Builder no later than 20 calendar days after Award of Contract.
- B. Shop Drawings: Submit to the Architect via E-Builder for review. The Architect will review within 15 calendar days. Schedule submissions to allow ample time for ordering and delivery of materials after review.
- C. Product Data: Submit to the Architect via E-Builder for review. The Architect will review within 15 calendar days. Schedule submissions to allow ample time for ordering and delivery of materials after review.
- D. Office Samples: Submit to the Architect via E-Builder for review. The Architect will review within 15 calendar days. Schedule submissions to allow ample time for ordering and delivery of materials after review.
- E. Schedule of Values: Submit to the Architect via E-Builder no later than 15 calendar days after receipt of the Notice to Proceed.

3.5 SUBMITTAL SCHEDULE

A. Submittals required by Specifications and the Drawings shall be made regardless of whether or not they are scheduled herein. Each specification section should be reviewed for exact submittal requirements. All submittals must be reviewed by the Architect prior to being used and must be submitted in sufficient time to preclude a delay in meeting the approved Construction Schedule.

SECTION NUMBER	SECTION NAME	REQUIRED SUBMITTAL
01 29 00	Payment Procedures	Applications for Payment Schedule of Values
01 31 00	Project Management and Coordination Shop Drawings	Schedule of Values Construction Schedule Color Submittal Samples Product Data Warranties Washington County Reporting Requirements
01 32 00	Construction Progress Documentation	Progress Schedules & Reports
01 33 00	Submittal Procedures	Construction Schedule Schedule of Values 3 Week Work Schedule
01 45 00	Quality Control	Reports
01 61 00	Common Product Requirements	Manufacturer's Instructions
01 77 00	Closeout Procedures	Prerequisites to Substantial Completion Prerequisites to Contract Closeout
01 78 00	Closeout Submittals	Record Documents Record Specifications Record Product Data Miscellaneous Record Submittals Warranties Operation and Maintenance and Manuals Release of Liens Certificate of Occupancy
07 92 00	Joint Sealants	Product Data MSDS Sheets Closeout Submittals Guarantee

BDS – WESTVIEW HIGH SCHOOL TEAM ROOMS

Print Date:8/22/20

Issue Set: BID Package

		Non-Staining Warranty
08 20 00	Solid Core Wood Doors	Shop Drawings Product Data
08 71 00	Door Hardware	Hardware Schedule Samples Templates Surface Door Closers Factory Guarantee
09 29 00	Gypsum Board	Product Data Product Preparation Instructions and Recommendations Storage and Handling Requirements
09 91 00	Painting	Product Data Office Samples Product Preparation Instructions and Recommendations Storage and Handling Requirements Installation Methods Finish Schedule Date Schedule Closeout Submittals Extra Stock Manufacturer's Warranty
10 26 13	Corner Guards	Manufacturer's Catalog Sheets Layout Drawings Warranty
10 51 13	Fully-Framed All-Welded Metal Lockers	Shop Drawings Product Data Office Samples Color Chart Color Sample Warranty Manufacturer's Installation Instructions Closeout Submittals
22 00 00	Basic Plumbing Requirements	Performance Data and Technical Information Shop Drawings Record Drawings Warranty
26 00 00	Electrical General Provisions	Warranty Electrical Data Installation and Record Drawings Cost Breakdown of Electrical Work Record Information

END OF SECTION

SECTION 01 35 00

SPECIAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Asbestos: No asbestos containing materials may be used in the construction or remodel of any facilities located within the Beaverton School District. Due to the age of the facility no asbestos containing materials are expected.
 - 1. The Beaverton School District retains an Asbestos Abatement Consultant to test presumed asbestos containing material (PACM) and to oversee all asbestos abatement work that takes place within our facilities. This consultant is to be an integral part of the construction process. They are to be notified before any asbestos abatement takes place within the designated facility. If material is found during the construction process that has not been specifically identified as asbestos containing material, but is presumed to contain asbestos, then a bulk sample must be sent for laboratory analysis before the material may be removed or repaired. The Asbestos Abatement Consultant is charged with keeping records which are forwarded to the AHERA Designated Person for the Beaverton School District. This information is crucial to the maintenance of the BSD asbestos database for all facilities.
 - 2. The Contractor must have a full-time construction project manager on site to oversee the construction takes place within the facility. It will be the responsibility of the construction project manager to notify the Asbestos Abatement Consultant in conjunction with the Abatement Contractor so that the Asbestos Abatement Consultant is on site to oversee the abatement of the asbestos and to document the material removed for the BSD asbestos database. Asbestos abatement is to be completed by the General Contractor and the cost to be incurred by the General Contractor.
 - 3. Procedures to follow if there has been an asbestos release event
 - a. Shut down all heating, ventilation and air conditioning units that supply return or draw air to, or from the area in question.
 - b. Keep the area in question closed off. Post signs to restrict any person from accidentally walking into the contaminated area.
 - c. Notify the BSD Representative and the Asbestos Abatement Consultant for the District. They will make the arrangements for the clean up of the asbestos contamination.
 - 4. Construction Contractor shall be held liable for any actions of its agent, personnel or subcontractors and all costs, expenses, damages, claims and causes of action rising out of an asbestos release that occurs during performance of their work. All costs incurred by the District to clean up the asbestos release shall be the responsibility of the Contractor.
- B. Environmental pollutants:
 - 1. Contractor shall obtain the District's written consent prior to bringing onto the work site any environmental pollutants or hazardous substances or materials.
 - 2. Properly handle, use, and dispose of all environmental pollutants and hazardous substances or materials brought onto the work site, in accordance with all applicable federal, state, or local statutes, rules, or ordinances.
 - 3. Be responsible for any and all spills, releases, discharges, or leaks of (or from) environmental pollutants or hazardous substances or materials which Contractor has brought on the work site.
 - 4. Promptly clean up, without cost to the District, such spills, releases, discharges, to the District's satisfaction and in compliance with all applicable federal, state, or local statutes, rules, or ordinances.

5. Contractor shall be liable for any and all costs, expenses, damages, claims and causes of action, or any of them related to or arising out of a spill, release, discharge or leak of (or from) any environmental pollutant or hazardous substance or material, to the extent such spill release, discharge, or leak was caused or contributed to by the Contractor's negligence or failure to perform in accordance with the contract documents.
 6. Contractor must report, when safe to do so, all quantity releases via telephone to the BSD Representative. A written follow-up report is to be submitted to the BSD Representative within 48 hours of the telephone notification. At a minimum, the report must contain the following information:
 - a. Description of times released (identity, quantity, and all other documentation required by law).
 - b. Whether amount of items released is reportable to EPA/DEQ, and if so, when it was reported.
 - c. Exact time and location of release, including a description of the area involved.
 - d. Containment procedures initiated.
 - e. Summary of communications about the release that Contractor has had with members of the press or State officials other than District.
 - f. Description of clean-up procedures employed, or to be employed at the site, including disposal location of spill residue.
 - g. Personnel injuries, if any, resulting from or aggravated by, the release.
- C. Environmental Clean-up:
1. As part of the Final Completion Notice, or as a separate written notice submitted with or before the Notice of Completion, the Contractor shall notify the District that all environmental pollution clean-up which was performed as part of this construction project has been disposed of in accordance with all applicable rules, regulations, laws and statutes of all agencies having jurisdictions over such environmental pollution. The notice shall indemnify and hold harmless the District from any claims resulting from the disposal of the environmental pollution including removal, encapsulation, transportation, handling, and disposal.
 2. Construction Contractor will be held responsible for any and all releases of environmental pollution during performance of the Contract that occur as a result of, or are contributed to, by actions of its agent, personnel, or subcontractors.
 3. All costs incurred by the District in meeting applicable regulations, in correcting any unhealthy or unsafe working conditions, or costs incurred by the District to complete any of the Contractor's work, will be charged to the Contractor.
- D. Hazardous Materials:
1. In the event that PCB ballasts, lead paint, heavy metals, underground storage tanks, or other hazardous materials are encountered during construction, contact the BSD Representative who will notify BSD Environmental Management. Separate arrangements will be made to remove the hazardous material and clean the facility in a manner that is safe and consistent with Beaverton School District policies and all regulatory authorities.
 2. Any time "assumed lead" painted surfaces are disturbed the work must be done by a certified firm with a trained and certified contractor. In addition the areas of the building that will be affected must be posted with appropriate signage warning of the potential hazard and parents and guardians of the children must receive information about the renovation work that is planned an EPA pamphlet about renovation.

- E. In the event that an event occurs contact the National Response Center and obtain a file report number that will be forwarded to the District Representative.

END OF SECTION

SECTION 01 35 26
SAFETY REQUIREMENTS

PART 1 – GENERAL

1.1 SAFETY REQUIREMENTS

- A. The following requirements, as applicable, apply to Work specified herein.
1. Associated General Contractors of America, Inc., "Manual of Accident Prevention in Construction."
 2. Workmen's Compensation Board "Safety Code for Construction Work."
 3. Oregon State Employment Act Safety Requirements.
 4. Oregon Occupational Safety and Health Act (OROSHA) requirements, as applicable, apply to Work specified herein.

END OF SECTION

SECTION 01 35 53**SECURITY PROCEDURES****PART 1 - GENERAL****1.1 CONSTRUCTION/MAINTENANCE BUILDING SECURITY RULES**

- A. The Contractor shall enforce strict discipline and good order among the Contractor's employees, Subcontractors, and other persons carrying out the contract on District property. The District may require that the Contractor immediately remove from the project site and District property any employee or other person carrying out the contract that the District considers objectionable.
- B. District Personnel (i.e., Building Administrator, Custodian, or a building monitor etc.) must be present when a contractor is performing work within an existing school facility.
- C. Only District Personnel will deactivate the security system upon arriving and reactivate the system when they leave the facility.
 - 1. If the responsible District Personnel for a particular day changes during the day, the District Personnel shall coordinate this change in responsibility and advise the Contractor's superintendent.
- D. Contractor personnel will not be furnished District security badges and/or access codes to the Building security system. All personnel under the employment of the Contractor and its subcontractors that travel to or spend time at the project site are to wear ID badges while on the work site. ID badges are to contain:
 - 1. Individuals full name.
 - 2. Individuals company affiliation.
- E. The Contractor shall have a responsible party such as a superintendent, foreman, or supervisor on site during any work being performed by either their own forces or that of their subcontractors.
- F. The superintendent shall check in with the responsible District Personnel upon arrival and advise when all work is complete, contract personnel have left, and the area is secure.
- G. The Contractor's superintendent shall be responsible for security in areas where work is being performed as well as ingress and egress to that area.
- H. At the BSD Representative's discretion, the superintendent may be issued a building key to allow access to area's where work is being performed.
- I. The superintendent shall maintain a daily log defining what areas within the building were accessed by Contractor personnel, which personnel from their firm were in the building, and which subcontracting firms were in the building.
- J. Each of the Contractor's employees, Subcontractors' employees, and principals/owners involved at the site may, at the option of the District, be subject to a security check, at any time, through the Beaverton Police Department or other venue.
- K. Contractor shall pay and perform or have performed criminal background checks for every employee on all active campus (i.e., children are present) projects prior to that employee's admittance to the project site. Once an employee passes the criminal background check they will create an ID badge which they must wear while they are on site at all times. Contractor

may be fined up to \$500 for every worker working on site without the proper ID badge. The following are the convicted crimes that may not appear on the background check.

CONVICTIONS RENDERING INELIGIBILITY per ORS 342.143

- Aggravated Murder or Murder
- Assault in the First Degree
- Kidnapping in the First Degree
- Rape in the First, Second, or Third Degree
- Sodomy in the First, Second, or Third Degree Second Degree
- Unlawful Sex Penetration in the First or Second Degree
- Arson in the First Degree
- Sexual Abuse in the First, Second, or Third Degree
- Contributing to the Sexual Delinquency of a Minor
- Sexual Misconduct
- Public Indecency
- Bigamy
- Incest
- Child Neglect in the First Degree
- Endangering the Welfare of a Minor
- Using Child in Display of Sexually Explicit Conduct
- Sale or Exhibition of Visual Reproduction of Sexual Conduct by a Child
- Paying for Viewing of Sexual Conduct Involving a Child
- Encouraging Child Sex Abuse in First, Second or Third Degree
- Possession of Materials Depicting Sexual Explicit Conduct of a Child in the First or Second Degree
- Arson in the First Degree
- Robbery in the First Degree
- Treason
- Abuse of a Corpse in the First Degree
- Prostitution, Promoting Prostitution, or Compelling Prostitution
- Sadomasochistic Abuse or Sexual Conduct in a Live Show
- Furnishing, Sending, or Displaying Obscene Materials to Minors
- Exhibiting an Obscene Performance to a Minor
- Disseminating Obscene Materials
- Publicly Displaying Nudity or Sex for Advertising Purposes
- Distribution of Controlled Substance to Minors
- Manufacture or Delivery of Controlled Substance to Minor or Student within 1000 Feet of a School
- Attempt to Commit Any of the Above-Listed Crimes

- L. Smoking and any use of tobacco products is not allowed within 50 feet of the campus property. Contractor may be fined up to \$500 for each incident of tobacco use within the area of work by the Contractor or Subcontractors.

- M. Firearms are not allowed on campus property. Law enforcement will be contacted if any contractor personnel are in possession of a firearm on site. (This includes firearms locked up in a vehicle.)
- N. Abusive, inappropriate, and/or foul language is strictly prohibited on active campus projects. Employees who abuse this rule will be asked to leave the project site.
- O. Contractor is responsible to maintain security of building per BSD operating procedures. Failure to do so will result in a fine being levied by BSD.

END OF SECTION

SECTION 01 41 00

REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.1 WORK INCLUDED

A. Permits and Fees:

1. BSD will reimburse the Contractor for the actual cost of the building permit, permanent utility connection permits and fees, and permits required for construction of work in the public right and associated bonds or assurances. Any other required permits including trade permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work, and any penalties, extensions or fines assessed to the above permits or fees shall be paid by the Contractor.
2. The Contractor shall submit an invoice for direct payment of the BSD reimbursed permits, along with a copy of the permit and receipt from the issuing jurisdiction. Payment of permit fees is a reimbursable expense of actual cost only and will not be incorporated into the contract by change order.
3. The Contractor shall secure and closeout all permits. BSD will pay all system development charges, traffic impact fees, land use fees, building plan review and application fees applicable to the project.
 1. Typical Permits and Fees to be paid by Contractor as a part of the cost of the work, including but not limited to:
 - a. Deferred Submittal Fees
 - b. Demolition Permit Fee
 - c. Other permits or fees required during the construction phase

- B.** The Contractor shall be responsible for securing and paying for all permits and fees in a timely manner so not to impede the progress of the Work.
- C.** BSD will pay land use fees and the initial building and/or plan check fees. Contractor shall pay for design build or subsequent application and/or plan check fees.

END OF SECTION

SECTION 01 42 00

REFERENCES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Codes, Ordinances and Regulations.

1.2 RELATED DOCUMENTS

- A. Bidding Requirements.
- B. Conditions of the Contract.
- C. Drawings and Specifications.

1.3 CODES, ORDINANCES AND REGULATIONS

- A. All work shall comply with the Codes, Ordinances and Regulations
 - 1. General Construction Work:
 - a 2019Oregon Structural Specialty Code.
 - b State of Oregon Rules and Regulations of the State Board of Health.
 - c Local Air Pollution Control and Agency and/or the Department of Environmental Quality, State of Oregon.
 - d Department of Labor and Industries, State of Oregon.
 - e Oregon Occupational Safety and Health Administration.
- B. Comply with all applicable fire codes, plumbing codes, mechanical codes and electrical codes.
- C. Comply with requirements of Washington County and State of Oregon Departments of Health. Comply with the requirements of the State of Oregon regarding the listing and handling of hazardous materials.
- D. Comply with requirements of the State of Oregon, Department of Environmental Quality.
- E. All temporary facilities and construction procedures shall comply with requirements of local and State Health codes and the United States Department of Labor, Occupational Safety and Health Administration (OSHA) Standards.

1.4 SPECIFICATION OF HIGHER STANDARD

- A. Drawings and Specifications govern whenever Drawings and Specification require higher standards than are required by referenced codes and regulations.

END OF SECTION

SECTION 01 45 00
QUALITY CONTROL

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. The Owner will select, employ, and pay for services of an independent testing laboratory to perform inspections, sampling, testing, and other services required by the local building code and the Project Manual.
 - 1. Special inspections by independent inspection and testing laboratory services shall be provided by the District.
 - 2. The District may contract an independent consultant to review design and construction of the building envelope with particular emphasis in the areas of water intrusion.
- B. Specific quality control requirements are specified in individual Project Manual Sections.
- C. Inspection and testing services are intended to determine compliance of the Work with requirements specified.
- D. Refer to the Structural Notes on the Drawings (Sheet S0.2) for the special inspection and testing plan.

1.2 SUBMITTALS

- A. Submit a certified written report of each inspection, test, or similar service to the Architect, Structural Engineer, Contractor, and the Owner. Include additional copies of each report to governing authorities when so directed.
- B. Report Data: Written inspection or test reports shall include:
 - 1. Name of testing agency or test laboratory.
 - 2. Date and location of samples, tests, or inspections.
 - 3. Names of individuals present.
 - 4. Complete inspection or test data.
 - 5. Test results.
 - 6. Interpretations.
 - 7. Recommendations.

PART 2 - PRODUCTS

2.1 SCOPE

- A. Nature and Scope of Testing Services: In accordance with the requirements of governing authorities having jurisdiction over the work and as otherwise specified and consistent with reasonable standards of engineering practice.

PART 3 - EXECUTION

3.1 TESTING LABORATORY'S RESPONSIBILITIES

- A. Conduct, interpret tests, and report deviations or conditions that may lead to deviations from the Contract Documents to the Architect immediately by telephone.
- B. State in each test report whether or not tests showed conformance with requirements of the Contract Documents and specifically note deviations, if any, from these requirements.

3.2 CONTRACTOR'S OBLIGATIONS

- A. Cooperate with any representative of the Owner or the Testing Laboratory. Furnish tools, materials, equipment, and assistance.
- B. Notify the Architect, Testing Laboratory, and Owner 48-hours prior to each expected placement, installation, or fabrication phase requiring inspection tests as indicated herein.
- C. Where tests reveal defects requiring replacement, retest as required under this Contract at no change in Contract amount and reimburse Owner, Architect, and Consultants costs for preparation and supervision.
- D. When the initial tests indicate non-compliance with the Contract Documents, any subsequent retesting occasioned by non-compliance shall be performed by the same agency and the cost thereof borne by the Contractor.
- E. Representatives of the testing agency shall have access to the work at all times. The Contractor shall provide facilities for such access in order that the agency may properly perform its functions.
- F. Any testing laboratory stand-by time due to the Contractor's delays shall be paid for by the Contractor.
- G. Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

3.3 TEST OBSERVATIONS

- A. If the Architect wishes to observe the inspections, tests, or approvals required by this paragraph, he will do so promptly and, where practicable, at the source of supply.
- B. Neither the observations of the Architect in his Administration of the Construction Contract, nor inspections, tests, or approvals by persons other than the Contractor shall relieve the Contractor from his obligations to perform the Work in accordance with the Contract Documents.

3.4 EVALUATION OF TESTS AND INSPECTIONS

- A. Results of laboratory or field control tests and inspections shall be the principal basis upon which satisfactory completion of the Work shall be judged.
- B. If results of tests and inspections indicate the Work is below requirements of the Contract Documents, that portion of the Work is subject to condemnation.

3.5 ADJUSTMENTS

- A. Remove and replace Work so condemned at Contractor's expense including costs of subsequent tests and inspections until the Work meets requirements of the Contract Documents.

END OF SECTION

SECTION 01 51 00
TEMPORARY UTILITIES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Remodels and Renovations: BSD will provide access to water and electrical as required. Contractor to provide all other temporary utilities.
- B. Contractor to provide all temporary job site facilities, materials, systems and services as required to complete the work and as hereinafter listed. Upon completion of the work, remove all temporary structures and materials. All necessary temporary facilities shall be furnished and paid for by the subcontractor unless specifically noted herein to be paid for by the Owner. All temporary facilities to be in place prior to construction.

1.2 SITE MAINTENANCE

- A. Progress Cleaning:
 - 1. Maintain areas free of waste materials, debris and rubbish. Maintain site in a clean and orderly condition ON A DAILY BASIS.
 - 2. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces and other closed or remote spaces, prior to enclosing the space ON A DAILY BASIS.
 - 3. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate dust ON A DAILY BASIS.
 - 4. All construction debris and storage will be kept in an orderly, neat and organized fashion, and within the areas of work. Areas of work shall be free of construction debris ON A DAILY BASIS AT A MINIMUM.
 - 5. At existing building sites, Contractor shall provide secured construction dumpsters and shall not intermingle trash with school dumpsters.

END OF SECTION

SECTION 01 52 00
CONSTRUCTION FACILITIES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Contractor to provide drawing of acceptable areas for contractor staging, trailer locations and contractor parking on site plan(s). Owner will review.
- B. Project Personal Identification. All contract personnel shall wear an ID badge that is a distinctive color with the word "Contractor" on the badge. The badge must be worn by any contract personnel within existing buildings. Contractor's Superintendent to issue badges and maintain process.

1.2 SANITARY FACILITIES

- A. Workmen will not be permitted to use existing toilet facilities of the existing building. Provide portable facilities and drinking water as required for workmen. Keep facilities clean and in sanitary condition. Remove from the site upon completion of the Work.
- B. Comply with governing regulations including safety and health codes for the type, number, location, operation, and maintenance of fixtures and facilities.
- C. Supply toilet tissue, hand sanitizer, and similar disposable materials as appropriate for each facility. Provide covered waste containers for used material.

1.3 TEMPORARY TELEPHONE

- A. Contractor shall not use existing phone service. A separate cell and fax service will need to be provided by the Contractor at the job site office.

1.4 TEMPORARY WATER

- A. Existing water services may be used. Make temporary connection, as required. Exercise control over usage to conserve water.

1.5 TEMPORARY ELECTRICAL POWER SERVICE

- A. Contractor to provide temporary power, phone & data service for job trailer and for construction work. Existing electrical services not to be used if at all possible. Contractor to establish a utility allowance to cover cost of services.
- B. Provide temporary lighting throughout construction period as required by governing agencies.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Use qualified tradesmen for installation.
- B. Locate temporary services and facilities where they will serve the project adequately and result in minimum interference with the Work.
- C. Temporary Utility Installation:
 - 1. Engage the local utility company to install temporary service or to make connections to existing service.
 - 2. Arrange with the companies and existing users for an acceptable time when service can be interrupted to make connections.
 - 3. Establish a service implementation and termination schedule. As early as possible change to use of permanent service, to enable removal of the temporary utility, and to eliminate any possible interference with completion of the Work.
 - 4. Provide adequate capacity at each stage of construction.
 - 5. Prior to availability at the site, provide trucked-in services for start up of construction operations.
 - 6. Obtain and pay for easements required to bring temporary utilities to the site where the Owner's easement cannot be utilized for that purpose.

3.2 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision:
 - 1. Limit availability of temporary services and facilities to essential and intended uses to minimize waste and abuse.
 - 2. Do not permit temporary installations to be abused or endangered.
- B. Maintenance:
 - 1. Operate and maintain temporary services and facilities in good operating condition and in a safe and efficient manner until removal is authorized.
 - 2. Do not overload services or facilities.
 - 3. Protect from damage by freezing temperatures and similar elements.
 - 4. Do not allow unsanitary conditions, public nuisances, or hazardous conditions to develop or persist on the site.
 - 5. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24 hour basis where required to achieve indicated results and avoid the possibility of damage to the Work or to temporary facilities.

3.3 TERMINATION AND REMOVAL

- A. Remove each temporary service and facility promptly when need has ended, or when replaced by use of a permanent facility, but no later than Substantial Completion.
- B. Complete, or if necessary, restore permanent work delayed because of interference with the temporary service or facility.
- C. Repair damaged work, clean exposed surfaces, and replace work that cannot be repaired.
- D. At Substantial Completion, clean and renovate permanent services and facilities that have been used to provide temporary services and facilities during the construction period.

END OF SECTION

SECTION 01 53 00

TEMPORARY CONSTRUCTION

PART 1 - GENERAL

1.1 SITE MAINTENANCE

- A. Burning or burying of rubbish and waste materials on site is prohibited.
- B. Disposal of volatile fluid wastes (such as mineral spirits, oil or paint thinner) in storm or sanitary sewer systems is prohibited.
- C. Keep site and surrounding areas clear of accumulations of waste material and rubbish resulting from operations under this Contract. Remove waste from site systematically during the progress of construction and immediately upon completion of Work.

1.2 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

- A. Provide a neat and uniform appearance in temporary construction and support facilities acceptable to the Architect and the Owner.
- B. Locate field offices, storage and fabrication sheds, and other support facilities for easy access to the Work.
- C. Make the change-over to use of permanent services and facilities at the earliest feasible date to minimize hazards and interferences with performance of the Work.
- D. Maintain field offices, storage and fabrication sheds, temporary sanitary facilities, waste collection and disposal systems, recycling bins, and project identification and temporary signs until near Substantial Completion. Immediately prior to Substantial Completion remove these facilities. Personnel remaining at the site after Substantial Completion will be permitted to use permanent facilities, under restricted use conditions.

1.3 TEMPORARY HEAT

- A. Provide temporary heat where needed for performance of the Work, for curing or drying of recently installed work, or for protection of work in place from adverse effects of low temperatures or high humidity.
- B. Provide UL or FM tested and labeled heating units known to be safe and without adverse effect upon work in place or being installed.
- C. Coordinate with ventilation requirements to produce the ambient condition and minimize fuel or energy consumption.
- D. Maintain a minimum temperature of 45°F in permanently enclosed portions of the building and areas where finished Work has been installed.

- E. Except where use of the permanent heating system is available and authorized, provide properly vented self-contained LP gas or fuel oil heaters with individual space thermostatic control for temporary heat.
- F. Do not use open burning or salamander type heating units.
- G. Minimum Interior Ventilation: Provide local exhaust ventilation to prevent harmful dispersal of hazardous substances into the atmosphere at all times. Provide ventilation for materials being cured.

1.4 STORAGE AND FABRICATION SHEDS

- A. Install storage and fabrication sheds as required to accommodate the Work. Maintain temperatures and ventilation as required for materials being stored.
- B. Sheds may be open shelters or fully enclosed spaces. Where fully enclosed, provide one ABC Type portable fire extinguisher in each shed.

1.5 FIRST AID SUPPLIES

- A. Provide required first aid facilities. Comply with governing regulations and recognized recommendations within the construction industry.

1.6 MISCELLANEOUS SERVICES AND FACILITIES

- A. Design, construct, and maintain miscellaneous services and facilities as needed to accommodate performance of the work, including temporary stairs, ramps, ladders, staging, shoring, scaffolding, temporary partitions, waste chutes, and similar items.

1.7 TEMPORARY FIRE PROTECTION

- A. Until fire protection needs may be fulfilled by permanent facilities, install and maintain temporary fire protection of the types needed to protect against losses.
- B. Comply with recommendations of NFPA Standard 10.
- C. Locate fire extinguishers where most effective. Provide not less than one on each floor at or near each stairwell.
- D. Provide type "A" fire extinguishers for temporary offices and spaces where there is minimal danger of electrical or flammable liquid fires. Provide type "ABC" dry chemical extinguishers elsewhere.
- E. Store combustible materials in containers in fire-safe locations.
- F. Review fire prevention and protection needs with local fire department officials and establish procedures to be followed in the event of fire.

- G. At temporary water outlets, provide hoses of sufficient length to reach construction areas. Hang hoses with a warning sign indicating that hoses are for fire protection purposes and are not to be removed.
- H. At the earliest feasible date, complete installation of the permanent fire protection facility, including connected services, and place into operation and use. Instruct key personnel at the site on how to use facilities that may not be self-explanatory.

1.8 ENVIRONMENTAL PROTECTION

- A. Conduct construction activities, and by methods that comply with environmental regulations, minimize the possibility that air, waterways, and subsoil might be contaminated or polluted, or that other undesirable effects might result from the performance of work at the site.
- B. Avoid the use of tools and equipment that produce harmful noise.
- C. Restrict the use of noise making tools and equipment to hours of use that will minimize complaints.

END OF SECTION

SECTION 01 55 00

VEHICULAR ACCESS AND PARKING

PART 1 - GENERAL

1.1 ACCESS, PARKING, AND TRAFFIC

- A. Parking area for project visitors and construction personnel shall be at location designated by the Owner's Designated Representative.
- B. Provide barricades, warning signs, flagmen, or other traffic regulators that may become necessary for protection of the public, construction personnel, or property.
- C. Street/Parking Lot work to not impede flow of traffic.
- D. The provision of designation signage and temporary traffic flow signage is required if construction changes parking and/or access flow.

END OF SECTION

SECTION 01 56 00

TEMPORARY ENCLOSURES

PART 1 – GENERAL

1.1 TEMPORARY ENCLOSURE

- A. Provide temporary enclosure of materials, equipment, work in progress, and completed portions of the Work to provide protection from exposure, foul weather, other construction operations, and similar activities.
 - 1. Subcontractor is solely responsible for security of their own tools and equipment.
- B. Coordinate with ventilating, material drying, or curing requirements to avoid dangerous conditions.
- C. Close openings through the floor or roof decks and other horizontal surfaces with substantial load-bearing wood-framed or similar construction.

1.2 COLLECTION AND DISPOSAL OF WASTES

- A. Establish a system for daily collection and disposal of waste materials.
- B. Enforce requirements strictly.
- C. Do not retain collected materials longer than 7 days during normal weather or 3 days when the daily temperature is expected to rise above 80 degrees F.
- D. Handle waste materials that are hazardous, dangerous or unsanitary separately from other waste by containerizing.
- E. Dispose of waste material in a lawful manner.
- F. Burying or burning of waste materials on the site or washing waste material down sewers will not be permitted.
- G. Provide silt bags in catch basins and biobags around the basins adjacent to construction work.
- H. Offsite Disposal: Disposal of all waste materials caused by the construction will be off the site and will be the responsibility of the Contractor. Provide paperwork to landfill stating that no hazardous material is present in trash being dumped.

1.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Provide a neat and uniform appearance in security and protection facilities acceptable to the Architect and the Owner.
- B. Maintain site in a safe, lawful and publicly acceptable manner.

1.4 BARRICADES, WARNING SIGNS AND LIGHTS

- A. Comply with recognized standards and code requirements for erection of substantial barricades where needed to prevent accidents.
- B. Paint with appropriate colors and provide warning signs to inform personnel at the site and the public of the hazard being protected against.
- C. Provide lighting where needed including flashing red lights where appropriate.

1.5 ENCLOSURE FENCE

- A. Install an enclosure fence with lockable entrance gates to enclose the entire site or portion sufficient to accommodate the construction operation.
- B. Install so as to prevent persons, dogs, and similar animals from entering the site except through the entrance gates.
- C. Provide No. 11 gage galvanized open-mesh, chain-link fabric fencing 6 feet high with galvanized barbed wire top strand and galvanized steel pipe posts, 1-1/2" for line posts and 2-1/2" for corner posts.
- D. Set posts in precast post blocks.

1.6 CONSTRUCTION AID BARRIERS

- A. Provide ramps, ladders, stairs, guardrails, chutes and material hoists as required. Construct and maintain to requirements of governing agencies. Furnish for safety of public and construction personnel.
- B. Provide barriers to protect materials, equipment, new and existing work, construction personnel and the public.
- C. Provide temporary dust barriers and other appropriate protection, as required, to prevent dust from entering the existing portions of the building.
- D. Completely remove temporary materials and equipment upon completion of construction.
- E. Repair damage caused by installation of temporary items and restore finishes to specified condition.

END OF SECTION

SECTION 01 58 00

PROJECT IDENTIFICATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The BSD Representative will direct the type of project identification signage to be placed at each project. General contractor to install BSD provided sign. No sign or advertising media of any nature shall be permitted on the site of Work or enclosing structures without the written approval of the BSD Representative. Any approved signs shall comply with the applicable laws, ordinances, and/or rules. Contractor shall not use in its external advertising, marketing programs, or other promotional efforts, any data, pictures or other representation of the District, except with prior specific written authorization from the BSD Representative.

END OF SECTION

SECTION 01 61 00

COMMON PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.1 MATERIAL AND EQUIPMENT SELECTION

- A. Comply with Standards and these Specifications including size, make, type, and quality specified, or as accepted in writing by the Architect.
- B. All products shall be new and of current manufacture unless otherwise specified.
- C. All similar products shall be of the same manufacturer.
- D. Manufactured and Fabricated Products:
 - 1. Design, fabricate, and assemble in accordance with the best engineering and shop practices.
 - 2. Manufacture like parts of duplicate units to standard sizes and gauges and to be interchangeable.
 - 3. All similar products shall be of the same manufacturer. Two or more items of the same kind shall be considered identical and by the same manufacturer.
 - 4. Provide products suitable for service conditions.
 - 5. Adhere to equipment capacities, sizes, and dimensions shown or specified unless variations are specifically approved in writing.
- E. Do not use material or equipment for any purpose other than that for which it is designed or is specified.
- F. Fabricate and install equipment to deliver its full rated capacity at the efficiency for which it was designed.
- G. Select and install equipment to operate at full capacity without excessive noise or vibration.
- H. Provide electrical products with Underwriter's Laboratories Label or as approved by the local inspection authority.
- I. Any software provided with products shall be provided with appropriate licensing and use agreements for a minimum of 10 years.

1.2 MANUFACTURER'S INSTRUCTIONS

- A. Perform work in accordance with manufacturer's printed installation instructions, obtain and distribute copies of such instructions to parties involved in the installation, including 3 copies to the Architect.
- B. Maintain one set of complete instructions at the job site during installation and until completion.

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- C. Handle, install, connect, clean, condition, and adjust products in strict accordance with manufacturer's printed instructions and in conformity with specified requirements.
 - 1. Consult with the Architect for further instructions should job conditions or specified requirements conflict with manufacturer's instructions.
 - 2. Do not proceed with work without clear instructions.
- D. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by the Contract Documents.

END OF SECTION

**SECTION 01 62 00
PRODUCT OPTIONS****PART 1 – GENERAL****1.1 PRODUCT OPTIONS**

- A. Specifications for public improvement contracts may not expressly or implicitly require any product by any brand name or mark, nor the product of any particular manufacturer or seller unless the product meets exemption criteria under ORS 279C.345. Consult with BSD representative if seeking an exception.
- B. “Any brand” with standard of quality, performance and other characteristics clearly described, is the preferred specification and requires no specific approval by the BSD representative.
- C. Single Product Named: For products specified by naming one product or manufacturer and "or accepted substitute", the Contractor must submit a request for substitution for any product or manufacturer not specifically named. Submittal is to be in accordance with this Section. “Brand X” or approved equal specification may be used, when the use is advantageous for the District, because the brand name describes the standard of quality, performance and other characteristics of the product needed by the District. Specific approval by BSD representative is required.
- D. Two or More Products Named: For products specified by naming several products or manufacturers and "or accepted substitute", select any one of the products or manufacturers named, provided the product selected complies with the specifications. If another product or manufacturer not named is to be used, the Contractor must submit a request for substitution for that product or manufacturer in accordance with this Section.
- E. “Or Accepted Substitute” and “Or Equal” Provisions: Where products or manufacturers are specified by name accompanied by the term “or accepted substitute” or “or equal”, provide either the product named or comply with the requirements for gaining approval of "substitutions" for the use of an unnamed product. BSD approval is required. May be used when the use is advantageous to the District, because the brand name describes the standard of quality, performance, and other characteristics of the product needed by the District. “Brand X” only specifications should rarely be used and only under conditions listed in ORS 279C.345 Specifications for contracts; exemptions.
 - 1. It is unlikely that the exemption will encourage favoritism in the awarding of public improvement contracts or substantially diminish competition for public improvement contracts;
 - 2. The specification of a product by brand name or mark, or the product of a particular manufacturer or seller, would result in substantial cost savings to the contracting agency;
 - 3. There is only one manufacturer or seller of the product of the quality required; or
 - 4. Efficient utilization of existing equipment or supplies requires the acquisition of compatible equipment or supplies.
- F. No materials or products containing any hazardous materials are to be used in the construction of this project. If any material or product specified in this Project Manual is known

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to contain hazardous materials, it shall be brought to the attention of the Architect and Owner before ordering or fabricating that material or product.

END OF SECTION

SECTION 01 1 00
PRODUCT TRANSPORTATION, STORAGE, AND HANDLING
REQUIREMENTS

PART 1 - GENERAL

1.1 TRANSPORTATION

- A. Arrange deliveries of products in accord with construction schedules; coordinate to avoid conflict with work and conditions at the site.
 - 1. Deliver products in undamaged condition and in manufacturer's original containers or packaging with identifying labels intact and legible.
 - 2. Immediately upon delivery, inspect shipments to assure compliance with requirements of the Contract Documents and to assure products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

1.2 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions with their seals and labels intact and legible.
 - 1. Store products subject to damage by the elements in weather tight enclosures.
 - 2. Maintain temperature and humidity within the ranges required by the manufacturer's instructions.
 - 3. Protect equipment and systems from moisture, chemical, or mechanical damage before and after installation.
 - 4. Protect shafts and bearing housings from rust.
- B. Exterior Storage:
 - 1. Store fabricated products above the ground on blocking or skids to prevent soiling or staining. Cover products that are subject to deterioration with impervious sheet covering. Provide adequate ventilation to avoid condensation.
 - 2. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- C. Inspection: Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions and free from damage or deterioration.
- D. Protection after Installation:
 - 1. Provide substantial coverings as necessary to protect installed products from damage by traffic or subsequent construction operations.
 - 2. Plug or cap pipe and conduit openings to prevent the entrance of foreign matter.
 - 3. Remove when no longer needed.

END OF SECTION

SECTION 01 71 00

EXAMINATION AND PREPARATION

PART 1 – GENERAL

1.1 SUMMARY

- A. Comply with requirements in individual Specification Sections for examination and preparation of work areas prior to installation of new work.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Examine areas of work prior to demolition or construction activities. Report the condition of the roof substrate and other deterioration encountered to the Architect.
- B. See additional requirements in:
 - 1. Section 02 41 19 SELECTIVE DEMOLITION.
 - 2. Part 3 of individual Sections within these Specifications.

END OF SECTION

SECTION 01 74 00

CLEANING AND WASTE MANAGEMENT

PART 1 - GENERAL

1.1 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

- A. District sustainability goals require that this Project generate the least amount of waste possible. Every effort shall be made to minimize waste generated due to poor planning, breakage, mishandling, contamination, or other factors. Waste that is generated shall be reused, salvaged, or recycled when economically feasible. Waste disposal in landfills shall be minimized in accordance with Metro requirements.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. Contractor to provide final cleaning of Work prior to Substantial Completion Inspection.
 - 1. Use cleaning materials that are non-hazardous.
 - 2. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and materials being cleaned.
 - 3. Clean debris from roofs, gutters, downspouts, and drainage systems.
 - 4. Clean site; sweep paved areas, rake clean landscaped surfaces.
 - 5. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner, do not burn or bury.
 - 6. Re-clean areas or equipment; after Substantial Completion Inspection, or if dirtied as result of Contractor's work in preparing for final inspection or completion of punch list.

END OF SECTION

SECTION 01 76 00

PROTECTING INSTALLED CONSTRUCTION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Contractor shall adequately protect materials being stored, completed construction, and/or construction in progress so as to prevent damage from subsequent operations or vandalism. This would include but is not be limited to control of traffic to prevent damage to equipment and surfaces and providing coverings to protect finished surfaces from damage.
- B. If materials or construction is damaged due to inadequate protection or vandalism, the Contractor shall clean and repair the Work and/or, at the BSD's representative's direction, replace the Work.

END OF SECTION

SECTION 01 77 00**CLOSEOUT PROCEDURES****PART 1 - GENERAL****1.1 CONTRACT CLOSEOUT**

- A. Prerequisites to Substantial Completion:
 - 1. Obtain and submit releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including (where required) occupancy permits, operating certificates, and similar releases.
 - 2. Complete final cleaning up requirements, including touch up of marred surfaces.
 - 3. Upon receipt of Contractor's written request for substantial completion inspection, Architect will either proceed with inspection or advise Contractor of prerequisites not fulfilled.
 - 4. Following initial inspection, Architect will either prepare certificate of substantial completion, or advise Contractor of work which must be performed prior to issuance of certificate; and repeat inspection when requested and assured that work has been substantially completed.
 - 5. Results of completed inspection will form initial "punch list" for final acceptance.
- B. Prerequisites to Contract Closeout:
 - 1. Letter referencing the Architect's last punch list by date, stating that all items listed have been completed and requesting a contract completion inspection.
 - 2. Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include releases and waivers of liens from Contractors subcontractors and material suppliers, in form approved by the Owner. Include certificates of insurance for projects and completed operations where required.
 - 3. Submit updated final statement, accounting for additional (final) changes to Contract sum.
 - 4. Submit certified copy of Architect's final punch list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by Architect.
 - 5. Submit consent of surety.
 - 6. Revise and submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - 7. Submit specific warranties, workmanship/ maintenance bonds, maintenance agreements, final certification and similar documents, all complete in final form.
- C. Reobservation Fees: Should Architect perform more than one reobservation due to failure of the Work to comply with the claims of status of completion made by the Contractor,
 - 1. Owner will compensate Architect for such additional services, and
 - 2. Owner will deduct the amount of such compensation from the final payment to the Contractor.
- D. Submissions to E-builder: Submit all closeout submittals to E-builder Process Module (CLOP).

END OF SECTION

SECTION 01 78 00

CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.1 WARRANTY, MAINTENANCE, AND OPERATIONAL MANUALS

- A. General:
 - 1. The purpose is to provide BSD with record information necessary for future operation and maintenance of the Project. Organize warranty and operating and maintenance data into suitable sets of manageable size. Bind properly-indexed data in individual binders. Mark appropriate identification on front and spine of each binder.
 - 2. Include the following types of information:
 - a. Emergency instructions
 - b. Spare parts list
 - c. Summary schedule of all warranties
 - d. Copies of warranties and contact information
 - e. Wiring diagrams
 - f. Recommended "turn around" cycles
 - g. Inspection procedures
 - h. Record Shop Drawings and Installed Product Data
 - i. Fixture lamping schedule
 - j. Ballast and driver schedule
 - 3. Provide in one manual, Separate manuals if needed because of size:
- B. Format: Bind each manual in a three-ringed, heavy-duty, vinyl-covered hardboard binder. On the cover imprint the Volume title "Equipment Operation and Maintenance Manual"; name of Project, BSD, Architect (include name of appropriate consultant engineer on mechanical and electrical manuals); and date of Substantial Completion; include Contractor's name and date. On bound edge, imprint name of project, BSD, and year of Substantial Completion.
 - 1. Pages that are neat and clean sheets, 8-1/2-by-11-inch maximum size, or accordion foldouts to same size for larger sheets. Use pocket folders for folded sheet information that is larger than 11"x17."
 - 2. Items to be identified with tabbed dividers showing section name and number of appropriate specification sections. Arrange dividers and items in order they occur in specifications.
 - 3. Provide consecutive page number in lower right corner of each page.
- C. Manual will generally include:
 - 1. A table of contents for each volume.
 - 2. A list of all Subcontractors with contact information including emergency phone number at the beginning of each volume.
 - 3. All information needed to operate and maintain systems and equipment provided in the Project presented and arranged in a logical manner for efficient use by the BSD's operating personnel.
 - 4. A list of manufacturers with phone numbers and addresses of local distributors, services representatives, parts dealers, etc. Include 24-hour service representatives when available.

5. Equipment manufacturer, make, model number, size, and nameplate data.
 6. Description of system, configuration and operation, including component identification and interrelations. A master control schematic drawings(s) will normally be required for this purpose.
 7. Dimensional and performance data for specific unit provided. Extraneous catalog data must be eliminated.
 8. Manufacturer's recommended cleaning methods and materials.
 9. Manufacturer's recommended operating instructions as appropriate.
 10. Manufacturer's recommended maintenance requirements and preventative maintenance recommendations including lubrication and other servicing data.
 11. Complete parts list, including reordering information, recommended spares, and anticipated useful life (if available). Include name, telephone, and fax numbers of manufacturer's authorized service/parts distribution outlets nearest to Project.
 12. Emergency instructions.
 13. Warranties/guarantees.
 14. Extra stock receipts.
 15. Training schedule.
- D. Manual to include the following tabs:
1. Table of contents
 2. Contact list
 3. Certificate of substantial completion
 4. Contractor statement of warranty
 5. Lead and asbestos free certification letter
 6. Certificate of occupancy
 7. Final permit inspection approvals
 8. Product data and warranties
 - a. Product data, warranty and shop drawings to be included.
 - b. Electronic Manuals: For each product, provide a pdf for the O&M and a pdf for the warranty, each named according to CSI/Specification number. Include a pdf of shop drawings if applicable.
- E. Review Procedures:
1. Prior to binding, submit an electronic O&M Manual for preliminary review/acceptance; submit via E-Builder. Preliminary copy shall be complete, except include temporary cover showing intended layout for final cover and bound edge.
 2. Upon approval of preliminary copy, prepare and submit to BSD three final copies of each manual.
- F. Provide final O&M Manual, final and complete as built files, specifications, as built drawings set in PDF format, redlined record drawings and permit drawings. Submit via E-Builder.
1. Final and complete sets of as built drawings shall accurately and cleanly reflect as-built conditions.
- G. Submissions to E-Builder: Submit all closeout submittals to E-Builder Submittals Module.

1.2 CERTIFICATIONS

- A. Asbestos Free Certification:
1. Absolutely no materials containing asbestos are to be provided or installed as part of this Project. The Contractor shall ensure that no subcontractor or any of Contractor's own forces installs any materials containing asbestos. At final

closeout of the Project, the Contractor shall provide to the School District certification that no materials containing asbestos have been installed in the Project and that the Project is asbestos free as required by the State of Oregon.

- B. Certificate of Occupancy.
- C. Final permit inspection and approvals.

1.3 PROJECT RECORD DOCUMENTS

- A. General:
 - 1. Contractor shall not use Record Documents for construction purposes; protect from deterioration and loss in a secure location; provide access to Record Documents for BSD's reference during normal working hours.
- B. Record Documents:
 - 1. Contractor to maintain a clean, undamaged set of prints of Contract Drawings and Shop Drawings as the Record Set. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
 - 2. Mark Record Sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
 - 3. Mark new information that is important to the BSD, but was not shown on Contract Drawings or Shop Drawings.
 - 4. Note related Change Order numbers where applicable.
 - 5. Record Sets shall be the same size. Paper sizes are limited to ANSI B Plot (11"x17"), ANSI D Plot (24"x36"), and ARCH E1 Plot (30"x42").
 - 6. Organize sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates, and other identification on the cover of each set.
 - 7. Create copy of mechanical, electrical, and plumbing "As Built" Record Sets and submit directly to BSD Representative at Substantial Completion via E-Builder.
 - a. Final and complete sets of as built drawings shall accurately and cleanly reflect as-built conditions.
 - 8. Deliver complete Record Documents to the Architect. An electronic copy of Record Documents to be given to the Owner at the end of the Project via E-Builder.
 - a. Final and complete sets of as built drawings shall accurately and cleanly reflect as-built conditions.
- C. Record Specifications:
 - 1. Contractor to maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related Record Drawing information and Product Data.

2. Upon completion of the Work, submit Record Specifications for the BSD's records. Submit electronic copy via E-Builder at end of Project.
- D. Record Product Data
1. Contractor to maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of Record Drawings and Specifications.
 2. Upon completion of mark-up, submit complete set of Record Product Data to the Architect for the BSD's records. An electronic copy on a thumb drive of Record Product Data to be given to the Owner at the end of the Project.
 3. Any marked up data to be provided in O&M manual. Do not submit varying versions of the same product data.
- E. Miscellaneous Record Submittals:
1. Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Architect for the BSD's records.
- F. Submit 1 hard copy of Permit Drawing Set with original stamp, signature and date to BSD Representative.

END OF SECTION

BDS – WESTVIEW HIGH SCHOOL TEAM ROOMS

Issue Set: BID Package

Print Date:8/22/20

SECTION 02 41 20
SELECTIVE BUILDING DEMOLITION

PART 1- GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Removal of designated building construction, equipment, and fixtures.
 - 2. Identification of utilities.
- B. Related Sections:
 - 1. Division 01 - Administrative, procedural, and temporary work requirements.

1.2 SUBMITTALS

- A. None

1.3 REGULATORY REQUIREMENTS

- A. Conform to applicable code for demolition work, safety of structure, and dust control.
- B. Obtain required permits from authorities.
- C. Notify affected utility companies before starting work and comply with their requirements.
- D. Conform to applicable codes when hazardous or contaminated materials are discovered.
- E. Do not close or obstruct exits.
- F. Do not disable or disrupt building fire or life safety systems without 3 days prior written notice to Owner.

1.4 PROJECT CONDITIONS

- A. Minimize interference with streets, walks, public right-of-ways, and adjacent facilities.
- B. If hazardous materials are discovered, notify Architect and await instructions.
- C. If any of the following conditions are encountered, cease work immediately, notify Architect and await instructions:
 - 1. Materials or conditions encountered differ from those designated in the Contract Documents.
- D. Coordinate salvage and disposal with BSD.

PART 2 PRODUCTS
Not used.

PART 3 EXECUTION

3.1 PREPARATION

- A. Erect temporary partitions, barricades, warning devices, and controls.
- B. Provide protective coverings, shoring, bracing, and supports for construction designated to remain.
- C. Temporarily or permanently disconnect utilities as required.

3.2 DEMOLITION

- A. Remove existing construction to extent indicated and as necessary to join new work to existing. Do not remove more than is necessary to allow for new construction.
- B. Do not damage work designated to remain.
- C. Minimize noise and spread of dirt and dust.
- D. Assign work to trades skilled in procedures involved.
- E. Plug ends of disconnected utilities with threaded or welded caps.
- F. Protect and support active utilities designated to remain. Post warning signs showing location and type of utility and type of hazard.
- G. Store items designated to remain property of Owner where directed by Owner
 - 1. Toilet partitions to be saved and delivered to Owner.
- H. Remove and dispose of waste materials off site.

END OF SECTION

SECTION 03 30 00
CAST-IN PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Sections:
 - 1. Section 01 4500: Quality Control, for special inspection and independent testing requirements.

1.2 SUBMITTALS

- A. Product Data: For each type of manufactured material and product indicated.
 - 1. Provide schedule of specific areas to receive each type of product specified for interior slab treatment, such as sealers, and hardeners. Identify name of each product proposed for use.
- B. Design Mixes: For each concrete mix. Submit at least 10 days prior to concrete delivery to site.

1.3 QUALITY ASSURANCE

- A. Quality Assurance: Comply with ACI301, "Specification for Structural Concrete," and ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- B. Reinforcing Steel Standards: CRSI "Manual of Standard Practice."
- C. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
- D. Installer Qualifications: Use skilled workers trained and experienced in necessary crafts and familiar with requirements and methods needed for proper performance of Work of this Section.
- E. Equipment for mixing and transporting concrete shall conform to ASTM C94 or ASTM C685. Ready-mixed and site mixed concrete shall be batched, mixed and delivered in accordance with ASTM C94 or ASTM C685.

1.4 SITE CONDITIONS

- A. Temperature Requirements:
 - 1. Do not place concrete when temperature will affect performance or appearance of concrete.
 - a. Temperature Range for Ambient Air During Concrete Placement: 40 to 80 degrees F.
 - b. Temperature Range for Ambient Air During Epoxy Bonding Grouts: 40 to 85 degrees F.
 - 2. Minimum Ambient Air Temperature: 40 degrees F.

PART 2 - PRODUCTS

2.1 MANUFACTURERS / PRODUCTS

- A. Provide products by manufacturers indicated in this Section, or approved.
 - 1. Substitutions: Submit according to requirements of Division 01 for "Substitutions."

2.2 CONCRETE MATERIALS

- A. Concrete:
 - 1. Portland Cement: ASTM C 150, Type I or II.
 - a. Fly Ash: ASTM C 618, Class F or Class C.
 - 2. Aggregate: ASTM C 33.
 - 3. Water: ASTM C 94, clean, free of oils, acids, organic material.
 - 4. Air-Entraining Admixture: ASTM C 260.
 - 5. Water-Reducing Admixture: ASTM C 494, Type A.
 - 6. Chemical Admixture: ASTM C 494, Type A water reducing or Type D water reducing and retarding.
 - 7. Mineral Admixture: ASTM C 618, Class F or Class C.

2.3 CONCRETE MIXES

- A. Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, with the following properties:
 - 1. Minimum Compressive Strength: $f'c = 2,500$ psi in 28 days.
 - a. Minimum Compressive Strength for Foundations: $f'c = 2,500$ psi in 28 days.
 - 2. Maximum Aggregate Size: 3/4 inch.
 - 3. Air Content: 4.5 to 7.0 percent.
 - 4. Water/Cement Ratios:
 - a. 0.42 for interior slabs-on-grade.
 - b. 0.50 for other concrete.
- B. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94 and ASTM C 1116, and furnish batch ticket information.
 - 1. Mix full load of concrete for 3 minutes at high speed upon arrival at site.
 - 2. Mix concrete for an additional 5 minutes after adding water
- C. On-Site Mixed Concrete using Small-Quantity Concrete Mixers. Use standard manufacture small-quantity concrete mixers capable of combining aggregate, cement (or fly ash) and water (and admixtures, if any) into a uniform mixture. Use self-powered concrete mixers capable of mixing a volume of concrete that requires 1 sack (minimum) of cement. Clean the mixers at suitable intervals. The Engineer will periodically examine the concrete mixers for changes in condition. Acceptable concrete mixers shall consistently produce well mixed, uniform concrete.
 - 1. Equipment for mixing and transporting concrete shall conform to ASTM C94 or ASTM C685. Ready-mixed and site mixed concrete shall be batched, mixed and delivered in accordance with ASTM C94 or ASTM C685.

PART 3 - EXECUTION

3.1 CONCRETE PLACEMENT

- A. Deposit concrete continuously and avoid segregation. Deposit concrete in forms in horizontal layers no deeper than 24 inches, avoiding cold joints.
 - 1. Consolidate concrete with mechanical vibrating equipment.
 - 2. Screed and initial-float concrete floors and slabs using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

3.2 FINISHING HORIZONTAL CONCRETE

- A. Floated Slab Finish:
 - 1. Provide floated finish for slab surfaces to receive a broom finish.
 - 2. Comply with ACI 301, paragraph 5.3.4.2.b.
 - 3. Begin floating when water sheen has disappeared, and surface has stiffened sufficiently to permit float finishing. Comply with ACI 301, paragraph 11.7.2; Begin floating when concrete surface has stiffened sufficiently to permit float finishing.
 - 4. Check surface plane with a 10 foot straightedge at two or more angles during or after first floating.
 - 5. Level to flatness of 1/4 inch in 10 feet or 1/16 inch in 3 feet.
 - 6. Refloat immediately to a uniform sandy texture.
 - 7. Finish to match adjoining work.
- B. Horizontal Surface Finish Tolerances: Finish concrete horizontal surfaces as specified in ACI 302, paragraph 8.3.

3.3 FIELD QUALITY CONTROL

- A. Test Requirements:
 - 1. Comply with Building Code, Section 1701 for evaluation and acceptance of concrete.
- B. Ready Mixed and On-Site Mixed Concrete Inspection and Testing:
 - 1. Sample each truck load or batch of ready mixed concrete, complying with ASTM C172.
 - 2. Perform one slump test for each truck load or batch of ready mixed concrete, complying with ASTM C 143.
 - 3. Perform one air content test for each set of compressive strength specimens, complying with ASTM C 231.
 - 4. Make one set of 3 of compressive strength specimens for each day of structural concrete pouring or each 50 cubic yards or fraction thereof for each class of concrete, complying with ASTM C 31.
 - 5. Test one specimen in accordance with ASTM C 39 after curing 7 days, two specimens after curing 28 days, unless first specimen tested at 28 days does not meet specified compressive strength, in which case retain one specimen for testing after 35 days or as directed by Architect.
 - 6. Batch Ticket:
 - a. Receive a batch weight ticket from each truck; batch ticket to comply with requirements of ASTM C 94 in Article 16 for Batch Ticket Information.
 - b. Verify water/cement ratio.
 - 1) No water may be added if load is at specified ratio.
 - 2) Reject truck or site mixed batch if ratio does not conform

3.4 REPAIRS AND PROTECTION

- A. Surface Repairs for Exposed Concrete: Any portion of work that retains water will be repaired or replaced. Ponding of water is unacceptable.
 - 1. Thoroughly clean, dampen with water and brush-coat area to be patched with Bonding Agent.
 - 2. Fill honeycomb voids and rock pockets with patching compound.
 - 3. Compact in place and screed as recommended by patching compound manufacturer.
 - 4. Finish to match adjoining work
 - 5. If defects in color and texture of surface cannot be repaired, remove and replace concrete.
- B. Replace damaged and defective grout and anchoring cement work.
- C. Protection:
 - 1. Protect concrete from frost damage until protected by soil backfill or until cured for 28 days.
 - 2. Protect concrete from physical damage or reduced strength caused by air temperatures below 45 degrees F. and above 75 degrees F. during curing period, complying with recommendations in ACI 306R and 305R respectively.
 - 3. Protect concrete from shrinkage crack damage until protected by curing procedure.
 - 4. Cover fresh grout and anchoring cement with plywood or oriented strand board for 24 hours minimum, where exposed to public, pedestrian, and animal traffic.
- D. Physical Barrier Protection:
 - 1. Barricade area containing fresh concrete slabs, stairs, ramps and walks for 24 hours minimum.
 - 2. Cover fresh concrete with plywood where exposed to public, pedestrian, and animal traffic.

END OF SECTION

SECTION 03 35 43

POLISHED CONCRETE FINISHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Work in this Section applies to the wet mechanical polishing and coloring of interior concrete floor surfaces.
- B. Application of Nano Infused Cement hydrating polishing system to specified Ra level, aggregate exposure, Coefficient of Friction (COF), and DOI gloss level.

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM-C501: Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.
- B. American Concrete Institute:
 - 1. ACI302.1R-89: Guide for Concrete Floor and Slab Construction.
- C. Refinement, Distinctness of Image, and Coefficient of Friction (COF):
 - 1. ASME B46.1-2009 (R2002) Surface Texture and ASTM D5767-18 DOI Gloss
 - 2. ANSI B101.3 Dynamic Coefficient of Friction for Hardened Surfaces

1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01600-Product Requirements:
 - 1. Provide submittal information within 35 calendar days after the contractor has received the Owner's notice to proceed.
- B. Product Data:
 - 1. Submit special concrete finishes manufacturer's specifications and test data.
 - 2. Submit special concrete finishes describing product to be provided, giving manufacturer's name and product name for the specified material proposed to be provided under this Section.
 - 3. Submit special concrete finishes manufacturer's recommended installation procedures; which when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work. Submit special concrete finishes technical data sheet for one complete system giving descriptive data, curing time, diamond tool use and application requirements.
 - 4. Submit special concrete finishes manufacturer's Material Safety Data Sheet (MSDS) and other safety requirements.
 - 5. Follow all special concrete finishes published manufacturer's installation Instructions.

- A. Test Reports:
 - 1. Provide certified test reports, prepared by an independent testing laboratory, confirming compliance with specified performance criteria.
- B. Samples:
 - 1. Each floor has its own unique appearance when completed. Manufacturer' slab samples are supplied only to show a smooth shiny surface. The final appearance of the finished floor cannot be guaranteed to match a sample due to the natural variations in concrete.
- C. Product Variations:
 - 1. The variegated colors produced are unique to each concrete surface and depend on the chemical composition, mix design, porosity, age, texture, and color of the concrete substrate. Mottling and wide variations in color and intensity may occur. If contaminants remain on the surface, the penetration of NIC Densifier and colors may be blocked. Concrete from different loads or pours, and in patched in areas, may appear significantly different in color than adjacent areas, when treated with acid stains, dyes, cutting compounds, and densifiers.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Use a pre-qualified installer and an adequate number of skilled workmen who are thoroughly trained and experienced in the necessary craft of surface preparation and wet refinement and surface micro texture polishing measurement.
 - 2. Applicator shall be familiar with the specified requirements and the methods needed for proper performance of work of this Section. Applicator must have availability of proper equipment and manpower to perform work within scope of this project on a timely basis, during normal day time working hours or must include in their bid the cost of all overtime required by the General Contractor to supervise the additional hours of work.
 - 3. Applicator should have successfully performed a minimum of 5 projects of at least 50,000 square feet each using a Nano Infused Cements (NIC) technology or equal.
- B. Installer's Certification:
 - 1. Provide letter of certification stating that installer is a certified applicator of special concrete finishes, and is familiar with proper procedures and installation requirements required by the equipment and product manufacturers. Third party certificate stating installer has completed training in surface micro texture measurements and COF.
- C. Mock-ups:
 - 1. Apply mock-ups of each type finish, to demonstrate typical joints, surface finish, color variation (if any), and standard of workmanship.
 - a. Build mock-ups approximately 20 square feet in the location indicated or if not indicated, as directed by the Architect or Owner Representative.
 - b. Notify Architect or Owner Representative seven days in advance of dates and times when mock-ups will be constructed.
 - c. Obtain from the Architect or Owner Representative approval of mock-ups before starting construction.
 - d. If the Architect or Owner Representative determines that mock-ups do not meet

requirements, demolish and remove them from the site and cast others until mock-ups are approved.

- e. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed work.
- f. Approved mock-ups may become part of the completed work if undisturbed at time of substantial completion.

D. Protection:

- 1. No satisfactory chemical or cleaning procedure is available to remove petroleum stains from the concrete surface. Prevention is therefore essential.
 - a. All hydraulic powered equipment must be diapered to avoid staining of the concrete.
 - b. No trade will park vehicles on the inside slab. If necessary to complete their scope of work, drop cloths will be placed under vehicles at all times.
 - c. No pipe cutting machine will be used on the inside floor slab.
 - d. Steel will not be placed on interior slab to avoid rust staining.
 - e. All equipment must be equipped with non-marking tires.

E. Pre-Installation Conference:

- 1. Prior to polishing schedule a pre-install conference at the project site prior to scope of work being performed. Owner, Owner Rep, Architect, Contractor, Installer, Product Manufacturer and Equipment Manufacturer will all be required to be in attendance.
- 2. Agenda – Polisher shall demonstrate understanding of work required by reviewing and discussing procedures for, but not limited to, following:
 - a. Tour mockup areas and discuss and evaluate for compliance with
 - b. Contract Documents, including substrate conditions, surface preparations, sequence procedures, and other preparatory work.
 - c. Review Contract Document Requirements.
 - d. Review approved submittals.
 - e. Review procedures, including but limited to:
 - 1) Prep work.
 - 2) Slurry mitigation.
 - 3) Procedural steps of grinding, honing and polishing operation.
 - 4) Application of liquid applied products.
 - 5) Protecting floors until polished work begins.
 - 6) Post polishing work floor protection.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original containers, with seals unbroken, bearing manufacturer labels indicating brand name and directions for storage.
- B. Dispense special concrete finish material from factory numbered and sealed containers. Maintain record of container numbers.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations:
 - 1. Comply with manufacturer's written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation, and other conditions affecting

topping performance.

- a. Concrete must have a Floor Flatness rating of at least 40.
 - b. Concrete must have a Floor Levelness rating of at least 40.
 - c. Concrete must be cured a minimum of 28 days or as directed by the manufacturer before application of Densifier can begin.
 - d. Application of wet refinement and grinding as well as Densifier shall take place in order to provide a complete, uninhibited concrete slab for application.
- B. Close areas to traffic during floor application and after application, for time period recommended in writing by manufacturer.

PART 2 – PRODUCTS

2.1 LIQUID APPLIED PRODUCTS

- A. Densifying & Sealing Agents:
1. Hydro-Grind, Barnsco Decorative Concrete, Texas
 - a. Densifying Agent: Hydro-Hard.
 - b. Cutting Compound and Tooling: Hydro-Cutter, Hydro Grind System Tooling
 2. UT Systems, California: 214.543.8980, MichaelScanlin@att.net
 - a. UT Nano-Infused Densifier
 - b. UT Supply Cutting Compound
 3. Core Prep – Diamond Products, 440.225.6618, anevener@diamondproducts.com
 - a. Densifying Agent: Core Shine
 - b. Cutting Compound: Core Liquid Slurry Solution
- B. Performance Criteria:
1. ANSI B101.3: High Traction COF (TCNA/CPC not acceptable)
 2. Minimum 16 micro inches surface micro texture grade

2.2 ACCESSORIES

- A. Patching compound: Compound composed of 40 percent Portland cement, 45 percent limestone, and 15 percent vinyl acetate copolymer, when mixed with dust salvaged from grinding process forms a paste that hardens when surface imperfections are filled.
- B. Grout material: Clear modified silica sealant, containing no pore clogging latex, when mixed with concrete slurry from wet grinding process that hardens when surface imperfections are filled.
1. Manufacturer: Teres Materials Grout www.teresmaterials.com or approved equal.
Substitutions must be made prior to the bid closing and must comply with specification timelines.

2.3 POLISHING EQUIPMENT

- A. As required by Bidder to achieve both specified Ra level and DOI gloss meter reading. No exceptions.
- B. Use dust extraction and slurry mitigation processes for dust and slurry generated by polishing contractor's equipment.

PART 3 – EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine substrate, with installer present, for conditions affecting performance of finish. Correct conditions detrimental to timely and proper work. Do not proceed until unsatisfactory conditions are corrected.
- B. Verify that base slab meets finish and surface profile requirements in Division 3 Section "Cast- In-Place Concrete," and Project Conditions above.
- C. Prior to application, verify that floor surfaces are free of laitance and construction materials.
- D. Concrete must be in place a minimum of 28 days or as directed by the manufacturer before application can begin.

3.2 PROCESSING OF FLOORS

- A. Floor surfaces shall be ground to remove surface contamination and expose aggregate.
- B. Floor surfaces shall be polished to an average minimum *Ra reading of 16µin and semi-gloss image clarity value average of 60% according to ASTM D5767-18 DOI Gloss*
 - 1. Ra and DOI testing may be performed by owner prior to any application of a sealer/ stain guard. The first test in any area will be paid for by the owner. If the first test fails in that area, all subsequent tests in that area will be at the expense of the polishing subcontractor. Topical "grind and seal" or coating applications mimicking polished concrete prohibited.
- C. Edges shall be polished to match floor area to within ½" of wall.
- D. Sealing, Hardening and Polishing of Concrete Surface:
 - 1. Application is to take place in accordance with general contractor's schedule which will be at least 10 days prior to substantial completion/owner move-in, thus providing a complete, uninhibited concrete slab for application.
 - 2. Only a certified applicator shall apply nano infused cements chemistry. Applicable procedures must be followed as recommended by the product manufacturer and as required to match approved test sample.
 - 3. Achieve hardening, dust-proofing, and abrasion resistance of the surface without changing the natural appearance of the concrete, except for the sheen.
 - 4. Finish to within ½" of vertical surfaces where practical.
 - 5. Polish to pre-determined level based on test sample.
- E. Sealer: Apply "Approved Sealer/Stain Guard" (See Section 2.1A) on the entire floor as a final finish of the polished concrete. Follow application directions and burnish with the recommended pad for final sheen.
- F. Final Protection of Polished Concrete (By General Contractor if Required)

1. Following completion of the final polishing, surface must be covered to protect from trades. Cover with breathable product, such as kraft paper or thin curing blanket. DO NOT COVER WITH MASONITE, PLYWOOD OR VISQUINE.
2. Do NOT use any tape to mask off areas or to secure cover material.

3.3 WORKMANSHIP AND CLEANING

- A. The premises shall be kept clean and free of debris at all times.
- B. The polishing subcontractor will be responsible to mask and tape off all air supply/return duct diffusers and dampers, light fixtures, smoke alarms, technology closets, open shelving/bookcases, cabinet drawers/doors, etc. to ensure that polishing dust does not spread into and contaminated these areas/devices. Mockup required for first room being polished to ensure adequate dust control.
- C. Doors and frames are not scheduled to be removed as part of the bond scope of work. Concrete polishing contractor should anticipate working around and protecting the existing doors and frames and will be expected to comply with quality requirements identified in these specifications.
- D. Remove spatter from adjoining surfaces, as necessary.
- E. Repair damages to surface caused by cleaning operations.
- F. Remove debris from jobsite (By Polishing Subcontractor). Dispose of materials in separate, closed containers as provided by the Owner, and in accordance with local regulations.
- G. Temporary power connection at main building distribution panel for polishing contractor's equipment will be provided by others. Concrete polishing contractor is still responsible for all distribution of temporary power. Repair damages to surface caused by cleaning operations.

3.4 SPECIFIC QUALIFICATIONS/EXCLUSIONS

- A. Existing flooring demolition will be performed by others outside of this scope of work.
- B. The concrete floor is an existing condition and as such has not been exposed to the elements. If weather damage has occurred, additional grinding will be at time and materials.
- C. Removal of contamination of the slab by soil, foot prints, drag marks, welding marks, hydraulic fluids, or any other outside contaminant will be at time and materials, and will be performed to the best of ability, but without guarantee of removal.
- D. No other trades will be allowed in the immediate area being worked on due to possible safety and floor contamination issues.
- E. The areas to receive Reactive Colloidal Silica Densifier will be delivered to the applicator in clean and swept condition. All equipment and supplies will be removed prior to turning the space over to the applicator. If the applicator is required to clean the space, and/or

move other's supplies, staging and equipment, it will be done at time and materials.

- F. If a curing agent establishes a bond barrier and requires removal prior to the application of the densifier/hardener, this will be done at time and material.
- G. Protection of the floor (when schedule requires) is the responsibility of the general contractor until substantial completion.

3.5 PROTECTION

- A. Protect finished work until fully cured in accordance with manufacturer's recommendations.
- B. Review maintenance plan for Ra and COF with owner's maintenance representative, GC, and Sub.

END OF SECTION

SECTION 05 40 00
COLD-FORMED METAL FRAMING

PART 1 PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Non-load-bearing steel stud wall framing.
 - 2. Steel ceiling joist framing.
- B. Related Sections:
 - 1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

- A. American Iron and Steel Institute (AISI) www.steel.org - Specification for the Design of Cold-Formed Steel Structural Members.
- B. American Society of Civil Engineers (ASCE) www.asce.org - Minimum Design Loads for Buildings and Other Structures.
- C. American Welding Society (AWS) www.aws.org D1.3/D1.3M - Structural Welding Code - Sheet Steel.
- D. ASTM International (ASTM) www.astm.org:
 - 1. A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
 - 2. A780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
 - 3. A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
 - 4. C955 - Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Board and Metal Plaster Bases.
 - 5. C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.
 - 6. C1513 - Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.
- E. Steel Framing Industry Association (SFIA) (www.sfia.memberclicks.net) - Member Directory.
- F. Steel Stud Manufacturer's Association (SSMA) (www.ssma.com) - Member Directory.
- G. Society for Protective Coatings (SSPC) (www.sspc.org) - Painting Manual.

1.3 QUALITY ASSURANCE

- A. Manufacturer: Current member of SFIA or SSMA.
- B. Installer Qualifications: Minimum 5 years experience in work of this Section.
- C. Calculate structural properties of framing members in accordance with AISI Specifications.

- D. Design wall stud system to withstand:
 - 1. Minimum 1/2 inch vertical deflection of structure unless noted otherwise.
- E. Design system to accommodate construction tolerances, deflection of building structural members, and clearances at openings.
- F. Welder Qualifications: AWS D1.3/D1.3M.

1.4 DELIVERY, STORAGE AND HANDLING

- A. In accordance with ASTM C1007.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. Clark Dietrich.
 - 2. SCAFCO Corporation.
 - 3. Steeler, Inc.
 - 4. Or accepted substitute
- B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

- A. Framing Materials:
 - 1. ASTM A653/A653M or A1003/A1003M, galvanized sheet steel, G60 coating class.
 - 2. Fabricate components to ASTM C955.
 - 3. Studs: SSMA stud profile, C-shaped, punched for utility access.
 - 4. Tracks:
 - a. SSMA stud track profile, C-shaped, same gage and depth as studs, unpunched.
 - b. Top track: Deflection type, deep leg track with slotted screw holes; permit plus or minus 1/2 inch movement of overhead structure without damage to framing.
 - c. Rim track: Provide closure for ends of joists.

2.3 ACCESSORIES

- A. Bracing, Furring, Bridging and Web Stiffeners: Formed sheet steel, thickness determined by performance requirements specified.
- B. Plates, Gussets, Clips: Formed sheet steel, thickness determined by performance requirements specified.
- C. Fasteners: ASTM C1513; self-drilling, self-tapping screws.
- D. Touch Up Paint: SSPC Paint 20, Type I or II.

2.4 FABRICATION

- A. Framing components may be prefabricated using templates.
- B. Cut members square and with tight fit to adjacent framing.
- C. Assemble components using screw connection, welding, or clinching methods. Welding to conform to

AWS D1.3/D1.3M.

- D. Fabricate straight, level, and true, without warp or rack.
- E. Fabrication Tolerances: In accordance with ASTM C955.

PART 3 EXECUTION

3.1 INSTALLATION - GENERAL

- A. Install framing components in accordance with ASTM C1007, manufacturer's instructions, and construction documents.
- B. Welding: In accordance with AWS D1.3/D1.3M.
- C. Make provisions for erection stresses. Provide temporary alignment and bracing.

3.2 INSTALLATION - NON-AXIALLY LOADED STUD FRAMING

- A. Place top and bottom tracks in straight lines with ends butted. Fasten tracks at maximum 12 inches on center.
- B. Place studs at spacing indicated and not more than 2 inches from abutting walls and at each side of openings.
- C. Install deflection compensating top track at framing extending to underside of structure.
- D. Connect studs to top and bottom tracks.
- E. Construct corners using minimum of three studs.
- F. Do not splice studs.
- G. Erect, brace, and reinforce stud framing to develop strength to achieve design requirements.
- H. Install headers above openings and intermediate studs above and below openings to align with wall stud spacing.
- I. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.
- J. Laterally brace walls at locations indicated.

3.3 INSTALLATION TOLERANCES

- A. In accordance with ASTM C1007.

3.4 FIELD QUALITY CONTROL

- A. Testing and Inspection Services: Inspect and test shop and field welds in accordance with AWS D1.3/D1.3M.

3.5 ADJUSTING

- A. Clean and touch up galvanized coatings at welded and abraded surfaces in accordance with ASTM A780, Annex A2.

END OF SECTION

SECTION 06 10 00

WOOD CARPENTRY

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Provide plywood sheathing at Team Room locker platforms as indicated on the Drawings and as specified herein.
- B. Provide fire treated solid blocking where required or detailed on the Drawings and as herein specified.
- C. Provide solid blocking or backing in framing for attachment of wall mounted casework and lockers.

1.2 REFERENCES

- A. American Plywood Association: PS 1, Construction and Industrial Softwood Plywood, latest edition.
- B. APA PRP-108: Performance Standards and Policies for Structural Use Panels, latest edition.

1.3 SUBMITTALS

- A. Shop Drawings:
 - 1. Show layout, dimensions, profiles, joint details, and other pertinent items.
 - 2. Show connections to adjacent work, and complete assembly.
 - 3. Include the manufacturer's descriptive literature for specialty items.
 - 4. Identify each item as to location, material grade, workmanship grade, wood species, finish, and location of casework

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver sheathing with edges protected from bundling strap damage and store above grade, protected from moisture.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Plywood at Locker Platforms: Plywood: APA, PS 1 for softwood, PS51 and Industry Standard, I.S. 1 for hardwood. 5-ply minimum. Thickness as indicated on drawings.
- B. Screw Fasteners: Bugle head screws in accordance with ICC-ES ER-0126.
- C. Lumber: Construction Grade, S-dry, Douglas Fir. Moisture content shall conform to WCLIB Rules #16, latest edition, General Grading Provisions, paragraph 3, Seasoning Provisions.
- D. Fire Treatment: Osmose "Flame Proof" treated meeting flame spread 25 or less, bearing UL FR-S label. All lumber products are to be pressure impregnated with fire retardant chemicals.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Plywood Sheathing at Locker Platforms:
 - 1. Miter corners, bevel-cut, and glue joints.
 - 2. Provide continuous bases under in-line base casework unless otherwise indicated.
 - 3. Secure casework in place plumb, square, true, level, and without distortion. Level where necessary with concealed shims.
- H. Ease sharp external corners prior to finishing.
- B. Blocking:
 - 1. Secure blocking to the building structural frame or to wall studding with appropriate fasteners to support accessory items being mounted to the blocking material.
 - 2. Use templates furnished with accessory items to determine the location of blocking or backing materials.
 - 3. Verify fastening devices furnished with accessory items to determine the appropriate backing material size and shape.
 - 4. Check hardware schedule for locations where wall door bumpers are called for. Do not fasten solely to wall finish materials.
- C. Wood Contacting Concrete: Wherever wood makes end or side contact against concrete, install 2 layers of No. 30 pound roofing felt so there will be no contact between wood and concrete.

3.2 ADJUSTMENTS, CLEANING, AND REPAIRING

- A. Adjust moving parts to operate satisfactorily at time of project Substantial Completion and during warranty period.
- B. Damage Adjustments: Repair damaged or defective work as directed. Touch up finish as required. Remove and refinish damaged areas of finish.
- C. Cleaning: Clean exposed and semi-exposed surfaces.
- D. Including work of other trades, clean, repair, and touch-up or replace, when directed, any products that have been soiled, discolored, or damaged by work of this Section.
- E. Leave surfaces ready for finishing specified in other Sections.
- F. Remove debris from project site upon work completion or sooner, if directed.

3.3 MINIMUM FASTENING SCHEDULE

- A. Plywood Sheathing at Locker Platforms: Screw fasten 6" on center at panel edges with 12" on center at panel interior.

END OF SECTION

SECTION 07 92 00

JOINT SEALERS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Joint backup materials.
 - 2. Joint sealers.
- B. Related Sections:
 - 1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. C510 - Standard Test Method for Staining and Color Change of Single- or Multicomponent Joint Sealants.
 - 2. C719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
 - 3. C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants.
 - 4. C834 - Standard Specification for Latex Sealing Compounds.
 - 5. C920 - Standard Specification for Elastomeric Joint Sealants.
 - 6. C1193 - Standard Guide for Use of Joint Sealants.
 - 7. C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants.
 - 8. C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
 - 9. C1472 - Standard Guide for Calculating Movement and Other Effects When Establishing Sealant Joint Width.
 - 10. D2203 - Standard Test Method for Staining from Sealants.
 - 11. E 84 – Standard Test for Surface Burning Characteristics of Building Materials.
 - 12. E 814 – Standard Test Method for Fire Tests of Penetration Firestop System.

1.3 SUBMITTALS

- A. Submittals for Review:
 - 1. Product Data: Indicate sealers, primers, backup materials, bond breakers, and accessories proposed for use.
 - 2. Warranty: Sample warranty form.

1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: Minimum 5 years experience in work of this Section.
- B. Maximum Volatile Organic Compound (VOC) Content; interior sealers and accessories:
 - 1. Sealers: 250 grams per liter.
 - 2. Primers for non-porous substrates: 250 grams per liter.
 - 3. Primers for porous substrates: 775 grams per liter.
- C. Field Pre-Construction Testing:
 - 1. Install sealers using joint preparation methods and materials recommended by sealer manufacturer.

2. When tests indicate sealant adhesion failure, modify joint preparation, primer, or both and retest until joint passes sealant adhesion test.

1.5 PROJECT CONDITIONS

- A. Do not apply sealers at temperatures below 40 degrees F unless approved by sealer manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 1. BASF Building Systems. (www.buildingsystems.basf.com)
 2. Dow Corning Corp. (www.dowcorning.com)
 3. GE Silicones. (www.siliconeforbuilding.com)
 4. Pecora Corp. (www.pecora.com)
 5. Sika Corp. (www.sikausa.com)
 6. Tremco, Inc. (www.tremcosealants.com)
- B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

- A. Joint Sealer Type 6:
 1. ASTM C834, single component acrylic latex, non sag.
 2. Movement capability: Plus or minus 7-1/2 percent.
 3. Color: White.
- B. Joint Sealer Type 7:
 1. ASTM C920, Grade NS, single component silicone, non sag, mildew resistant.
 2. Movement capability: Plus or minus 25 percent.
 3. Color: To be selected from manufacturer's full color range.
- C. Joint Sealer Type 8:
 1. ASTM E 84 Flame Spread- 0 Smoke Development-0
 2. ASTM E814
 3. Intumescent acrylic sealant.

2.3 ACCESSORIES

- A. Primers, Bondbreakers, and Solvents: As recommended by sealer manufacturer.
- B. Joint Backing:
 1. ASTM C1330, closed cell polyethylene foam, preformed round joint filler, non absorbing, non staining, resilient, compatible with sealer and primer, recommended by sealer manufacturer for each sealer type.
 2. Size: Minimum 1.25 times joint width.

2.4 MIXES

- A. Mix multiple component sealers in accordance with manufacturer's instructions.
 1. Mix with mechanical mixer; prevent air entrainment and overheating.
 2. Continue mixing until color is uniform.

PART 3 EXECUTION

3.1 PREPARATION

- A. Remove loose and foreign matter that could impair adhesion. If surface has been subject to chemical contamination, contact sealer manufacturer for recommendation.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Protect adjacent surfaces with masking tape or protective coverings.
- D. Calculate joint dimensions in accordance with ASTM C1472.

3.2 APPLICATION

- A. Apply products in accordance with manufacturer's instructions.
- B. Install sealers and accessories in accordance with ASTM C1193.
- C. Install joint backing to maintain required sealer dimensions. Compress backing approximately 25 percent without puncturing skin. Do not twist or stretch.
- D. Use bondbreaker tape where joint backing is not installed.
- E. Fill joints full without air pockets, embedded materials, ridges, and sags.
- F. Tool sealer to smooth profile.
- G. Apply sealer within manufacturer's recommended temperature range.

3.3 CLEANING

- A. Remove masking tape and protective coverings after sealer has cured.
- B. Clean adjacent surfaces.

3.4 SCHEDULE

JOINT LOCATION OR TYPE	SEALER TYPE
Interior Joints:	
Joints and penetrations in fire rated assemblies	8
Joints in toilet rooms, countertops, and damp locations	7
Other joints	6

END OF SECTION

SECTION 08 20 00
WOOD DOORS

PART - 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Solid-core doors with wood veneer faces.
- B. Related Sections:
 - 1. Division 01: Administrative, procedural, and temporary work requirements.
 - 2. Section 087100 - Door Hardware.

1.2 REFERENCES

- A. National Fire Protection Association (NFPA) 80 - Standard for Fire Doors and Fire Windows.
- B. Underwriters Laboratories (UL):
 - 1. 10B - Standard for Fire Tests of Door Assemblies.
 - 2. 10C - Standard for Positive Pressure Fire Tests of Door Assemblies.

1.3 SUBMITTALS

- A. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
 - 1. Dimensions and locations of mortises and holes for hardware.
 - 2. Dimensions and locations of cutouts.
 - 3. Undercuts.
 - 4. Requirements for veneer matching.
 - 5. Doors to be factory finished and finish requirements.
 - 6. Fire-protection ratings for fire-rated doors.
- B. Samples for Initial Selection: For factory finished doors.
- C. Samples for Verification:
 - 1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches for each material and finish.
 - 2. Construction sample of doors with faces and edges representing actual materials to be

1.4 QUALITY ASSURANCE

- A. Frames: Existing hollow metal frame to remain.
- B. Fire Door and Frame Construction: Conform to UL 10C.
- C. Installed Fire Rated Door: Conform to NFPA 80.
- D. Installed by qualified tradesmen with no less than 2 years of experience in installing similar doors.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Store doors upright in protected, dry area, off ground or floor, with at least 1/4 inch space between individual units.
- B. Do not cover with non vented coverings that create excessive humidity.
- C. Remove wet coverings immediately.

1.6 CLOSEOUT DELIVERABLES

- A. Closeout Deliverables for Doors and Frames.
 - 1. Drawings and specifications updated to show changes that occurred during construction.
 - 2. Shop drawings updated to show changes that occurred during construction.
 - 3. Operation and maintenance information.

1.7 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84- inch section of a 1.75 inch thick door.
 - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 - 3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. Basis of design Oregon Door
 - 2. Lynden Door
 - 3. VT Industries
 - 4. Vancouver Door
- B. Substitutions: Under provisions of Division 01.

2.2 DOOR TYPE:

- A. WDMA I.S.1-A Performance Grade:
 - 1. Extra Heavy Duty: Locker rooms/ Team rooms.
 - a. All doors must meet specified WDMA performance duty level, including face screw holding requirement. Surface applied hardware shall be installed with screws; through-bolts are not acceptable.

2.3 MATERIALS

- A. Door Core:
 - 1. Interior fire-rated and non-fire rated doors: 8 lb. density mineral wool.
- B. Interior Solid-Core Doors:
 - 1. Grade: Premium (Grade AA faces).

2. Species: Match existing on site.
3. Cut: Plain sliced (flat sliced) verify in field and match existing.
4. Match between Veneer Leaves: Match existing.
5. Assembly of Veneer Leaves on Door Faces: Match existing on site.
6. Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
7. Exposed Vertical Edges: Same species as faces
8. Core: Fire rated Structural composite lumber core.
9. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering.
10. WDMA I.S.1-A Performance Grade: Extra Heavy Duty

2.4 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
 1. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.
 1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.

2.5 FINISHES

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors.
- C. Transparent Finish:
 1. Grade: Premium.
 2. Finish: WDMA TR-6 catalyzed polyurethane.
 3. Staining: As selected by Architect from manufacturer's full range to match existing.
 4. Effect: Match existing.
 5. Sheen: Match existing.

PART 3 EXECUTION

3.1 EXAMINATION

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

3.2 INSTALLATION

- A. Hardware: For installation, see Section 087100 Door Hardware.
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
 - 1. Install fire-rated doors according to NFPA 80.
- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 - 1. Clearances: Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors. Provide 1/4 inch (6.4 mm) from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch (6.4 mm) from bottom of door to top of threshold unless otherwise indicated.
 - a. Comply with NFPA 80 for fire-rated doors.
 - 2. Bevel fire-rated doors 1/8 inch in 2 inches (3 degrees) at lock and hinge edges; trim stiles and rails only to extent permitted by labeling agency.
- D. Factory-Finished Doors: Do not trim factory-finished doors to width.

3.3 ADJUSTING

- A. Operation: Correct any deficiency that prohibits doors from swinging or operating freely. Do not remove hinge screws after initial insertion. Shims used for alignment purposes must be inserted between hinge and frame. Do not insert shims between hinge and door.
- B. To prevent stile failure, ensure that door closers are properly adjusted and do not limit the door opening swing. Limit door opening swing only with a properly located stop.
- C. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION

SECTION 08 71 00

DOOR HARDWARE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Hardware for steel doors.
- B. Related Sections:
 - 1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

- A. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI/BHMA):
 - 1. A156.1 - Butts and Hinges.
 - 2. A156.2 - Bored and Preassembled Locks and Latches.
 - 3. A156.4 - Door Controls - Closers.
 - 4. A156.5 - Auxiliary Locks and Associated Products.
 - 5. A156.18 - Materials and Finishes.
- B. National Fire Protection Association (NFPA):
 - 1. 80 - Standard for Fire Doors and Windows.
 - 2. 105 - Installation of Smoke Control Door Assemblies.

1.3 SUBMITTALS

- A. Submittals for Review:
 - 1. Shop Drawings: Schedule hardware by door type and location; show door size, hand, thickness, edge bevel, hardware components and quantities, keying, and finishes.
 - 2. Product Data: Manufacturer's descriptive data for each component.
 - 3. Warranty: Sample warranty form.
- B. Closeout Submittals:
 - 1. Copy of approved hardware schedule.
 - 2. Drawings and specifications updated to show changes that occurred during construction
 - 3. Shop drawings updated to show changes that occurred during construction.
 - 4. Operation and maintenance information
 - 5. Provide 3-year warranty on doors
 - 6. Keys; tag with mark corresponding to keying schedule.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum 5 years documented experience in work of this Section.
- B. Provide hardware labeled by recognized independent testing laboratory and meeting requirements of NFPA 80 for fire rated doors.
- C. Provide smoke gasketing at fire rated doors in accordance with NFPA 105.
- D. Conform to OSSC 2019 for locating hardware and for door opening force requirements.
- E. Labels:
 - 1. Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80.

2. Provide hardware that has been tested and listed by UL for the types and sizes of doors required, and complies with the requirements for the door and door frame labels.

F. ADA Compliance:

1. Interior Doors: All interior doors are required to meet ADAAG requirement that the force for pushing or pulling open interior swinging egress doors, other than fire doors, shall not exceed 5-pounds. Any interior swinging egress door not meeting this requirement will not be allowed.
2. Exterior Doors: The maximum opening force allowed is to not exceed 8-1/2-pounds.
3. Interior Fire Doors: Conform to NFPA 101 for the opening forces for interior side-hinged or pivoted-swinging door leaves without closers. These forces shall not exceed 5-pounds while the forces required to fully open any door leaf manually in a means of egress shall not exceed 15-pounds to release the latch, 30-pounds to set the leaf in motion, and 15-pounds to open the leaf to the minimum required width.

G. Pre-occupancy adjustments.

1. No less than 30 days before Substantial Completion (occupancy), Contractor, aided by door hardware Supplier, shall adjust all locks, door hinges, door swings, door wall stops, thresholds, door sweeps, door alarms, and any door powering devices for smooth and effective operation.

H. Post-occupancy adjustments.

1. At six months following Substantial Completion, Contractor, aided by door hardware Supplier, shall again adjust all locks, door hinges, door swings, door wall stops, thresholds, door sweeps, door alarms, and any door powering devices for smooth and effective operation.

I. Pre-Installation Conference:

1. Include the following for a pre-installation conference attended by the parties performing the work of this section. Minimize conferences on smaller, less complex projects.
2. Convene at site after door locksets and hardware submittals have been submitted and approved and prior to ordering permanent cylinders for Project.
3. Attendance: Architect, Owner, Contractor, Construction Manager, and hardware Supplier.
4. Review, discuss, and finalize Owner's keying requirements.
5. Following the meeting, Supplier to promptly submit to the Owner a final Keying Schedule documenting how each lockset shall be keyed.

1.1 DELIVERY, STORAGE AND HANDLING

- A. Pack hardware items separately, with fasteners, installation instructions, and templates.
- B. Mark containers with item number corresponding to hardware schedule.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers - Butt Hinges:
 1. Ives by Allegion (www.allegion.com).
- B. Acceptable Manufacturers – Locksets and Cylinders:
 1. Schlage. <http://www.schlage.com>
- C. Acceptable Manufacturers - Closers:
 1. LCN by Allegion. (www.allegion.com)

- D. Acceptable Manufacturers - Door Seals:
1. Hager Companies. (www.hagerco.com)
 2. National Guard Products, Inc. (www.ngpinc.com)
 3. Pemko Manufacturing Co., Inc. (www.pemko.com)

- E. Kickplates:
1. Ives by Allegion (www.allegion.com).

- F. Substitutions: Under provisions of Division 01.

2.2 MANUFACTURED UNITS

- A. Butt Hinges:
1. Description: ANSI/BHMA A156.1, full mortis type, five knuckle, NRP.
 2. Weight: Heavy weight.
 3. Bearing type: Ball bearing.
 4. Size: 4-1/2 x 4-1/2 inches.
- B. Locksets, and Cylinders:
1. Locksets: Schlage ND94PD Vandguard Classroom Lever Lock
 2. Strike plates: Curved lip, minimum lip projection necessary to protect door frame and trim and to conceal edges of strike cutout.
 3. Strike boxes: Steel.
 4. 6 pin with interchangeable core.
 5. Keys: Solid brass or nickel silver.
 6. Keying:
 - a. Schlage Classic IC cores 23-030-626 in a "C" keyway.
 - b. Master key locks match to existing master key system.
 - c. Key alike, cross key, or otherwise key as directed by Owner.
 - d. Provide four keys for each lock.
 - e. Inscribe keys with lock manufacturer and notation DO NOT DUPLICATE.
 - f. Furnish cores for keying by BSD.
- C. Closers:
1. Description: ANSI/BHMA A156.4, overhead exposed, metal cover, sized to door conditions.
 2. Construction: Cast aluminum or iron body, rack and pinion operation with compression spring, fully hydraulic.
 3. Closing and latching speeds: Controlled by independently adjustable concealed valves.
 4. Mounting: Surface mounted, non handed with universal regular or parallel arm. Suitable for mounting on 1-3/4 inch minimum door top rail or transom bar without drop plate.
 5. Adjustable opening force and delayed closing in accordance with applicable accessibility code.
- D. Door Stops: As scheduled.
- E. Kick Plates:
1. Type: 18 gage, square edges, secured with flathead countersunk screws.
 2. Size: 10 inches high x door width less 2 inches.
- F. Smoke Seals:
1. Head and jambs: At all team room doors.

2.3 FINISHES

- A. Finishes: To ANSI/BHMA A156.18.
- B. Door Closers: Finish No. 689, aluminum/ silver enamel.

- C. Hinges at Fire-Rated Doors: Finish No. 626, satin chrome plated.
- D. Thresholds and Door Seal Housings: Clear.
- E. Other: Finish No. 626, satin chrome plated unless noted otherwise
- F. Substitutions: Under provisions of Division 01.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install hardware in accordance with approved hardware schedule and manufacturer's instructions.
- B. Install mortise items flush with adjacent surfaces.
- C. Install locksets, closers, and trim after finish painting.
- E. Set thresholds in mastic and secure.
- F. Mount closers so that closers and closer arms are not visible on corridor or public side of doors..
- G. Mounting Heights - Finished Floor to Center Line of:
 - 1. Locksets: 38 inches.
 - 2. Top hinge: Verify in field match existing spacing.
 - 3. Bottom hinge: Verify in field match existing spacing.
 - 4. Intermediate hinges: Verify in field match existing spacing.
 - 5. Wall stop: top of door.

3.2 PROTECTION

- A. Remove or protect hardware until painting is completed.

3.3 ADJUSTING

- A. Test and adjust hardware for quiet, smooth operation, free from binding and rattling.
- B. Adjust doors to operate with maximum opening forces in accordance with applicable accessibility code.

3.4 SCHEDULE

SET NO.	QUANTITY	DESCRIPTION	MODEL	FINISH	NOTES
H1	1	CLOSER	LCN4010	689	METAL COVER
	3	HINGES	IVES	626	4.5"X4.5"
	1	WALL STOP	IVES WS40	626	
	2	KICKPLATE	IVES 8400	630	10"
	1	LOCKSET	SCHLAGE ND94PD	626	
	1	SMOKE SEAL	PEMKO S88D	DARK BROWN	

END OF SECTION

SECTION 09 29 00

GYPSUM BOARD

PART 1PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Acoustical insulation.
 - 2. Gypsum board.
 - 3. Taping and bedding of gypsum board.
- B. Related Sections:
 - 1. Division 01: Administrative, procedural, and temporary work requirements.
 - 2. Section 079200 - Joint Sealers.

1.2 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. A108.11 - Interior Installation of Cementitious Backer Units.
 - 2. A118.9 - Test Methods and Specifications for Cementitious Backer Units.
- B. ASTM International (ASTM):
 - 1. C475 - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - 2. C514 - Standard Specification for Nails for the Application of Gypsum Wallboard.
 - 3. C665 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Wood Frame and Light Construction Buildings.
 - 4. C1002 - Standard Specification for Steel Drill Screws for the Application of Gypsum Board.
 - 5. C1047 - Standard Specifications for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - 6. C1178 - Standard Specification for Glass Mat Water-Resistant Gypsum Backing Panel.
 - 7. C1396 - Standard Specification for Gypsum Board.
 - 8. C1629 - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels.
 - 9. D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 - 10. E90 - Standard Test Method for Airborne Sound Transmission Loss of Building Partitions.
 - 11. E413 - Standard Test Method for Classification for Rating Sound Insulation.
- C. Gypsum Association (GA):
 - 1. GA-214 - Levels of Gypsum Board Finish.
 - 2. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board.
 - 3. GA-600 - Fire Resistance Design Manual.
- D. Underwriters Laboratories, Inc. (UL) - Fire Resistance Directory.

1.3 QUALITY ASSURANCE

- A. Fire Resistance Ratings:
 - 1. Construct assemblies to achieve fire resistance ratings indicated on Drawings, in accordance with referenced GA or UL design number.
 - 2. If requirements of assembly numbers referenced conflict with Contract Document requirements, conform to assembly requirements.

1.4 PROJECT CONDITIONS

- A. Maintain temperature in spaces in which work is being performed above 50 degrees F during and after installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers - Gypsum Panels:
 - 1. CertainTeed Gypsum, Inc. (www.certainteed.com)
 - 2. GP Gypsum Corporation. (www.gp.com)
 - 3. National Gypsum Co. (www.nationalgypsum.com)
 - 4. USG Corporation. (www.usg.com)
- B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS - GYPSUM PANELS

- A. Fire Resistant Gypsum Board: ASTM C1396, Type X; 48 inches wide x thickness indicated, maximum practical length, tapered edge; apply to fire rated assemblies.

2.3 ACCESSORIES

- A. Fasteners: ASTM C1002, Type S screws, minimum 5/8 inch penetration into framing.
- B. Adhesive:
 - 1. Type recommended by gypsum panel manufacturer.
 - 2. Maximum volatile organic compound VOC content: 50 grams per liter.
- C. Trim Accessories: ASTM C1047.
 - 1. Material: Formed steel, minimum 26 gage core steel, hot dip galvanized finish, expanded flanges.
 - 2. Corner reinforcement: GA-216, Type CB-100 x 100.
 - 3. Casing: GA-216, Type LC.
 - 4. Control joint.
- D. Joint Treatment Materials:
 - 1. Reinforcing tape and joint compound; ASTM C475.
 - 2. Joint compound; maximum volatile organic compound (VOC) content: 250 grams per liter.

PART 3 EXECUTION

3.1 INSTALLATION OF GYPSUM PANELS

- A. Install panels and accessories in accordance with ASTM C754, GA-216, and manufacturer's instructions.
- B. Accurately cut panels to fit around openings and projections. Do not tear face paper or break gypsum core.
- C. Apply panels in most economical manner, with ends and edges occurring over supports.
- D. Apply panels at fire-rated assemblies as required by design assembly.

- E. Stagger joints on opposite sides of partitions.
- F. Do not locate joints to align with edges of openings unless a control joint is installed.
- G. Mechanically fasten panels to framing. Place fasteners minimum 3/8 inch from edges of panels; drive heads slightly below surface. Stagger fasteners at abutting edges.
- H. Apply face layer of double layer applications with joints offset from those in base layer; secure with mechanical fasteners to framing or with adhesive to base layer.
- I. At deflection compensating head tracks, cut panels 1/2 inch short of structure at head; do not secure panels to top runner channel.
- J. Treat cut edges and holes in moisture resistant gypsum board with joint sealer.
- K. Where recessed items occur in fire rated partitions, box item on all sides with gypsum board as required to maintain continuity of fire rating.

3.2 INSTALLATION OF ACCESSORIES

- A. Install in accordance with manufacturer's instructions.
- B. Install corner reinforcement at outside corners. Use single lengths where length of corner does not exceed standard length.
- C. Install casings where indicated and where gypsum board abuts dissimilar materials or stops with edge exposed.
- D. Install control joints at ceilings:
 - 1. At maximum 50 feet on center.
 - 2. Where ceiling framing changes direction.
 - 3. Additional locations as indicated.
- E. Install control joints at walls and partitions:
 - 1. At changes in backup material.
 - 2. At maximum 30 feet on center.

3.3 JOINT TREATMENT

- A. Treat joints and fasteners in gypsum board in accordance with GA-214.
- B. Levels of Finish:
 - 1. Surfaces to receive tile, wall panels, or FRP Level 2 finish.
 - 2. Surfaces to receive flat, satin or eggshell paints: Level 4 finish.
 - 3. Surfaces to receive semigloss or gloss paints, or applied graphics: Level 5 finish.

END OF SECTION

SECTION 09 30 13

CERAMIC TILE

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Provide ceramic tile in locations as detailed on the Drawings and as herein specified.

1.2 REFERENCES

- A. American National Standards Institute, Inc. (ANSI):
 - 1. ANSI A108.1B: Installation of Ceramic Tile on a Cured Portland Cement Dry-Set or Latex-Portland Cement Mortar.
 - 2. ANSI A108.5: Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.
 - 3. ANSI A108.6: Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile- Setting and Grouting Epoxy.
 - 4. ANSI A108.10: Installation of Grout in Tilework.
 - 5. ANSI A118.1: Dry-Set Portland Cement Mortar.
 - 6. ANSI A118.4: Latex-Portland Cement Mortar.
 - 7. ANSI A118.6: Standard Cement Grouts for Tile Installation.
 - 8. ANSI A136.1: Organic Adhesives for Installation of Ceramic Tile.
- B. ASTM International (ASTM):
 - 1. ASTM C144: Standard Specification for Aggregate for Masonry Mortar.
 - 2. ASTM C150: Standard Specification for Portland Cement.
 - 3. ASTM C206: Standard Specification for Finishing Hydrated Lime.
 - 4. ASTM C207: Standard Specification for Hydrated Lime for Masonry Purposes.
- C. Tile Council of America, Inc. (TCA): TCA 137.1, American National Standard Specifications for Ceramic Tile.

1.3 SUBMITTALS

- A. Office Samples: Submit 2 samples of each type, color, pattern, and texture of specified tile mounted and grouted prior to tile installation.
- B. Manufacturer's Data Sheets: Submit Manufacturer's data sheets for the following.
 - 1. Anti-fracture membrane.
 - 2. Mortars.
 - 3. Grouts.
 - 4. Additives.
- C. Product Data: Submit product data, preparation instructions and recommendations, storage and handling requirements and installation methods,
- D. Submit finish schedule including color information, gloss and model number for each type and color of tile specified.

1.4 QUALITY ASSURANCE

- A. Perform all work by experienced workmen skilled in the installation of ceramic tile in accordance with the recommendations and conforming to the Tile Council Specifications. Contractor shall have a minimum of five years commercial ceramic tile installation experience.
- B. Pre-Installation Conference: Notify the Architect, tile manufacturer's representative, and tile installer at least 48-hours before starting tile work. Arrange a mutually acceptable time for meeting at the job with all notified parties to review the specifications and job conditions. Obtain the acceptance and approval of all parties on materials, details, and methods before beginning tile installation.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all materials in manufacturer's unbroken packages and properly store to protect from contamination. Inspect all surfaces and conditions on which material is to be installed.

PART 2 PRODUCTS

2.1 TILE

- A. Standard Specification: Manufacture tile to meet Standard Specification for Ceramic Tile, TCA 137.1.
- B. Porcelain Tile (Type PT1): Tile repair walls at team rooms to match existing wall tile.
 - 1. Manufacturer: Dal-Tile.
 - 2. Style: Natural Hues.
 - 3. Color: Ivory QH24.
 - 4. Size: 2"x2"
 - 5. Base Trim: 2"x2" Cove Base.
- C. Porcelain Tile (Type PT2): Tile repair floors at team rooms to match existing floor tile.
 - 1. Manufacturer: Dal-Tile.
 - 2. Style: Keystones Mosaic.
 - 3. Color: D138 Golden Granite.
 - 4. Size: 2"x2".

2.2 BACKER BOARD

- A. Water Resistant Gypsum Board (at Vertical Surfaces of Locker Platforms): ASTM C1396; specified in Section 09 29 00 GYPSUM BOARD.

2.3 MORTAR MATERIALS

- A. Mortar:
 - 1. Latex modified Portland Cement mortar per ANSI A118.4

2.4 GROUT MATERIALS

- A. Epoxy Grout:
 - 1. Manufacturer: TEC AccuColor EFXfi Epoxy Special Effects Grout by H.B. Fuller Construction Products, or accepted substitute.
 - 2. Color: Match existing.
 - 3. Match existing joint width.

2.5 ACCESSORIES

- A. 100% Silicone Sealant and expansion material, Mapesil T or similar.
 - 1. ASTM: Meets C920, Type S Grade NS, Class 25, Use T1, T2, I, M.
- B. Floor Grout Sealer: Aqua Mix Penetrating Sealer by Aqua Mix Inc. or accepted substitute.
- C. Wall Sealer: Non-sheen, natural-look, water-based penetrating sealer formulated to provide maximum stain protection. Sealers Choice US Gold by Aqua Mix Inc. or accepted substitute. Must not exceed the VOC and chemical component limits of Green Seal requirements.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine Surface: Examine substrate surfaces and conditions under which Tile work is to be completed. Correct conditions detrimental to proper and timely completion of work. Verify surface of floor slab is within 1/8" in 10'-0" for thin set tile, 1/4" in 10'-0" for mortar bed tile, concrete substrate is free of curing agents and has a light broom finish.
- B. Starting Work: Do not proceed with Tile work until unsatisfactory conditions have been corrected. Start of Tile work will be considered acceptance of surfaces and conditions within each area.

3.2 PREPARATION

- C. The Contractor shall supply broom clean floors in areas designated to receive ceramic tile. Any additional cleaning or sealing of the substrate or remaining existing mastic, necessary for floor preparation for the ceramic tile installation, shall be provided as work of this Section.
- D. Clean existing concrete floor surface as recommended in forward to ANSI A108.5 and ANSI A108.6.
- E. Coordinate with Drywall Subcontractor for the application of glass mesh mortar units on walls. Check for soundness of framing, adequate fastening, and fit of joints. Cover all horizontal and vertical joints with fiberglass tape embedding in a skim coat of mortar.
- F. Floors: Mix Portland Cement mortar with latex admixture.
- G. Floors: Keraflex Super single unit add water equal to 2-part mortar system Engineered single component bonding mortar ANSI 118.15HTE ISO 13007 C2TES1P1

3.3 GENERAL INSTALLATION

- H. Instructions: Comply with the mortar and grout manufacturer's printed instructions.
- I. Joints: Lay tile in grid pattern with aligned joints. Adjust joints to minimize tile cutting. Provide uniform joints approximately 1/16" wide.

3.4 ADJUSTING AND CLEANING

- J. Sponge and wash tile diagonally across joints when setting and grouting is complete. Acid clean unglazed tile not less than 10 days after setting, wet tile before applying acid wash, carefully follow the manufacturer's instructions, protect all adjacent surfaces, and thoroughly flush with

water when completed. Finally, polish with clean dry cloths and apply floor sealer following the manufacturer's installation method. There should be no surface residue.

- K. Replace cracked, chipped, broken, or unbonded tile.

3.5 EXTRA STOCK

- L. At project closeout, provide to the Owner or Owner's Representative extra stock of each type of tile. Furnish from the same production run as that used in the installation. Deliver to the Owner for future repairs and maintenance.
 - 1. Quantity of Extra Stock: Provide a quantity for each unique type (or color) equal to 10 square feet, including grout.
 - 2. Provide extra materials in full, unopened manufacturer's cartons (or containers) for storage at the school.

END OF
SECTION

SECTION 09 91 00

PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Surface preparation and field application of paints.
- B. Related Sections:
 - 1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. D4442 - Standard Test Method for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
 - 2. D6886 - Standard Test Method for Speciation of the Volatile Organic Compounds (VOCs) in Low VOC Content Waterborne Air-Dry Coatings by Gas Chromatography.
- B. Green Seal, Inc. (GS) 11 - Standard for Paints and Coatings.
- C. Master Painters Institute (MPI)- Architectural Painting Specification Manual.
- D. Society for Protective Coatings (SSPC) - Painting Manual.

1.3 SUBMITTALS

- A. Submittals for Review:
 - 1. Product Data: Manufacturer's data on materials proposed for use including:
 - a. Product designation and grade.
 - b. Product analysis and performance characteristics.
 - c. Standards compliance.
 - d. Material content.
 - e. Mixing and application procedures.
 - f. MSDS Information Sheet.
 - 2. Samples:
 - a. 5 x 8 inch samples of each coating system on representative substrate. Step back successive coats so that all coats remain exposed. Indicate type of material used for each coat.
 - 3. Paint Schedule: Indicate types and locations of each surface, paint materials, and number of coats to be applied.

1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: Minimum 5 years documented experience in work of this Section.
- B. Materials, Preparation, and Workmanship: Conform to MPI Painting Manual.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Container Labels: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage rates, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- B. Paint Materials: Store at ambient temperature from 45 to 90 degrees F in ventilated area, or as required by manufacturer's instructions.
- C. Comply with requirements of authorities having jurisdiction, in regard to the use, handling, storage and disposal of hazardous materials.
- D. All surplus latex paint shall be recycled using a local latex paint recycling program. Surplus paint includes all latex paint in excess of quantities stored for touch-up purposes. Latex paint stored for touch-up purposes may not exceed 5% or 5 gallons, whichever is smaller, by volume, to the nearest gallon.

1.6 PROJECT CONDITIONS

- A. Do not apply materials when surface and ambient temperatures or relative humidity are outside ranges required by paint manufacturer.
- B. Maintain ambient and substrate temperatures above manufacturer's minimum requirements for 24 hours before, during, and after paint application.
- C. Do not apply materials when relative humidity is above 85 percent or when dew point is less than 5 degrees F different than ambient or surface temperature.
- D. Provide lighting level of 30 foot candles at substrate surface.

1.7 MAINTENANCE

- A. Extra Materials: Minimum of 1/2 gallon of each color and sheen, clearly labeled, provided to owner at project closeout.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. Benjamin Moore and Co. (www.benjaminmoore.com)
 - 2. Kelly-Moore Paints. (www.kellymoore.com)
 - 3. Sherwin Williams. (www.sherwin-williams.com)
 - 4. Miller Paint. (www.millerpaint.com)
 - 5. Rodda Paint. (www.Roddapaint.com)
- B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

- A. Paints:
 - 1. Color to be selected by Owner per manufacturers standard line.
 - 2. As scheduled at end of Section, or approved substitute.
 - 3. Free from all forms of lead and mercury.
- B. Maximum Volatile Organic Compound (VOC) Content for interior paints, coatings, and accessories: In accordance with GS-11 and SCAQMD 1113.

C. Gloss Ratings:

Gloss Designation	Units at 60 Degrees	Units at 85 Degrees
Flat	0 to 5	Maximum 10
Eggshell	10 to 25	10 to 35
Satin	20 to 35	Minimum 35
Semigloss	35 to 70	
Gloss	70 to 85	
High Gloss	Minimum 85	

2.3 ACCESSORIES

- A. Accessory Materials: Paint thinners and other materials required to achieve specified finishes; commercial quality.
- B. Patching Materials: Latex filler.
- C. Fastener Head Cover Materials: Latex filler.

2.4 MIXES

- A. Deliver paints pre-mixed and pre-tinted.
- B. Uniformly mix to thoroughly disperse pigments.
- C. Do not thin in excess of manufacturer's recommendations.
- D. Re-mix paint during application; ensure complete dispersion of settled pigment and uniformity of color and gloss.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Test shop applied primer for compatibility with subsequent coatings.
- B. Measure moisture content of surfaces using electronic moisture meter. Do not apply coatings unless moisture content of surfaces are below following maximums:
 - 1. Gypsum board and plaster: 12 percent.
 - 2. Wood: 15 percent, measured to ASTM D4442.

3.2 PREPARATION

- A. General:
 - 1. Protect adjacent and underlying surfaces and work from other trades.
 - 2. Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

3. Correct defects and clean surfaces capable of affecting work of this section.
 4. Seal marks that may bleed through surface finishes with waterborne stain blocker.
 5. Patch and repair all surfaces to be painted.
- B. Impervious Surfaces: Remove mildew by scrubbing with solution of trisodium phosphate and bleach. Rinse with clean water and allow to dry.
- C. Gypsum Board:
1. Fill minor defects with filler compound. Spot prime defects after repair.
- D. Galvanized Steel: SSPC Method SP1 - Solvent Cleaning.
- E. Aluminum: SSPC Method SP1 - Solvent Cleaning.
- F. Uncoated Ferrous Metals: SSPC Method SP2 - Hand Tool Cleaning or Method SP3 - Power Tool Cleaning.
- G. Shop Primed Ferrous Metals:
1. SSPC Method SP2 - Hand Tool Cleaning or Method SP3 - Power Tool Cleaning.
 2. Feather edges to make patches inconspicuous.
 3. Prime bare steel surfaces.
- H. Existing Surfaces:
1. Remove loose, flaking, powdery, and peeling paints.
 2. Lightly sand glossy painted surfaces.
 3. Fill holes, cracks, depressions and other imperfections with patching compound; sand flush with surface.
 4. Remove oil, grease, and wax by scraping; solvent wash and thoroughly rinse.
 5. Remove rust by wire brushing to expose base metal.
- I. Single Source Responsibility: If used, provide primers and undercoat paint produced by the same manufacturer as the finish coat.

3.3 APPLICATION

- A. Apply paints in accordance with manufacturer's instructions and MPI Painting Manual, Premium Grade finish requirements.
- B. Apply primer or first coat closely following surface preparation to prevent recontamination.
- C. Do not apply finishes to surfaces that are not dry.
- D. Apply coatings to minimum dry film thickness recommended by manufacturer.
- E. Apply each coat of paint slightly darker than preceding coat unless specified otherwise.
- F. Apply coatings to uniform appearance without laps, sags, curtains, holidays, and brush marks.
- G. Allow applied coats to dry before next coat is applied.
- H. When required on deep and bright colors apply an additional finish coat to ensure color consistency.
- I. Continue paint finishes behind wall-mounted accessories.
- J. Sand between coats on interior wood and metal surfaces.

- K. Match final coat to approved color samples.
- L. Prime concealed surfaces of interior wood in contact with masonry or cementitious materials with one coat primer paint.
- M. Mechanical and Electrical Components:
 - 1. Paint factory primed equipment.
 - 2. Remove unfinished and primed louvers, grilles, covers, and access panels; paint separately.
 - 3. Paint exposed and insulated pipes, conduit, boxes, ducts, hangers, brackets, collars, and supports unless factory finished.
 - 4. Do not paint name tags or identifying markings.
 - 5. Paint exposed conduit and electrical equipment in finished areas.
 - 6. Paint duct work behind louvers, grilles, and diffusers flat black to minimum of 18 inches or beyond sight line.
- N. Do not Paint:
 - 1. Surfaces indicated on Drawings or specified to be unpainted or unfinished.
 - 2. Surfaces with factory applied finish coat or integral finish.
 - 3. Architectural metals, including brass, bronze, stainless steel, and chrome plating.
- O. At the end of each work day, remove empty cans, rags, rubbish, and other discarded materials from the site. Provide "Wet Paint" signs to protect newly painted surfaces. After completing painting, clean all surfaces from paint splatter.

3.4 ADJUSTING

- A. Touch up or refinish disfigured surfaces.

3.5 CLEANING

- A. Remove paint from adjacent surfaces.

3.6 PAINT SCHEDULE

1. Re-paint:	Paint applied over existing painted finish in good condition.
2. Primer:	One coat of type recommended by coating manufacturer for maximum coating adhesion.
3. Finish:	Sheen and material as appropriate for space. Doors and other areas requirement semi-gloss finish shall be 100% acrylic
4. Drywall:	Select finish according to use of space. Minimum acceptable finish is one coat of heavy bodied Acrylic wall board sealer as primer and two coat Interior Latex sheen per Finish Schedule.
9. Gypsum Wallboard, Interior:	Primer: PVA Finish: Acrylic latex, Rodda Paint Lasyn, or equal
10. Interior Ferrous Metals (e.g., restrooms, team rooms, locker rooms):	Primer: Red Oxide, "Alkyd" Finish: Industrial Enamel, two coats
14. Non-ferrous Metal:	Primer: Vinyl wash primer Finish: Industrial enamel, two coats
17. Wood:	Primer: First coat, acrylic Finish: Two coats, 100% Acrylic, Rodda Paint AC-911, or equal
19. Sealants, Split Face, CMU, Brick:	Brick Seal: Prosoco, Siloxane WB, or better Note: Follow all manufacturer's specifications for application

END OF SECTION

SECTION 10 11 16

MARKERBOARDS AND TACK BOARDS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Provide marker boards as indicated on the Drawings and as specified herein.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's data and installation instructions for the Architect's review.
- B. Office Samples: Provide samples for marker board surface for the Architect's review prior to fabrication.
- C. Shop Drawings: Submit shop drawings showing special details required for this Project.

1.3 WARRANTY

- A. Provide the manufacturer's standard 50-year limited warranty against excessive fading, crazing, cracking, or flaking.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Claridge.
- B. Platinum Visual.
- C. P.B.S. Supply Co.
- D. Or accepted substitute.

2.2 WRITING BOARDS

- A. Board Construction:
 - 1. Writing Surface: Porcelain enamel applied on 24-gage steel in 3 uniform operations:
 - a. Base Steel Sheets: Chemically bathed in a solution of potassium hydroxide and sodium metasilicate and rinsed prior to enameling.
 - b. Primer Coat: Nickel cobalt (0.002" minimum thickness).
 - c. Surface Coat: High fired type porcelain frits (0.0025" minimum thickness).
 - d. Total Finish Thickness: 0.004" minimum.
 - e. Panel Edges At Butt Joints: Porcelain coated.
 - 2. Side opposite the writing surface shall have 2 uniform operations:
 - a. Base Steel Sheets: Chemically bathed in a solution of potassium hydroxide and sodium metasilicate and rinsed prior to enameling.

- b. Nickel Cobalt: (0.002" minimum thickness) applied with a spray coat of silica for lamination adhesion.
- 3. Core: 7/16" thick fiberboard; Class A.
- 4. Size(s): As indicated on Drawings.

- B. Writing Surface Color: White.
- C. Provide with a continuous display rail.
- D. Provide a continuous chalk tray at the bottom with rounded corners.
- E. All sides of marker board to have a clear satin anodized aluminum molding.

2.3 TACK BOARDS

- A. Construction
 - 1. Natural tan Nucork reinforced with back panel
 - 2. 1.25 inch face satin anodized aluminum trim
- B. Tack board Surface Color: Tan.
- C. All sides of marker board to have a clear satin anodized aluminum molding.

2.4 FABRICATION

- A. Provide factory-built units with minimum number of joints.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install complete systems with ground clips, backing material, brackets, anchors, and accessories as required for a complete installation.
- C. Mounting Locations and Details: As indicated on the Drawings.

3.2 ADJUSTING AND CLEANING

- A. Replace damaged surfaces and correct defects as directed.
- B. Clean exposed surfaces prior to Substantial Completion.

END OF SECTION

SECTION 10 26 13

CORNER GUARDS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Provide wall corner guards as indicated on the Drawings and as specified herein.

1.2 SUBMITTALS

- A. Submit manufacturer's data and installation instructions for the Architect's review.
- B. Submit layout drawing indicating location of corner guards for approval prior to ordering. Copies of the Architectural Drawings will not be accepted.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide products from one of the following:
 - 1. American Floor Products, Inc.
 - 2. Babcock-Davis
 - 3. Balco, Inc.
 - 4. Construction Specialties, Inc.
 - 5. InPro Coporation (IPC)
 - 6. Nystrom
- B. Substitutions: Under provisions of Division 01.

2.2 MATERIAL

- A. Fabricated as one piece from formed or extruded metal with formed edges; with 90- or 135-degree turn to match wall condition.
- B. Stainless-steel sheet, Type 304.
 - 1. Thickness: Minimum 0.0625 inch (1.6 mm).
 - 2. Finish: Directional satin, No. 4.
- C. Wing Size: Nominal 2 by 2 inches (90 by 90 mm.)
- D. Corner Radius: 1/8 inch (3 mm)
- E. Mounting: Flat-head nonmagnetic stainless-steel or other noncorrosive metal screws, bolts, and other fasteners compatible with items being fastened. Use security-type, countersunk fasteners through factory-drilled mounting holes.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Verify that surfaces to which corner guards are applied have been reinforced or provided with backing or blocking required for solid anchorage. Install with counter sunk screws. Fastening with toggle bolts, molly screws, or similar fasteners is not permitted.
- B. Furnish miscellaneous specialty items at proper time for inclusion in the construction and install in accordance with manufacturer's instructions and recommendations.
- C. Do not remove any protective finish coatings or cover until final clean-up.

END OF SECTION

SECTION 10 51 13

LOCKERS AND BENCHES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Provide heavy-duty metal lockers, complete, at Team Rooms as herein specified at locations indicated on Drawings
- B. Provide factory finished hardwood benches and mounting brackets at Team Rooms as herein specified at locations indicated on Drawings.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Rough Carpentry: Section 061000

1.3 SUBMITTALS

- A. GENERAL: Refer to Section 013300 SUBMITTAL PROCEDURE.
- B. SHOP DRAWINGS: Submit drawings showing types, sizes, quantities, including all necessary details relating to anchoring, trim installation and relationship to adjacent surfaces.
- C. COLOR CHARTS: Provide color charts showing manufacturer's available colors (minimum 24). Provide metal samples if requested.

1.4 QUALITY ASSURANCE

- A. MANUFACTURING STANDARD: Provide metal lockers and benches that are standard products of a single manufacturer, with interchangeable like parts. Include necessary mounting accessories, fittings, and fastenings.
- B. FABRICATOR QUALIFICATIONS: Firm experience (minimum 5 years) in successfully producing the type of metal lockers indicated for this project, with sufficient production capacity to produce required units without causing delay in the work.
- C. INSTALLER QUALIFICATIONS: Engage an experienced (minimum 2 years) installer who has successfully completed installation of the type of metal lockers and extent to that indicated for this project.

1.5 PRODUCT HANDLING

- A. GENERAL: All work shall be fabricated in ample time so as to not delay construction process.
- B. DELIVERY: All materials shall be delivered to the site at such a time as required for proper coordination of the work. Materials are to be received in the manufacturer's original, unopened packages and shall bear the manufacturer's label.

- C. STORAGE: Store all materials in a dry and well ventilated place adequately protected from the elements.

1.6 WARRANTY

- A. All-Welded Lockers are covered against all defects in materials and workmanship excluding finish, damage resulting from deliberate destruction and vandalism under this section for the lifetime of the facility.
- B. Manufacturer's standard warranty to repair or replace any defective portion of all bench products. Benches and associated hardware shall be free of defects in material and workmanship.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the design, material, method of fabrication and installation as required in this specification section or modified as shown on drawings. Manufacturers offering products which may be incorporated in the work include the following:
 - 1. Lockers: List Industries Inc. (Basis of Design)
 - 2. Benches and Wall Mount Brackets: WB Manufacturing LLC (Basis of Design)

2.2 TYPES

- A. Benches shall be "Hardwood Locker Bench" 1.25 inch thickness x width per plans, of mixed hardwood species, of single one-piece length, two coat clear catalyzed lacquer top and sides; one coat bottom. Radius edge on all sides and corners.
- B. Team Lockers shall be "SUPERIOR TEAM and PE LOCKERS" as manufactured by List industries Inc. or approved equal.
 - 1. Type: Single Tier
 - 2. Size: 18" wide x 21" deep x 60" high
 - 3. Sides: Fully-framed 13 gauge 1/2" flattened expanded metal (diamond perforated or 3/4" expanded metal will NOT be accepted.
 - 4. Tops, Bottoms: 16 gauge solid sheet steel
 - 5. Backs: 18 gauge solid sheet steel

2.3 FABRICATION

- A. MATERIALS:
 - 1. Steel Sheet: All sheet steel used in fabrication shall be prime grade free from scale and imperfections and capable of taking a heavy coat of custom blend powder coat.
 - 2. Fasteners: Cadmium, zinc or nickel plated steel; bolt heads, slotless type; self locking nuts or lock washers.
- B. CONSTRUCTION: All lockers shall be factory-assembled, of all MIG welded construction, in multiple column units to meet job conditions. Assembly of locker bodies by means of bolts, screws, or rivets will not be permitted. Welding of knockdown locker construction is not acceptable. Grind exposed welds and metal edges flush and make safe to touch.
 - 1. FRAME / VERTICAL SIDE PANELS: Shall be of 13 gauge 1/2" flattened expanded metal framed by 16 gauge Hollow "T" tubular sections and channel frame members designed to enclose all four edges of the side panel with the entire assembly MIG welded to form a rigid frame for each locker. The channel frame members are welded to the front and rear vertical

frame members to create and anchor bearing surface of 1-1/4 inches wide x the depth of the locker at each side panel. Note: Diamond perforated sheet steel or 3/4" expanded metal will NOT be accepted.

2. CONTINUOUS SLOPE TOPS: Shall be formed of one piece of 16 gauge cold rolled sheet steel and shall be an integral part MIG welded to each vertical side panel frame member and be continuous to cover the full width of a multiple framed locker unit.
3. BACKS: Shall be 18 gauge cold rolled sheet steel, be continuous to cover a multiple framed unit and be welded to each vertical side panel frame member.

2.4 ACCESSORIES:

A. WALL MOUNT BRACKETS:

1. Standard Brackets (BKT0508): 1-1/2"W x 1/8" steel reversible design bracket black (2 per set).
2. ADA Brackets (BKT1218): 1-1/2" x 1/8" steel reversible design bracket black (2 per set).

B. LOCKER EQUIPMENT: Furnish each locker with the following items, unless otherwise shown.

3. Single tier lockers.
4. Finished End Panels (If required): Shall be "Boxed" type formed from 16 gauge cold rolled steel with 1" O.D. double bends on sides and a single bend at top and bottom with no exposed holes or bolts. If lockers have slope tops, end panels must be formed with slope at top to cover the ends of the slope tops. Finished to match lockers. Provide at all exposed ends.
5. Continuous Slope Tops: Not less than 18 gauge sheet steel approximately 18 degrees pitch, in lengths as long as practical but not less than four lockers. To be installed in addition to the locker flat top with end closures for support. Finished to match lockers.
6. Fillers: Provide where indicated, of not less than 16 gauge sheet steel, factory fabricated and finished to match lockers.

C. LOCKER FINISHING: All locker parts to be cleaned and coated after fabrication with a seven stage hot spray washing process and coated with a zirconium-based nanotechnology providing a green alternative to traditional iron phosphate followed by a coat of high grade custom blend powder electrostatically sprayed and baked at 350 degrees Fahrenheit for a minimum of 20 minutes to provide a tough durable finish. Color to be selected from manufacturer's standard list of colors.

PART 3 - EXECUTION

3.1 INSTALLATION

A. GENERAL: Installation shall be in strict conformance with referenced standards, the manufacturer's written directions, as shown on the drawings and as herein specified.

B. PLACEMENT:

1. Lockers shall be set in place, plumb, level, rigid, flush and securely attached to the wall and anchored to the floor or base according to manufacturer's specifications.
2. Benches shall be set true and level at height shown on drawings using brackets specified. Provide matching fasteners as appropriate for substrate shown on drawings.
 - a. Allow top to reach ambient room temperature prior to installation. It may take forty-eight (48) hours for the top to acclimate to the surrounding environment.
 - b. Holes in framework used to secure the top to frame must be 3/8" larger than the bolt or fastener. Predrill pilot holes for lag screw fasteners and only tighten the fastener slightly as the top needs to be able to expand and contract.
 - c. If final mounting requires cutting the top, then all exposed raw wood surfaces must be resealed. Polyurethane is an excellent sealer for lacquered tops. Tops and benches sent without a finish and tops that are modified in the field voids the warranty.

- d. Lacquered benches should avoid excess amounts of water, oil and strong cleaning agents. The bench should be immediately wiped clean when the surface has been exposed to such excesses.
 - e. When necessary, reseal any exposed raw wood surfaces to avoid expansion and swelling caused by water and humidity. Locker bench seats can be affected by the temperature and humidity of the surrounding environment.
- C. **BENCH ANCHORAGE:** As indicated on drawings unless otherwise recommended by manufacturer to support 200 lbs per lineal foot, and apply where necessary to avoid metal distortion, using concealed fasteners. Friction cups are not acceptable.
- D. **TRIM:** Sloping tops, metal fillers and end panels shall be installed using concealed fasteners. Provide flush, hairline joints against adjacent surfaces.

3.2 ADJUSTMENT

- A. **GENERAL:** Upon completion of installation, inspect lockers and adjust as necessary for proper door operation. Touch-up scratches and abrasions to match original finish.

END OF SECTION

SECTION 22 05 00
COMMON WORK RESULTS FOR PLUMBING

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes Design-Build work.
- B. The intent of Division 22, Plumbing and the accompanying Narrative is to provide a complete and workable facility with complete systems as shown, specified and required by applicable codes. Include all work specified in Division 22, Plumbing and shown on the accompanying Drawings, including appurtenances, connections, etc., in the finished job.
- C. The Drawings that accompany the Division 22, Plumbing, are diagrammatic. They do not show every offset, bend, tee, or elbow which may be required to install work in the space provided and avoid conflicts. Offsets and transitions assumed at a minimum at each duct crossing, structural penetrations through shear walls or beams, structural grids where ceiling heights are restricted, and at piping mains. Follow the Drawing as closely as is practical to do so and install additional bends, offsets and elbows where required by local conditions from measurements taken at the Building, subject to approval, and without additional cost to the Owner. The right is reserved to make any reasonable changes in fixture location prior to roughing-in, without cost impact.
- D. The General and Supplemental Conditions apply to this Division, including but not limited to:
 - 1. Specifications.
 - 2. Public ordinances, permits.
 - 3. Include payments and fees required by governing authorities for work of this Division.

1.2 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Products and equipment prohibited from containing pentabrominated, octabrominated and decabrominated diphenyl ethers. Where products or equipment within this specification contain these banned substances, provide complying products and equipment from approved manufacturers with equal performance characteristics.
 - 2. General:
 - a. Conform work and materials to local and State codes, and Federal, State and other applicable laws and regulations.
 - 3. Responsible for obtaining and payment for permits, licenses, and inspection certificates required in accordance with provisions of Contract Documents.
- B. New materials and equipment. Work of good quality, free of faults and defects and in conformance with the Contract Documents.
- C. Materials and Equipment:
 - 1. Meet detailed requirements of the Drawings and Specifications and suitable for the installation shown. Equipment not meeting requirements will not be acceptable, even though specified by name along with other manufacturers.
- D. Workmanship:
 - 1. General:
 - a. Install materials in a neat and professional manner.
- E. Cutting and Patching:
 - 1. Cutting, patching, and repairing for the proper installation and completion of the work specified in this Division including plastering, masonry work, concrete work, carpentry work,

and painting performed by skilled craftsmen of each respective trade in conformance with the appropriate Division of Work.

2. Additional openings required in building construction made by drilling or cutting. Use of jackhammer is specifically prohibited.
3. Fill holes which are cut oversize so that a tight fit is obtained around the sleeves passing through.
4. Do not pierce beams or columns without permission of Architect and then only as directed.
5. Restore new or existing work cut or damaged to its original condition. Where there are alterations disturb lawns, paving, walks, etc., repair, refinish, and leave in condition existing prior to commencement of work.

1.3 PROJECT CONDITIONS

- A. Existing Conditions:
 1. Prior to bidding, verify and become familiar with existing conditions by visiting the site, and include factors which may affect the execution of this Work.
 2. Include related costs in the initial bid proposal.
- B. Coordinate exact requirements governed by actual job conditions. Check information and report any discrepancies before fabricating work. Report changes in time to avoid unnecessary work.
- C. Coordinate shutdown and start-up of existing, temporary, and new systems and utilities. Notify Owner, City, and Utility Company.

1.4 WARRANTY

- A. Provide a written guaranty covering the work of this Division (for a period of one calendar year from the date of acceptance by the Owner) as required by the General Conditions.
- B. Provide manufacturer's written warranties for material and equipment furnished under this Division insuring parts and labor for a period of one year from the date of Owner acceptance of Work of this Division.
- C. Correct warranty items promptly upon notification.

PART 2 EXECUTION

2.1 ACCESS PANELS

- A. Install in accord with manufacturer's recommendations, coordinated with architectural features.
- B. Provide 2-hour fire rated doors where required bearing the UL label.
- C. Furnish 18-inch by 18-inch panels for ceilings and for access to equipment in soffits and shafts, and 12-inch by 12-inch for walls unless indicated otherwise.
- D. Furnish where indicated and where required to access valves, trap primers, shock arresters, and other appurtenances requiring operation, service, or maintenance. Submit proposed locations for review prior to installation.

2.2 CLEANING

- A. General: Clean plumbing equipment, fixtures and piping of stampings and markings (except those required by codes), iron cuttings, and other refuse.
- B. Painted Surfaces: Clean scratched or marred painted surfaces of rust or other foreign matter and paint with matching color industrial enamel, except as otherwise noted.

2.3 EQUIPMENT PROTECTION

- A. Keep pipe and conduit openings closed by means of plugs or caps to prevent the entrance of foreign matter. Protect piping, conduit, fixtures, equipment, and apparatus against dirty water, chemical or

mechanical damage both before and after installation. Restore damaged or contaminated fixtures, equipment, or apparatus to original conditions or replace at no cost to the Owner.

- B. Protect bright finished shafts, bearing housings, and similar items until in service. No rust will be permitted.
- C. Cover or otherwise suitably protect equipment and materials stored on the job site.

END OF SECTION

SECTION 23 05 93
TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes:
 - 1. Testing and Balancing of Air Systems

1.2 QUALITY ASSURANCE

- A. Acceptable Testing and Balancing Firms:
 - 1. A.I.R., Inc.
 - 2. Air Balance Specialty, Inc.
 - 3. Neudorfer Engineers, Inc.
 - 4. Northwest Engineering Services
 - 5. Pacific Coast Air Balance
 - 6. Accurate Balancing Agency, Inc.
- B. Other Firms: Submit substitution requests prior to bid date.
- C. Testing and Balancing Firm Qualifications:
 - 1. Procure the services of an independent balance and testing agency, approved by the Architect, which specializes in the balancing and testing of plumbing, heating, ventilating, and air conditioning systems, to balance, adjust and test water circulating and air moving equipment and air distribution or exhaust systems as herein specified.
 - 2. Testing agency to provide proof of having successfully completed at least five projects of similar size and scope. Testing and balancing work done under direct supervision of registered professional engineer who has been employed by the Agency a minimum of one year prior to start of project.
- D. Instrument Certification: Accurately calibrate and certify instruments used within six months of balancing and maintained in good working order.
- E. Test Observation: If requested, conduct tests in the presence of the Architect or the Architect's representative.

1.3 SUBMITTALS

- A. Submit the following:
 - 1. Balancing Log:
 - a. Include air outlets, actual field measured air volume, and percentage of design volumes.
 - b. Provide drawings identifying location of outlets.
 - 2. Additional Data: Submit additional data as provided by Associated Air Balance Council (AABC) Standard forms.
 - 3. Number of Copies: Submit two copies of the above completed information to the Engineer for review and insertion into the Operating and Maintenance Data.
 - 4. Instrument Certification: When requested, submit certificate of calibration for equipment to be used.

1.4 PROJECT CONDITIONS

- A. Where existing systems are to be adjusted, establish flow rates in branches prior to making any modifications to system. Submit preliminary report indicating existing conditions prior to making

any modifications to existing systems. Adjust central equipment as required and restore unmodified branches and outlets to original condition. Obtain existing system drawings from Owner and become familiar with extent and nature of existing systems.

1.5 WARRANTIES

- A. In addition to the Requirements of the Contract, include an extended warranty of six months after completion of test and balance work during which time the Architect at his discretion may request a recheck or resetting of any equipment or device listed in the test reports.

PART 2 EXECUTION

2.1 GENERAL REQUIREMENTS

- A. Balance to maximum measured flow. Deviation from specified values of ± 10 percent at terminal device and ± 5 percent at equipment, or mean sound level deviation of 15 decibels. Advise Engineer if deficiencies are generally noted to enable proper corrective actions.

2.2 AIR SYSTEMS

- A. General: Make measurements in accord with Industrial Standards specified above. Record on appropriate forms.
- B. Preliminary:
 - 1. Identify and list size, type, and manufacture of equipment to be tested including air outlets and inlets.
 - 2. Use manufacturer's ratings for equipment to make required calculations except where field test shows ratings to be impractical.
- C. Central System:
 - 1. Set speed to provide air volume at farthest run without excess static pressure. Provide additional sheaves and belts as required to accomplish speed adjustment.
 - 2. Read and adjust air supply, return, and exhaust fan units to deliver design conditions at minimum OSA and at 100 percent OSA.
 - 3. Adjust automatic dampers, outside air, return air, and exhaust dampers for design conditions.
 - 4. Read static air pressure conditions on air handling equipment including filter and coil pressure drops and total pressure across the fan. A Dwyer Series 400 air velocity meter only used for final static pressures at equipment and where critical readings are required.
 - 5. Measure temperature conditions across outside air, return air, and exhaust dampers to check leakage.
 - 6. Read and record motor data and amperage draw.
 - 7. For variable volume systems, establish minimum static pressure required at sensing point to permit operation over entire VAV range. Adjust supply and return fan speed so that at maximum demand the associated VFD is controlling the motor of motor nameplate RPM to 100 percent. Adjust return fan speed so that return air volumes track with supply air volume minus exhaust air volume.
- D. Distribution:
 - 1. Evaluate building and room pressure conditions to determine adequate supply and return air conditions. Balance the building to be slightly positive to outdoors.
 - 2. Evaluate building and room pressure conditions to determine adequate performance of the system to maintain temperatures without draft.
 - 3. Mark balancing dampers.

2.3 COORDINATION

- A. Coordinate work with other trades to ensure rapid completion of the project.

- B. Deficiencies noted during the course of air balancing in the mechanical installation promptly reported to the Architect to allow corrective action to proceed.
- C. Periodic review of progress provided as requested.

END OF SECTION