ANOKA HENNEPIN SCHOOLS

Jackson Middle School

Three New Interior Doors

RFQ #25043Q

Anoka-Hennepin School District 11
District Purchasing Office
2727 North Ferry Street
Anoka, MN 55303
Telephone 763-506-1300
Fax 763-506-1333

PROJECT MANUAL
Mike Kraft Architects, P.A.

QUOTES DUE TO
PURCHQUOTES@AHSCHOOLS.COM
MARCH 26, 2025 4:00 PM

All inquiries concerning this RFQ, including all questions/substitution requests must be submitted via email to PurchQuotes@AHSchools.us by **4:00 PM on March 18, 2025.** The district will not be responsible for, nor honor any claims resulting from, or alleged to be the result of misunderstanding by the Vendor. To ensure a transparent bidding process, no phone or in person inquiries will be accepted. It is the Vendor's responsibility to bring all discrepancies, ambiguities, omissions, or matters that need clarification to the District's attention. Responses to all questions received will be captured in an addendum, and available to all Vendors no later than **March 19, 2025 at 4:00 PM** local time.

Quotes may not be withdrawn for sixty (60) days after the scheduled closing time for the receipt of quotes without the consent of the Anoka Hennepin School District. The School Board reserves the right to accept any quote, to reject any or all quotes, to waive irregularities and informalities in the procedures, and to act in its best interest.

SUMMARY OF WORK

PART 1 GENERAL

1.1 PROJECT

A. Project Name: **Anoka Hennepin Schools –** Jackson Middle School Three New Interior Doors
B. Owner's Name: Independent School District #11, Anoka, MN.
C. Architect's Name: Mike Kraft Architects, P.A.
D. The Project: **The Project consists of adding three new doors and minor renovations to nearby spaces at Jackson Middle School, 6000 109th Ave. N., Champlin, MN.**

1.2 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price.

B. Bonds: Payment and Performance Bonds are ***not*** required for this project.

C. The Contract will be awarded to the lowest responsive and responsible base quote, if any, based on the combined total for the Storage D168 and Classroom G117 base bids. The cost for the work at Storage D160 is to be provided as an Alternate.

1.3 OWNER OCCUPANCY

A. Owner intends to continue to occupy other areas of the building during the entire construction period. Cooperate with Owner to minimize conflict and to Schedule the Work to accommodate Owner occupancy.

1.4 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings.

B. Arrange use of site and premises to allow:
1. Owner occupancy.

C. Provide access to and from site as required by law and by Owner:
1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary protection, enclosures, pathways, egress doors/gates, exit signs, etc. if exit routes are temporarily altered. This may include clear exit paths and exit devices through the fenced construction area.
2. Do not obstruct roadways, sidewalks, or other public ways without permit.

D. Time Restrictions:
1. Limit conduct of noisy exterior work to the hours of what is allowable by local City Ordinance, and outside of school hours when school is in session.
2. See also individual Specification sections for additional time restrictions.
3. Work that will involve noises louder than a typical screw gun shall be limited to hours when school is not in session. Hours for work louder than a typical screw gun on days school is in session are before 7:30 AM and after 2:30 PM.

E. Utility Outages and Shutdown:
1. Limit disruption of utility services to hours the building is unoccupied.
2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days' notice to Owner and authorities having jurisdiction.
3. Prevent accidental disruption of utility services to other facilities.

1.5 CONTRACT TIME

A. The Owner expects to provide a notice to proceed by **April 16, 2025.** Work on site may begin upon execution, completion and acceptance of all of the following:
1. Construction Agreement
2. Certificates of Insurance
3. Payment and Performance Bonds

4. Building Permits by each Authority Having Jurisdiction related to the Work being commenced.
5. Project Schedule
6. Schedules of Values
7. Subcontractor and Supplier List

B. The school will be available for field verifications outside of the project area each weekday before 8:30 AM and after 4:00 PM. All visits must be coordinated at least 72 hours in advance with the school district.

C. It is expected that school will not be in session the following weekdays:

1. March 7 – 14, 2025
2. April 18, 2025
3. May 26, 2025

D. The last day of classes for the **2024/25 school year is June 6, 2025**. The building will be occupied through **June 9, 2025.** Prior to that date no work is to take place within occupied portions of the building, except as coordinated with the Owner. Any work in the building is to be arranged in advance with the Owner and cannot result in loss of service to any part of the existing building.

E. Substantial Completion for work in the spaces shall be no later than **August 11, 2025**. The building and spaces shall be ready for punch list review at those times, including receipt of all final permit inspections and receipt of Certificates of Occupancy where they are required by the authority having jurisdiction.

F. Final date of work on site shall be **August 28, 2025.**

G. Final Completion, including resolution of all potential change orders and submittal of Close-out documents shall be **November 28, 2025.**

END OF SECTION

PROJECT
Anoka Hennepin Schools – Jackson Middle School Three New Interior Doors

OWNER

ANOKA-HENNEPIN INDEPENDENT SCHOOL DISTRICT 11

2727 NORTH FERRY STREET

ANOKA, MN 55303 TELEPHONE (763) 506-1200

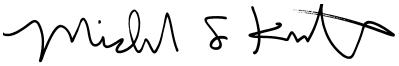
ARCHITECT

MIKE KRAFT ARCHITECTS, P.A.

1442 98TH LANE NW

COON RAPIDS, MN 55433 TELEPHONE (612) 309-6002

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.



MICHAEL F. KRAFT, ARCHITECT **23538 MN REGISTRATION NUMBER**
MIKE KRAFT ARCHITECTS, P.A.

END OF CERTIFICATIONS SHEET

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END OF TABLE OF CONTENTS

QUOTE FORM

1.1 TO:

A. Tiffany Audette, Director of Purchasing
Anoka-Hennepin School District
2727 North Ferry Street
Anoka Minnesota 55303

1.2 PROJECT:

A. Jackson Middle School Three New Interior Doors
Quote No. **25043Q**

1.3 DATE: _____

1.4 SUBMITTED BY: (Vendor to enter name and address)

A. Vendor's Full Company Name _____

1. Address _____
2. City, State, Zip_____
3. Email address_____

1.5 BASE QUOTE

A. Having examined the Place of The Work and the Contract Documents for the above-mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Price listed in this quote form of:

B. Storage D168_____

_____ dollars

($_____), in lawful money of the United States of America

C. Classroom G117_____

_____ dollars

($_____), in lawful money of the United States of America.

D. **Total** Storage D168 and Classroom G117_____

_____ dollars

($_____), in lawful money of the United States of America.

1.6 ALTERNATES LIST

A. The following amounts shall be added to or deducted from the Quote Amount:

	ADD	Deduct	No Change (X)
B. Alternate #01 – Storage D160	$ _____	$ _____	_____

1.7 ACCEPTANCE

A. This offer shall be open to acceptance and is irrevocable for thirty days from the quote closing date.

1.8 ADDENDA

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

1. Addendum # _____ Dated _____.
2. Addendum # _____ Dated _____.
3. Addendum # _____ Dated _____.

1.9 QUOTE FORM SIGNATURE

A. _____

(Vendor - print the full name of your firm)

B. _____

(Authorized signature of signing officer)

C. _____

(Name and title of signing officer)

END OF QUOTE FORM

PRIME CONTRACTOR RESPONSE

All Prime Bidders submitting a bid for a construction project shall submit along with their bid a signed statement under oath by an owner or officer verifying compliance with each of the minimum criteria in subdivision 3 of Minnesota Statue §16C.285, at the time that they submit their bid. This sworn statement is to be included as part of the Bid Form.

All subcontractors that the contractor intends to use to perform project work must have verified to the contractor through a signed statement under oath by an owner or officer that they meet the minimum criteria listed in clauses (1) to (6) of Subd. 3 of §16C.285. A Bidder or subcontractor who does not meet the minimum criteria established in Minnesota Statutes §16C.285, subdivision 3, or who fails to verify compliance with the minimum requirements will not be a “responsible contractor” and will be ineligible to be awarded the Contract for this Project or to work on this Project.

Bidders and subcontractors are also advised that making a false statement verifying compliance with any of the minimum criteria will render the Bidder or subcontractor ineligible to be awarded a construction contract for this Project and may result in the termination of a contract awarded to a Bidder or subcontractor that makes a false statement.

A prime contractor shall submit to the Owner upon request, copies of the signed verifications of compliance from all sub bidders of any tier pursuant to subdivision 3, clause (7) of §16C.285.

Definition of Responsible Bidder: Responsible Bidder shall be defined as those entities which meet the minimum criteria set forth in Subparagraph 3 of Minnesota Statute §16C.285, which can be found at https://www.revisor.mn.gov/laws/?id=253&doctype=Chapter&year=2014&type=0

RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE

PROJECT NAME: _____

This form must be submitted with the response to this Request for Bids. A response received without this form will be rejected.

Minn. Stat. § 16C.285, Subd. 7. IMPLEMENTATION. … any prime contractor or subcontractor or motor carrier that does not meet the minimum criteria in subdivision 3 or fails to verify that it meets those criteria is not a responsible contractor and is not eligible to be awarded a construction contract for the project or to perform work on the project…	
Minn. Stat. § 16C.285, Subd. 3. RESPONSIBLE CONTRACTOR, MINIMUM CRITERIA. "Responsible contractor" means a contractor that conforms to the responsibility requirements in the solicitation document for its portion of the work on the project and verifies that it meets the following minimum criteria:	
(1)	The Contractor: (i) is in compliance with workers' compensation and unemployment insurance requirements. (ii) is in compliance with Department of Revenue and Department of Employment and Economic Development registration requirements if it has employees. (iii) has a valid federal tax identification number or a valid Social Security number if an individual; and (iv) has filed a certificate of authority to transact business in Minnesota with the Secretary of State if a foreign corporation or cooperative.
(2)	The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 177.24, 177.25, 177.41 to 177.44, 181.13, 181.14, or 181.722, and has not violated United States Code, title 29, sections 201 to 219, or United States Code, title 40, sections 3141 to 3148. For purposes of this clause, a violation occurs when a contractor or related entity: (i) repeatedly fails to pay statutorily required wages or penalties on one or more separate projects for a total underpayment of $25,000 or more within the three-year period, provided that a failure to pay is “repeated” only if it involves two or more separate and distinct occurrences of underpayment during the three-year period. (ii) has been issued an order to comply by the commissioner of Labor and Industry that has become final. (iii) has been issued at least two determination letters within the three-year period by the Department of Transportation finding an underpayment by the contractor or related entity to its own employees. (iv) has been found by the commissioner of Labor and Industry to have repeatedly or willfully violated any of the sections referenced in this clause pursuant to section 177.27. (v) has been issued a ruling or findings of underpayment by the administrator of the Wage and Hour Division of the United States Department of Labor that have become final or have been upheld by an administrative law judge or the Administrative Review Board; or (vi) has been found liable for underpayment of wages or penalties or misrepresenting a construction worker as an independent contractor in an action brought in a court having jurisdiction. Provided that, if the contractor or related entity contests a determination of underpayment by the Department of Transportation in a contested case proceeding, a violation does not occur until the contested case proceeding has concluded with a determination that the contractor or related entity underpaid wages or penalties; *

(3)	The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 181.723 or chapter 326B. For purposes of this clause, a violation occurs when a contractor or related entity has been issued a final administrative or licensing order; *
(4)	The contractor or related entity has not, more than twice during the three-year period before submitting the verification, had a certificate of compliance under section 363A.36 revoked or suspended based on the provisions of section 363A.36, with the revocation or suspension becoming final because it was upheld by the Office of Administrative Hearings or was not appealed to the office; *
(5)	The contractor or related entity has not received a final determination assessing a monetary sanction from the Department of Administration or Transportation for failure to meet targeted group business, disadvantaged business enterprise, or veteran-owned business goals, due to a lack of good faith effort, more than once during the three-year period before submitting the verification; *
	* Any violations, suspensions, revocations, or sanctions, as defined in clauses (2) to (5), occurring prior to July 1, 2014, shall not be considered in determining whether a contractor or related entity meets the minimum criteria.
(6)	The contractor or related entity is not currently suspended or debarred by the federal government or the state of Minnesota or any of its departments, commissions, agencies, or political subdivisions that have authority to debar a contractor; and
(7)	All subcontractors and motor carriers that the contractor intends to use to perform project work have verified to the contractor through a signed statement under oath by an owner or officer that they meet the minimum criteria listed in clauses (1) to (6).

Minn. Stat. § 16C.285, Subd. 5. SUBCONTRACTOR VERIFICATION.

A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. Prior to execution of a construction contract, and as a condition precedent to the execution of a construction contract, the apparent successful prime contractor shall submit to the contracting authority a supplemental verification under oath confirming compliance with subdivision 3, clause (7). Each contractor or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each subcontractor.

If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors.

A prime contractor shall submit to the contracting authority upon request copies of the signed verifications of compliance from all subcontractors of any tier pursuant to subdivision 3, clause (7). A prime contractor and subcontractors shall not be responsible for the false statements of any subcontractor with which they do not have a direct contractual relationship. A prime contractor and subcontractors shall be responsible for false statements by their first-tier subcontractors with which they have a direct contractual relationship only if they accept the verification of compliance with actual knowledge that it contains a false statement.

Subd. 5a. Motor carrier verification. A prime contractor or subcontractor shall obtain annually from all motor carriers with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each motor carrier. A prime contractor or subcontractor shall require each such motor carrier to provide it with immediate written notification in the event that the motor carrier no longer meets one or more of the minimum criteria in subdivision 3 after submitting its annual verification. A motor carrier shall be ineligible to perform work on a project covered by this section if it does not meet all the minimum criteria in subdivision 3. Upon request, a prime contractor or subcontractor shall submit to the contracting authority the signed verifications of compliance from all motor carriers providing for-hire transportation of materials, equipment, or supplies for a project.

Minn. Stat. § 16C.285, Subd. 4. VERIFICATION OF COMPLIANCE.
A contractor responding to a solicitation document of a contracting authority shall submit to the contracting authority a signed statement under oath by an owner or officer verifying compliance with each of the minimum criteria in subdivision 3, with the exception of clause (7), at the time that it responds to the solicitation document. A contracting authority may accept a signed statement under oath as sufficient to demonstrate that a contractor is a responsible contractor and shall not be held liable for awarding a contract in reasonable reliance on that statement. A prime contractor, subcontractor, or motor carrier that fails to verify compliance with any one of the required minimum criteria or makes a false statement under oath in a verification of compliance shall be ineligible to be awarded a construction contract on the project for which the verification was submitted. A false statement under oath verifying compliance with any of the minimum criteria may result in termination of a construction contract that has already been awarded to a prime contractor or subcontractor or motor carrier that submits a false statement. A contracting authority shall not be liable for declining to award a contract or terminating a contract based on a reasonable determination that the contractor failed to verify compliance with the minimum criteria or falsely stated that it meets the minimum criteria. A verification of compliance need not be notarized. An electronic verification of compliance made and submitted as part of an electronic bid shall be an acceptable verification of compliance under this section provided that it contains an electronic signature as defined in section 325L.02, paragraph (h).

CERTIFICATION	
By signing this document, I certify that I am an owner or officer of the company, and I certify under oath that: 1) My company meets each of the Minimum Criteria to be a responsible contractor as defined herein and is in compliance with Minn. Stat. § 16C.285, and 2) if my company is awarded a contract, I will submit Attachment A-1 prior to contract execution, and 3) if my company is awarded a contract, I will also submit Attachment A-2 as required.	
Authorized Signature of Owner or Officer:	Printed Name:
Title:	Date:
Company Name:	

NOTE: Minn. Stat. § 16C.285, Subd. 2, (c) If only one prime contractor responds to a solicitation document, a contracting authority may award a construction contract to the responding prime contractor even if the minimum criteria in subdivision 3 are not met.

ATTACHMENT A-1

FIRST-TIER SUBCONTRACTORS LIST

SUBMIT PRIOR TO EXECUTION OF A CONTRUCTION CONTRACT

PROJECT NAME: _____

Minn. Stat. § 16C.285, Subd. 5. A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. Prior to execution of a construction contract, and as a condition precedent to the execution of a construction contract, the apparent successful prime contractor shall submit to the contracting authority a supplemental verification under oath confirming compliance with subdivision 3, clause (7). Each contractor or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each subcontractor.

FIRST TIER SUBCONTRACTOR NAMES* (Legal name of company as registered with the Secretary of State)	Name of city where company home office is located

*Attach additional sheets as needed for submission of all first-tier subcontractors.

SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-1	
By signing this document, I certify that I am an owner or officer of the company, and I certify under oath that: All first-tier subcontractors listed on attachment A-1 have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285.	
Authorized Signature of Owner or Officer:	Printed Name:
Title:	Date:
Company Name:	

ATTACHMENT A-2

ADDITIONAL SUBCONTRACTORS LIST

PRIME CONTRACTOR TO SUBMIT AS SUBCONTRACTORS ARE ADDED TO THE PROJECT

PROJECT NAME: _____

This form must be submitted to the Architect.

Minn. Stat. § 16C.285, Subd. 5 If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors.

ADDITIONAL SUBCONTRACTOR NAMES* (Legal name of company as registered with the Secretary of State)	Name of city where company home office is located

*Attach additional sheets as needed for submission of all additional subcontractors.

SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-2	
By signing this document, I certify that I am an owner or officer of the company, and I certify under oath that: All additional subcontractors listed on Attachment A-2 have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285.	
Authorized Signature of Owner or Officer:	Printed Name:
Title:	Date:
Company Name:	

GENERAL CONDITIONS

1. General Conditions: AIA A201, General Conditions of the Contract for Construction as issued by the American Institute of Architects, 2017 edition is hereby made part of this contract as though fully contained in this document.

2. General Conditions Forms: General Conditions are available from the AIA Minnesota, http://www.aia-mn.org or the American Institute of Architects, Washington, D.C.

END OF DOCUMENT

DOCUMENT 00 7300

SUPPLEMENTARY CONDITIONS

Supplementary Conditions: The following supplements modify AIA Document A201–2017, General Conditions of the Contract for Construction. Where a portion of the General Conditions is modified or deleted by these Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

ARTICLE 1 GENERAL PROVISIONS

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS
Add the following Subparagraphs 1.2.4 and 1.2.5:

1.2.4 The Contract Documents are prepared with enough detail to portray the general intent of quality and form. It is the intention of this specification and accompanying drawings to provide a job complete in every respect. The Contractor shall be responsible for this result and shall turn over the project in complete operating condition irrespective of whether drawings and specifications cover every individual item in minute detail or clarity.

1.2.5 If an instance occurs where the documents seem to conflict within themselves in terms of quality, quantity or installation expectations, the more restrictive, higher quality and higher quantity as determined by the Architect shall be provided with no addition to the Contract Sum or Contract Time.

Add the following paragraph 1.7
1.7 EXECUTION OF THE AGREEMENT AND MODIFICATIONS
The Agreement and all Modifications shall be drafted by the Contractor on original American Institute of Architects forms procured by the Contractor. Contractor shall submit drafts of Agreement and Modifications forms to the Architect and Owner for review. Contractor shall make revisions to the documents and resubmit for execution after receipt of comments from Owner and Architect.

ARTICLE 2 OWNER
2.3 INFORMATION AND SERVICES REQUIRED OF OWNER
Delete Subparagraph 2.2.5 and replace with the following:

2.3.6 General Contractor is responsible for procuring all sets of Contract Documents required for complete execution of the work at their own expense.

ARTICLE 3 CONTRACTOR
3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR
Add the following Subparagraphs 3.2.5, 3.2.6 and 3.2.7:

3.2.5 Should it appear that portions of the Work are not sufficiently detailed or explained in the Contract Documents, the Contractor shall apply to the Architect for Supplementary drawings or clarifications as may be necessary and shall meet the requirements of these documents as far as they are consistent with the original Contract Documents. In such areas the Contractor shall interpret the Contract Documents for such areas in a manner that is consistent with the intent of similar conditions expressed elsewhere and shall in all cases provide systems that are complete, permanent, durable and weather tight, consistent with other similar areas of the Work.

3.2.6 Where applicable to the Work, the Contractor shall engage a professional utilities locator to investigate and verify existing utility locations prior to earthwork operations, excavations, trenching or other activities which could result in encountering or damaging existing utilities. Not all site utilities may be identified on the Drawings or surveys provided, and as such, verification of the presence of utilities is the responsibility of the

Contractor, including verification with the Owner before proceeding with the Work.

3.2.7 Contractor shall be responsible for site verifying and marking the exact locations of existing site utilities, including depths and locations relative to other site features. The general location of existing utilities is noted on furnished surveys or in the Contract Documents are for the Contractor's reference and represent the general location of site utilities to the best of the Owner's knowledge at the time those documents were created. The Contractor shall engage the services of professional utilities locators, GPR services, sewer cameras, excavation techniques, etc. to confirm the exact locations of utilities prior to executing the Work.

3.2.8 Prior to submittal of a Request for Information, the Contractor shall thoroughly review the Documents to confirm whether the information requested is described and/or reasonably inferable from the Documents. Time spent by the design team responding to excessive Requests for Information already described and/or reasonably inferable from the Documents, as determined by the Architect will be reduced from the Contract by Change Order, using the design team members' normal billable rates.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

Add the following Subparagraph 3.3.4:

3.3.4 The Contractor shall provide at least until Substantial Completion, a competent, full-time superintendent with at least 10 years of experience as a superintendent on projects of similar scale and complexity, and at least three (3) projects of similar scale and scope with the General Contractor. The superintendent shall be an employee of the General Contractor, not an independent contractor. This superintendent shall be on the project site at all times when work is being conducted. The superintendent is not to coordinate other projects or operate other business while on site. The primary role of the superintendent is coordination of the project, schedule and subcontractors/suppliers. The superintendent shall not be changed except with consent of the Architect unless the superintendent proves to be unsatisfactory to the Contractor and/or ceases to be in his/her employ. The superintendent shall represent the Contractor in his/her absence, and all directions given by the superintendent shall be as binding as if given by the Contractor. Important directions shall be confirmed by written request in each case.

3.7 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

Add the following Paragraph 3.7.6:

3.7.6 Owner will submit and pay for review of plumbing documents by the Minnesota Department of Labor and Industry. The Contractor shall submit documents to the authorities responsible for permit review in the type, format and quantity required. The Contractor shall be responsible for transmitting requests for additional information and modifications to the documents to both the design team and the permitting authority. All costs for the review and the building permit as well as the time required to coordinate this process are to be part of the costs included in the Contract for Construction.

Add the following Paragraph 3.7.7:

3.7.7 Owner has no control over the duration of permit reviews by the authorities having jurisdiction over the project. Claims related to durations for securing the necessary permits shall not be part of this project.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

Add the following sentence to the end of Subparagraph 3.12.6:

3.12.6 Submittals shall include the Contractor's stamp confirming that the submittal has been reviewed and verified to be in compliance relative to the items described in this paragraph.

Add the following Subparagraph 3.12.11:

3.12.11 All Shop Drawings and Product Data, except color charts shall be submitted to the architect as electronic files, with information identifying the following:

a. Project name

b. Contractor name
c. Subcontractor/Supplier name, address, phone number and email address
d. Related Specification section
e. Date of submittal

3.19 PUBLICITY AND ADVERTISING

Add the following Paragraph 3.19:

3.19 Contractor shall not use in its external advertising, marketing programs, or other promotional efforts, any data, pictures or other representation of the District except on the specific, written authorization, in advance, of the Districts Department of Public Relations.

ARTICLE 7 CHANGES IN THE WORK

7.2 CHANGE ORDERS

7.2.1 In paragraph 7.2.1 Delete the first instance of the word “Architect” and insert the word “Contractor”.

Add the following Subparagraph 7.2.2:

7.2.2 No requests for additional compensation will be considered unless proposals are received within 90 days of the first communication regarding potential changes in the work. Compensation to be included in Change Orders shall include actual labor hours for the work included in the changes multiplied by the subcontractor’s standard hourly rates, actual material costs for the work included in the changes and 10 percent subcontractor overhead and profit, plus a percentage fee in accordance with General Conditions as follows:

1. 10 percent overhead and profit on the net cost of Work done by the General Contractor
2. 5 percent on the cost of work done by any Subcontractor.
3. Costs as incurred for insurance and bonds.
4. Profit and Overhead costs shall not be calculated on or added to insurance and bond costs.

In the event that the Contractor and the Owner cannot agree to a cost for the additional work, the Architect will determine the final cost for the work.

Add the following Subparagraph 7.2.3:

7.2.3 Change Orders shall be documented by the Contractor on three original printed AIA G701-2017 forms, and shall include as back-up, approved proposals for each item in the Change Order.

ARTICLE 8 TIME

8.1 DEFINITIONS

Delete Subparagraph 8.1.2 and add the following:

8.1.2 The date of commencement of the Work shall be the date established in the Agreement or as identified in the notice to proceed. However, work on site shall not proceed until the items identified in Section 01 1000 Par. 1.5 are completed and accepted and shall not proceed until the effective date of insurance required by Article 11. Neither of these dates will affect the dates required for Substantial Completion of occupancy by the Owner.

8.3 DELAYS AND EXTENSIONS OF TIME

Add the following to the end of Subparagraph 8.3.3:

No payment, compensation of adjustment of any kind (other than the extensions of time provided for) shall be made to the Contractor for damages because of hindrances or delays from any cause in the progress of the Work, whether such hindrances or delays be avoidable or unavoidable, and the Contractor agrees to make no such claim for compensation, damages or mitigation of liquidated damages for any such delays, and will accept in full satisfaction for such delays, said extension of time.

8.5 SUBSTANTIAL COMPLETION DATE LIQUIDATED DAMAGES

Add the following Paragraphs 8.5, 8.5.1 and 8.5.2 under Article 8 as follows:

8.5 Date for Commencement of Liquidated Damages Assessment Associated with Substantial Completion: The Contractor shall pay to the Owner as fixed agreed amount for each calendar day beyond the time of Substantial Completion until the work is

completed or accepted as substantially complete, the sum of five hundred dollars ($500) per day and the Contractor and his sureties shall be liable for the amount thereof.

8.5.1 For purposes of determining project is substantially completed, substantial completion shall mean that the Work has been inspected by governing authorities with required certificates issued and is in a state of readiness for the Owner to resume normal owner operations on the day immediately following the specified substantial completion date.

8.5.2 Substantial Completion Liquidated Damages will be enacted if Work is not substantially completed by the date specified for the work in Article 8.2, Paragraph 8.2.6 at the Owners discretion.

8.6 FINAL COMPLETION LIQUIDATED DAMAGES

Add the following paragraph 8.6 to Article 8:

8.6 FINAL COMPLETION LIQUIDATED DAMAGES

8.6.1 The Contractor, upon entering into a Contract with the Owner for the Work under this Project, agrees to pay the Owner as a fixed and agreed amount for each calendar day of delay beyond the specified date of Final Completion, the sum of five hundred dollars ($500.00) per calendar day the Contractor fails to achieve Final Completion under the requirements of the Contract Documents. It is understood by all parties to the Contract that these are liquidated damages relating to the Owner not being able to close-out the Project.

8.6.2 Refer to Article 8, Subparagraph 8.2.7, Clauses 8.2.7.1 through 8.2.7.3, for date of Final Completion and related information.

ARTICLE 9 PAYMENTS AND COMPLETION

9.2 SCHEDULE OF VALUES

Add the following sentences to the end of Subparagraph 9.3.1: “The Schedule of Values shall be submitted on AIA Form G703 and the Payment Requests shall be submitted on original AIA Forms G702 and G703. They shall be itemized for each section of the specifications and shall be numerically ordered and listed to correspond with the specifications numbering system. Values indicated for each section shall be identified with Labor and Materials as separate values. Values indicated for each section shall be the value related to that scope of work and shall not include Contractor overhead, profit or other costs. Where the work under that section is to be executed by a Subcontractor or Supplier, the value identified in that section shall equal the subcontract amount for that work. Change Orders shall be listed separately. Schedule of Values shall also be submitted in Excel spreadsheet format.”

9.3 APPLICATIONS FOR PAYMENT

Add the following Subparagraphs 9.3.1.3, 9.3.1.4 and 9.3.1.5:

9.3.1.3: All payment requests will require a 5% withheld amount on labor and materials as per payment request forms. This amount will represent a constant 5% on all monies requested from month to month, leaving a total of 5% withheld of final total at time of substantial completion. This amount shall remain retained until correct and complete execution of the Punch List and close-out documents.

9.3.1.4: No partial payment shall become due until the Contractor shall deliver to the Owner a receipt and release of all liens arising out of this Contract from each subcontractor and supplier, totaling the aggregate of all previous payments related to that section. (subcontractor/supplier lien waivers). In addition, submittal of Progress Photographs and review of accurate and complete Daily Log of Construction per Section 01 3000 for the work being considered shall be complete before any partial payment becomes due.

9.3.1.5: Applications shall be submitted in duplicate on original AIA forms.

9.3.2 Delete the last two sentences of Paragraph 9.3.2, and add the following sentence: “No payments will be made for down payments required to be paid by the Contractor to suppliers or other entities under agreement with the Contractor.”

9.6 PROGRESS PAYMENTS

Add the following Subparagraph 9.6.1.1:

9.6.1.1: Payment shall be made within 35 days of submittal of correct Certificate for Payment as determined by the Architect. No interest will be paid for payments beyond 35 days.

9.6.2 Add the following sentence to the end of Paragraph 9.6.2: The Contractor shall pay all Subcontractors within ten days of the Contractor's receipt of payment (or as defined in the A201 General Conditions of the Contract, whichever is more restrictive) from the Owner for services provided by the subcontractor for which the Owner has paid the Contractor. The Contractor is to pay interest of 1-1/2 percent per month or any part of a month to the Subcontractor on any amount not paid on time to the Subcontractor. The minimum monthly interest penalty payment for an unpaid balance of $100 or more is $10. For an unpaid balance of less than $100, the Contractor shall pay the actual penalty due to the Subcontractor. A Subcontractor who prevails in a civil action to collect interest penalties from a Contractor must be awarded its costs and disbursements, including attorney's fees, incurred in bringing the action.

9.8 SUBSTANTIAL COMPLETION

9.8.1 Add the following to the end of Paragraph 9.8.1: For portions of the Work to be considered Substantially Complete, the following items are to be complete for portions of the Work under consideration:

1. Final permit inspections
2. Certificates of Occupancy where they are required by the authority having jurisdiction
3. Divisions 27 and 28 Communications and Life Safety systems, including Fire Alarm, Public Address/Intercom systems, Classroom Sound Reinforcement systems, Surveillance systems and Access Control systems.

9.8.6 Add the following Paragraph 9.8.6: Consistent with Mn Statute 337.10, the following applies to retainage at Substantial Completion:

1. The Owner will release all retainage no later than 60 days after substantial completion, subject to the terms of this subdivision. If the Owner reduces the amount of retainage, the Contractor must reduce retainage for any Subcontractors at the same rate.

2. The Contractor must pay all remaining retainage to its Subcontractors no later than ten days after receiving payment of retainage, unless there is a dispute about the work under a subcontract. If there is a dispute about the work under a subcontract, the contractor must pay out retainage to any subcontractor whose work is not involved in the dispute and must provide a written statement detailing the amount and reason for the withholding to the affected subcontractor.

3. Upon written request of a subcontractor, the Owner shall notify the Subcontractor of a progress payment, retainage payment, or final payment made to the Contractor.

4. After substantial completion, an Owner may withhold no more than:

a) 250 percent of the cost to correct or complete work known at the time of Substantial Completion; and

b) one percent of the value of the contract or $500, whichever is greater, pending completion and submission of all final paperwork by the Contractor or Subcontractor. For purposes of this subdivision, "final paperwork" means documents required to fulfill contractual obligations, including, but not limited to, operation manuals, payroll documents for projects subject to prevailing wage requirements, and the withholding exemption certificate required by section 270C.66.

If the Owner withholds payment under this paragraph, the Owner must promptly provide a written statement detailing the amount and basis of

withholding to the contractor. The Owner and contractor must provide a copy of this statement to any subcontractor that requests it. Any amounts withheld under clause (1) must be paid within 60 days after completion of the work. Any amounts withheld under clause (2) must be paid within 60 days after submission of all final paperwork.

5. Withholding retainage for warranty work is prohibited. This provision does not waive any rights for warranty claims.

6. For a project funded with federal or state aid, the Owner is not required to pay that portion of the contract funded by federal or state aid until the federal or state aid payments have been received.

7. Nothing in this section requires payment for a portion of a contract that is not complete or for which an invoice has not been submitted.

9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.2 Add the following sentence to the end of Subparagraph 9.10.2: The following items shall also be submitted prior to final payment. All items are to be submitted in electronic format:

1. Completed Punch List signed by an officer of the firm.
2. Consent of Surety to Final Payment - AIA G707
3. Payroll records showing compliance with Minnesota Statute 177.41-44 regarding Prevailing Wage Rates for Commercial Construction
4. Lien waivers for all previous payments to subcontractors consistent with the amounts indicated on Applications for Payment.
5. Warranties per Section 01740.
6. Minnesota Dept. of Revenue IC 134 Withholding Tax Form for General Contractor and all Subcontractors.
7. Progress photographs
8. Other data specified in the Contract Documents

9.10.2.1 Add the following Paragraph 9.10.2.1:

Construction Record Drawings:

Significant changes incorporated in the Project construction which differ from the original Contract Drawings shall be indicated on a set of Contract Drawings, and or shop drawings as appropriate.

ARTICLE 11 INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1: Add Clause 11.1.1.9 to Subparagraph 11.1.1:

11.1.1.9 Liability Insurance shall include all major divisions of coverage and be on a comprehensive basis including:

1. Premises-Operations.
2. Independent Contractors' Protective
3. Products and Completed Operations.
4. Personal Injury Liability with Employment Exclusion deleted.
5. Contractual - including special provision for Contractor's obligations under Paragraph 3.18.
6. Owned, non-owned and hired motor vehicles.
7. Broad Form Property Damage including Completed Operations.
8. Umbrella Excess Liability.

11.1.2 Add the following to subparagraph 11.1.2:

The insurance required by Subparagraph 11.1.1 shall be written for not less than the following, or greater if required by law:

1. Workmen's Compensation:
   a) State: Statutory
   b) Voluntary Compensation (by exempt entities): Same as State Worker's Compensation
   c) Employer's Liability:
      $500,000 Each Occurrence
      $500,000 Disease, Policy Limit
      $500,000 Disease, Each Employee
   f) Benefits required by union labor contracts: As Applicable

2. General Liability (including Premises/Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage):

   a) Bodily Injury and Property Damage (combined single limit)

      $1,000,000 Each Occurrence

      $2,000,000 Aggregate

   b) Products and Completed Operations to be maintained for a minimum of 2 years after final payment and the Contractor shall continue to provide evidence of such coverage to the Owner on an annual basis during the aforementioned period.

   c) Property Damage Liability shall include coverage for the following hazards:
      X (Explosion)

      C (Collapse)

      U (Underground)

   d) Contractual Liability (Hold Harmless Coverage)
   Bodily Injury and Property Damage (Combined Single Limit)

      $1,000,000 Each Occurrence

      $2,000,000 Aggregate

   e) Personal Injury (with Employment Exclusion deleted, if applicable):
   $1,000,000 Each Occurrence

3. Umbrella Excess Liability:

   $2,000,000 over primary insurance to include auto, workers compensation, employees liability and the General Liability policies.

4. Automobile Liability (owned, non-owned, hired):
   Bodily Injury and Property Damage (combined single limit)

   $1,000,000 Each Occurrence

NOTE: The state of Minnesota has a no-fault automobile insurance requirement. The Contractor shall be certain that coverage is provided which conforms to any specific stipulation in the law.

Add Clause 11.1.3.1 to Subparagraph 11.1.3

11.1.3.1 The Contractor shall furnish one copy of each Certificates of Insurance herein required for each copy of the Agreement which shall specifically set forth evidence of coverage required by the Contract Documents. The Contractor shall furnish to the Owner copies of endorsements that are subsequently issued amending coverage or limits.

Add subparagraph 11.1.4 as follows:

11.1.4 The Contractor shall not commence the work until he has obtained the required insurance, and such insurance has been approved by the Architect in writing. The Contractor shall submit Certificates of Insurance to the Architect in duplicate for the review and approval of the Owner. If this insurance is written on the Comprehensive General Liability policy form, the Certificates shall be AIA Document G705, Certificate of Insurance. If this insurance is written on a Commercial General Liability policy form, ACORD Form 25S will be acceptable.

Add subparagraph 11.1.5 as follows:

11.1.5 The Contractor shall name the Architect and the Owner and their agents and employees as Additional Insured on a primary basis on the Contractor's Comprehensive or Commercial General Liability, commercial auto, discontinued products, completed operations and umbrella/excess liability policies. These policies shall be endorsed to include these parties as additional insured and shall be indicated as such on the Certificate of Insurance. Being named as certificate holder only will not fulfill this requirement.

Add subparagraph 11.1.6 as follows:

11.1.6 Subcontractors Insurance: Contractors shall secure and maintain Certificates of Insurance from subcontractors.

11.3 PROPERTY INSURANCE

Modify Article 11.3 as follows:

11.3.1 Delete the first sentence of Subparagraph 11.3.1 and substitute:

The Contractor shall purchase and maintain, in a company or companies lawfully authorize to do business in the jurisdiction in which the Project is located, property insurance written on a builder’s risk “all risk” or equivalent policy form in the amount of the Contract Sum, plus value of subsequent Contract modification, and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles.

Add to Subparagraph 11.3.1

The Contractor shall include the Owner, Architect, Subcontractors and Sub-subcontractors as additional insureds on the property insurance required by this Paragraph 11.3.1, and shall furnish to the Owner and Architect one copy of the Certificates of Insurance which shall specifically set forth evidence of coverage required by Paragraph 11.3. If the Owner is damaged by the failure of the Contractor to procure or maintain such insurance, then the Contractor shall be liable for all damages, injury, costs and expenses, including attorneys’ fees, arising out of or resulting from the Contractor’s failure to procure or maintain such insurance.

11.3.1.1 In the first sentence of Clause 11.3.1.1, delete the words “and Contractor’s “and substitute the words “and Owner’s”.

11.3.1.1 In the first sentence of Clause 11.3.1.1, after the word “Architect’s” add the words “and Owner’s”.

Substitute the word “Comprehensive” for the word “all-risk” and delete the word “falsework” from the first sentence.

11.3.1.2 Delete Clause 11.3.1.2 in its entirety.

11.3.1.3 Delete Clause 11.3.1.3 in its entirety.

11.3.2 Add Clauses 11.3.2.1 and 11.3.2.2 to Subparagraph 11.3.2 as follows:

.1 Insurance Limits $5,000,000

.2 Objects insured: All air tanks, jacketed kettles, jacketed coffee urns, all pressure vessels subject to State Inspection, all hot water storage tanks, and all auxiliary piping.

Delete subparagraph 11.3.3 in its entirety.

11.3.4 Delete Subparagraph 11.3.4 in its entirety.

11.3.5 Delete Subparagraph 11.3.5 in its entirety

11.3.6. Delete Subparagraph 11.3.6 in its entirety and substitute:
Before an exposure to loss may occur, the Contractor shall file with the Owner 2 certified copies of the policy or policies providing property insurance required by this Paragraph 11.4, with all definitions, terms, exclusions and endorsements related to the Project and other insured areas. Each policy shall contain a provision that the policy will not be cancelled or allowed to expire, and that its limits will not be reduced, until at least 60 days prior written notice has been provided to the Owner.

11.3.7 Delete this paragraph in its entirety.

11.3.8 In Subparagraph 11.3.8, delete the first sentence and substitute the following:
A loss insured under the Contractor’s property insurance required by Paragraph 11.3 as supplemented herein shall, at the discretion of the Owner, be adjusted by the Contractor as fiduciary and made payable to the Contractor as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgagee clause and Subparagraph 11.3.10 as supplemented herein.

11.3.9 In Subparagraph 11.3.9, delete “Owner” each time it appears and substitute the word “Contractor.”

11.4 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND
Add to 11.4.1
The bonds stipulated by the paragraph shall be a 100% Performance and 100% Labor and Material Bond on AIA Document A312 provided and paid for by the Contractor for the full amount of the contract. The bonds shall comply with all applicable laws, rules, regulations and industry standards. Bonds must be issued by a company acceptable to the Architect and must be accompanied by a Power of Attorney, and the signatures of principal and attorney-in-fact must both be notarized. The bonds are to be delivered with the executed Agreement.

.1 The contractor shall deliver the required bonds to the Owner not later than 3 days following the date the agreement is entered into, or if the Work is to be commenced prior thereto in response to a letter of intent, the Contractor shall,

prior to the commencement of the work, submit evidence satisfactory to the Owner that such bonds will be furnished.

.2 The contractor shall require the Attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

ARTICLE 12. UNCOVERING AND CORRECTION OR WORK

12.1 UNCOVERING OF WORK

12.1.1 In Subparagraph 12.1.1, add “or the Owner” after the word “Architect” the second time it occurs.

12.1.2 In the first sentence of Subparagraph 12.1.2, add “or the Owner” after the word “Architect” the second time it occurs.

12.2 CORRECTION OF WORK

12.2.2 In Subparagraph 12.2.2.1, after the words “Documents” where it appears, add “and all applicable laws, codes, ordinances, rules, regulations and industry standards.”

Delete the last two sentences of Subparagraph 12.2.2.1

Delete Subparagraph 12.2.2.3 in its entirety.

ARTICLE 13 MISCELLANEOUS PROVISIONS

13.2 SUCCESSORS AND ASSIGNS

13.2.1 Add the following to subparagraph 13.2.1.

The Contractor shall also not assign any moneys due or to become due to the Contractor hereunder, without written notice to and written consent of the Owner.

13.5 TESTS AND INSPECTIONS

13.5.1 At the end of the second sentence in Subparagraph 13.5.1, add “and shall immediately provide copies of all results, and reports of such tests, inspections and approvals to both the Owner and the Architect.

In the third sentence in Subparagraph 13.5.1, after the word “Architect” add “and the Owner”

13.5.2 At the end of Subparagraph 13.5.2 add:

The Contractor shall immediately provide copies of all results, and reports of such tests, inspections and approvals to both the Owner and the Architect.

13.6 INTEREST

Delete Paragraph 13.6 in its entirety.

13.7 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

13.7.1 Delete Subparagraph 13.7.1 in its entirety, and substitute:

As between the Owner and the Contractor, the applicable statute of limitations shall commence at such time as the party asserting a Claim or cause of action against the other party knew or should have known of the injury, damage, act or omission giving rise to any Claim or cause of action.

13.8 Add the following paragraph 13.8.1:

The contractor shall enforce the following policy adopted by the school board regarding the use of tobacco on school premises:

All Anoka-Hennepin Independent School District 11 facilities, grounds and vehicles will be tobacco-free.

13.9 Add the following paragraph 13.9.1:

The contractor shall enforce the following policy adopted by the school board regarding the use of tobacco on school premises:

In compliance with the regulations implementing the Drug-Free Workplace Act of 1988, the Anoka-Hennepin School District certifies that it will provide a drug-free workplace.

The unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the workplace in the Anoka-Hennepin School District. Any employee violating this prohibition will be subject to disciplinary action up to and including termination of employment.

13.10 Add the following paragraph 13.10.1:

The contractor shall enforce the Policy on Weapons adopted by the school board. It is the policy of the Anoka-Hennepin School District to maintain a positive, safe and secure learning and working environment. Therefore, the District will not tolerate weapons as defined in this policy at any time on school property or in the school zone*, including district owned buildings and grounds; leased or rented facilities; school sponsored activities; field trips; school buses and other school vehicles; and school bus loading and unloading areas. Students and visitors may not possess, handle, transmit or use any weapons in any of the school environments listed above.

* School zone: The area surrounding school property to a distance of 300 feet or one city block, whichever distance is greater, beyond school property.

ARTICLE 14. TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.3 In Subparagraph 14.1.3, delete the word “seven” and substitute “fourteen”.

In Subparagraph 14.1.3, after the word “executed” delete the remainder of the sentence, and substitute “provided that such work conforms with the Contract Documents and applicable laws, codes, ordinances, rules, regulations and industry standards.”

Add Paragraph 14.4 to Article 14:

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE
14.4.2.3 Delete Subparagraph 14.1.2.3 in its entirety and substitute:

Except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing Subcontractors, Sub-subcontractors or their agents or employees or any other persons performing portions of the Work under contract with the Contractor.

14.4.3 Delete subparagraph 14.4.3 in its entirety and substitute:

In case of termination for the Owner’s convenience, the Contractor shall be entitled to receive payment from the Owner on the same basis provided in Subparagraph 14.1.3 as supplemented herein. However, if the Owner has incurred damages or loss as a result of the actions or

omissions of the Contractor, Subcontractors, Sub-subcontractors, or anyone directly or indirectly employed by them or for whose acts they may be liable, the Owner shall be entitled to reduce any payments to the Contractor by the amount of any such damages or loss, and shall further be entitled to institute all legal and equitable proceedings against the Contractor to recover any remaining damages or loss resulting from such actions or omissions.

END OF DOCUMENT

WAGE RATE POLICY

PART 1 GENERAL

1.1 Wage Rate Requirements:

1. Because this Contract is being financed in part or in total with state funds, it must be compliant with School Board Policy and in accordance with Minnesota Statutes 177.41 through 177.43 regarding Prevailing Wage Rates for Construction Projects.
2. Minnesota Statutes 177.41-44, commonly known as The Little Davis-Bacon Act states "It is in the public interest that public buildings and other public works be constructed and maintained by the best means and highest quality of labor reasonably available, and that persons working on public works be compensated according to the real value of the services they perform. It is, therefore, declared to be the public policy of this State that wages of laborers, workmen, and mechanics engaged in State projects would be comparable to wages paid for similar work in the community as a whole".
3. The Commissioner of Labor and Industry shall determine the prevailing wage rates, prevailing hours of labor, and hourly basic rates of pay for all trades and occupations required in any construction project. Any wage determinations which are found not to be so promulgated do not relieve the Contractor from any responsibility for paying the prevailing wage rate of the trade in question. Additional classifications may develop between certifications by the Minnesota Department of Labor and Industry. Therefore, no inferences may be drawn from the omission of a classification which has local usage.
4. Any Contractor or Subcontractor awarded a contract with the School District that has an estimated cost of more than $2,500 and only one trade or occupation is required to complete it, or a contract with an estimated cost of more than $25,000 and more than one trade or occupation is required to complete it, must use the Prevailing Wage Rate to pay their employees. If an employer pays less than the prevailing wage, the Minnesota Department of Labor and Industry (DLI) requires the employer to pay back-wages to the worker to make up the difference. DLI can also require the employer to pay penalties for failure to comply with the prevailing wage law. Further, the State and School District will not be liable for increased labor costs, or errors or changes to the rates or classifications.
5. Contractor is solely responsible for enforcement of compliance with Wage Rate Determination Schedule for persons employed directly by Contractor and persons in the employ of its Subcontractors, including settlement of claims made by persons found to have received wages lower than rate classification included in said schedule.
6. Contractors and subcontractors must furnish completed prevailing wage certified payroll information to the following email address: Buildingsandgrounds@AHSCHOOLS.US and to Architect. Include Contractors' or Subcontractors' firm name and contract number or Purchase Order number on email subject line. This form must be furnished not more than 14 days after the end of each pay period, and with submittal of a Request for Payment for the following time period. The payrolls must contain all the data required by section 177.30. The contracting authority may examine all records relating to wages paid laborers or mechanics on work to which sections 177.41 to 177.44 apply Prevailing Wage Payroll Information form is found at http://workplace.doli.state.mn.us/.

1.2 PREVAILING WAGE RATE DETERMINATION

A. A copy of the applicable Prevailing Wage Rate Determination Schedule can be obtained from:
Department of Labor and Industry
Prevailing Wage Section
443 Lafayette Road N
St. Paul, Minnesota 55155
(651) 284-5091
DOLI.PrevWage@state.mn.us

1.3 POSTING OF WAGE DETERMINATION SCHEDULES

A. The Contractor shall post and maintain at least one (1) copy of the schedule of Prevailing Wage Determination Schedule in a conspicuous location on the construction site until substantial completion of the Project.

1.4 ENFORCEMENT AND COMPLIANCE

A. Contractor is solely responsible for enforcement of compliance with Wage Rate Determination Schedule for persons employed directly by Contractor and persons in the employ of its Subcontractors, including settlement of claims made by persons found to have received wages lower than rate classification included in said schedule.

Contractors and subcontractors must furnish prevailing wage payroll information in Microsoft Office Excel format to the following email address: Buildingsandgrounds@AHSCHOOLS.US and to Architect. Include Contractor's or Subcontractors' firm name and contract or Purchase Order number on email subject line. This form must be furnished not more than 14 days after each pay period, and with submittal of a Request for Payment for the following time period. No other payroll forms will be accepted to meet this requirement. Prevailing Wage Payroll Information form is found at http://workplace.doli.state.mn.us/ and at the end of this section.

Construction Type: Commercial

County Number: 02

County Name: ANOKA

Effective: 2023-12-26

This project is covered by Minnesota prevailing wage statutes. Wage rates listed below are the minimum hourly rates to be paid on this project.

All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at a rate of one and one half (1 1/2) times the basic hourly rate. *Note: Overtime pay after eight (8) hours on the project must be paid even if the worker does not exceed forty (40) hours in the work week.*

Violations should be reported to:

Department of Labor and Industry
Prevailing Wage Section
443 Lafayette Road N
St Paul, MN 55155
(651) 284-5091
DLI.PrevWage@state.mn.us

* Indicates that adjacent county rates were used for the labor class listed.

County: ANOKA (02)

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
LABORERS (101 - 112) (SPECIAL CRAFTS 701 - 730)				

101	LABORER, COMMON (GENERAL LABOR WORK)	2023-12-26	41.66	23.74	65.40
		2024-05-01	43.39	24.24	67.63
102	LABORER, SKILLED (ASSISTING SKILLED CRAFT JOURNEYMAN)	2023-12-26	41.66	23.74	65.40
		2024-05-01	43.39	24.24	67.63
103	LABORER, LANDSCAPING (GARDENER, SOD LAYER AND NURSERY OPERATOR)	2023-12-26	28.29	20.41	48.70
		2024-05-01	30.04	21.16	51.20
104	FLAG PERSON	2023-12-26	41.66	23.74	65.40
		2024-05-01	43.39	24.24	67.63
105*	WATCH PERSON	2023-12-26	38.03	23.39	61.42
		2024-05-01	39.76	23.89	63.65
106*	BLASTER	2023-12-26	34.26	18.54	52.80
107	PIPELAYER (WATER, SEWER AND GAS)	2023-12-26	42.40	23.49	65.89
		2024-05-01	45.13	24.24	69.37
108*	TUNNEL MINER	2023-12-26	40.40	23.49	63.89
		2024-05-01	43.13	24.24	67.37
109	UNDERGROUND AND OPEN DITCH LABORER (EIGHT FEET BELOW STARTING GRADE LEVEL)	2023-12-26	40.40	23.49	63.89
		2024-05-01	43.13	24.24	67.37
110*	SURVEY FIELD TECHNICIAN (OPERATE TOTAL STATION, GPS RECEIVER, LEVEL, ROD OR RANGE POLES, STEEL TAPE MEASUREMENT; MARK AND DRIVE STAKES;	2023-12-26	41.66	23.74	65.40

	HAND OR POWER DIGGING FOR AND IDENTIFICATION OF MARKERS OR MONUMENTS; PERFORM AND CHECK CALCULATIONS; REVIEW AND UNDERSTAND CONSTRUCTION PLANS AND LAND SURVEY MATERIALS). THIS CLASSIFICATION DOES NOT APPLY TO THE WORK PERFORMED ON A PREVAILING WAGE PROJECT BY A LAND SURVEYOR WHO IS LICENSED PURSUANT TO MINNESOTA STATUTES, SECTIONS 326.02 TO 326.15.	2024-05-01	43.39	24.24	67.63
111*	TRAFFIC CONTROL PERSON (TEMPORARY SIGNAGE)	2023-12-26	41.66	23.74	65.40
		2024-05-01	43.39	24.24	67.63
SPECIAL EQUIPMENT (201 - 204)					
201*	ARTICULATED HAULER	2023-12-26	46.99	25.20	72.19
202*	BOOM TRUCK	2023-12-26	44.91	25.20	70.11
		2024-04-29	46.51	26.40	72.91
203	LANDSCAPING EQUIPMENT, INCLUDES HYDRO SEEDER OR MULCHER, SOD ROLLER, FARM TRACTOR WITH ATTACHMENT SPECIFICALLY SEEDING, SODDING, OR PLANT, AND TWO-FRAMED FORKLIFT (EXCLUDING FRONT, POSIT-TRACK, AND SKID STEER LOADERS), NO EARTHWORK OR GRADING FOR ELEVATIONS	2023-12-26	28.29	20.41	48.70
		2024-05-01	30.04	21.16	51.20
204	OFF-ROAD TRUCK	2023-12-26	41.73	22.85	64.58
205*	PAVEMENT MARKING OR MARKING REMOVAL EQUIPMENT (ONE OR TWO PERSON OPERATORS); SELF-PROPELLED TRUCK OR TRAILER MOUNTED UNITS.	2023-12-26	37.05	19.39	56.44
HIGHWAY/HEAVY POWER EQUIPMENT OPERATOR					

GROUP 2 *	2023-12-26	43.38	25.20	68.58
	2024-04-29	45.61	26.40	72.01

306 GRADER OR MOTOR PATROL

308 TUGBOAT 100 H.P. AND OVER WHEN LICENSE REQUIRED (HIGHWAY AND HEAVY ONLY)

GROUP 3	2023-12-26	42.81	25.20	68.01
	2024-04-29	45.01	26.40	71.41

309 ASPHALT BITUMINOUS STABILIZER PLANT

310 CABLEWAY

312 DERRICK (GUY OR STIFFLEG) (POWER)(SKIDS OR STATIONARY) (HIGHWAY AND HEAVY ONLY)

314 DREDGE OR ENGINEERS, DREDGE (POWER) AND ENGINEER

316 LOCOMOTIVE CRANE OPERATOR

320 TANDEM SCRAPER

322 TUGBOAT 100 H.P AND OVER (HIGHWAY AND HEAVY ONLY)

GROUP 4	2023-12-26	42.49	25.20	67.69
	2024-04-29	44.67	26.40	71.07

323 AIR TRACK ROCK DRILL

324 AUTOMATIC ROAD MACHINE (CMI OR SIMILAR) (HIGHWAY AND HEAVY ONLY)

325 BACKFILLER OPERATOR

327 BITUMINOUS ROLLERS, RUBBER TIRED OR STEEL DRUMMED (EIGHT TONS AND OVER)

328 BITUMINOUS SPREADER AND FINISHING MACHINES (POWER), INCLUDING PAVERS, MACRO SURFACING AND MICRO SURFACING, OR SIMILAR TYPES (OPERATOR AND SCREED PERSON)

329 BROKK OR R.T.C. REMOTE CONTROL OR SIMILAR TYPE WITH ALL ATTACHMENTS

330 CAT CHALLENGER TRACTORS OR SIMILAR TYPES PULLING ROCK WAGONS, BULLDOZERS AND SCRAPERS

331 CHIP HARVESTER AND TREE CUTTER

332 CONCRETE DISTRIBUTOR AND SPREADER FINISHING MACHINE, LONGITUDINAL FLOAT, JOINT MACHINE, AND SPRAY MACHINE

334 CONCRETE MOBIL (HIGHWAY AND HEAVY ONLY)

335 CRUSHING PLANT (GRAVEL AND STONE) OR GRAVEL WASHING, CRUSHING AND SCREENING PLANT

336 CURB MACHINE

337 DIRECTIONAL BORING MACHINE

338 DOPE MACHINE (PIPELINE)

340 DUAL TRACTOR

341 ELEVATING GRADER
345 GPS REMOTE OPERATING OF EQUIPMENT
347 HYDRAULIC TREE PLANTER
348 LAUNCHER PERSON (TANKER PERSON OR PILOT LICENSE)
349 LOCOMOTIVE (HIGHWAY AND HEAVY ONLY)
350 MILLING, GRINDING, PLANNING, FINE GRADE, OR TRIMMER MACHINE
352 PAVEMENT BREAKER OR TAMPING MACHINE (POWER DRIVEN) MIGHTY MITE OR SIMILAR TYPE
354 PIPELINE WRAPPING, CLEANING OR BENDING MACHINE
356 POWER ACTUATED HORIZONTAL BORING MACHINE, OVER SIX INCHES
357 PUGMILL
359 RUBBER-TIRED FARM TRACTOR WITH BACKHOE INCLUDING ATTACHMENTS (HIGHWAY AND HEAVY ONLY)
360 SCRAPER
361 SELF-PROPELLED SOIL STABILIZER
362 SLIP FORM (POWER DRIVEN) (PAVING)
363 TIE TAMPER AND BALLAST MACHINE
365 TRACTOR, WHEEL TYPE, OVER 50 H.P. WITH PTO UNRELATED TO LANDSCAPING (HIGHWAY AND HEAVY ONLY)
367 TUB GRINDER, MORBARK, OR SIMILAR TYPE

GROUP 5 *	2023-12-26	39.33	25.20	64.53
	2024-04-29	41.36	26.40	67.76

370 BITUMINOUS ROLLER (UNDER EIGHT TONS)
371 CONCRETE SAW (MULTIPLE BLADE) (POWER OPERATED)
372 FORM TRENCH DIGGER (POWER)
375 HYDRAULIC LOG SPLITTER
376 LOADER (BARBER GREENE OR SIMILAR TYPE)
377 POST HOLE DRIVING MACHINE/POST HOLE AUGER
379 POWER ACTUATED JACK
381 SELF-PROPELLED CHIP SPREADER (FLAHERTY OR SIMILAR)
382 SHEEP FOOT COMPACTOR WITH BLADE. 200 H.P. AND OVER
383 SHOULDERING MACHINE (POWER) APSCO OR SIMILAR TYPE INCLUDING SELF-PROPELLED SAND AND CHIP SPREADER
384 STUMP CHIPPER AND TREE CHIPPER
385 TREE FARMER (MACHINE)

GROUP 6 *	2023-12-26	38.06	25.20	63.26
	2024-04-29	40.02	26.40	66.42

387 CAT, CHALLENGER, OR SIMILAR TYPE OF TRACTORS, WHEN PULLING DISK OR ROLLER
389 DREDGE DECK HAND
391 GRAVEL SCREENING PLANT (PORTABLE NOT CRUSHING OR WASHING)

393 LEVER PERSON
395 POWER SWEEPER
396 SHEEP FOOT ROLLER AND ROLLERS ON GRAVEL COMPACTION, INCLUDING VIBRATING ROLLERS
397 TRACTOR, WHEEL TYPE, OVER 50 H.P., UNRELATED TO LANDSCAPING

COMMERCIAL POWER EQUIPMENT OPERATOR

GROUP 1 *	2023-12-26	49.25	25.20	74.45
	2024-04-29	51.03	26.40	77.43

501 HELICOPTER PILOT (COMMERCIAL CONSTRUCTION ONLY)
502 TOWER CRANE 250 FEET AND OVER (COMMERCIAL CONSTRUCTION ONLY)
503 TRUCK CRAWLER CRANE WITH 200 FEET OF BOOM AND OVER, INCLUDING JIB (COMMERCIAL CONSTRUCTION ONLY)

GROUP 2	2023-12-26	48.88	25.20	74.08
	2024-04-29	50.64	26.40	77.04

504 CONCRETE PUMP WITH 50 METERS/164 FEET OF BOOM AND OVER (COMMERCIAL CONSTRUCTION ONLY)
505 PILE DRIVING WHEN THREE DRUMS IN USE (COMMERCIAL CONSTRUCTION ONLY)
506 TOWER CRANE 200 FEET AND OVER (COMMERCIAL CONSTRUCTION ONLY)
507 TRUCK OR CRAWLER CRANE WITH 150 FEET OF BOOM UP TO AND NOT INCLUDING 200 FEET, INCLUDING JIB (COMMERCIAL CONSTRUCTION ONLY)

GROUP 3	2023-12-26	47.35	25.20	72.55
	2024-04-29	49.05	26.40	75.45

508 ALL-TERRAIN VEHICLE CRANES (COMMERCIAL CONSTRUCTION ONLY)
509 CONCRETE PUMP 32-49 METERS/102-164 FEET (COMMERCIAL CONSTRUCTION ONLY)
510 DERRICK (GUY & STIFFLEG) (COMMERCIAL CONSTRUCTION ONLY)
511 STATIONARY TOWER CRANE UP TO 200 FEET
512 SELF-ERECTING TOWER CRANE 100 FEET AND OVER MEASURED FROM BOOM FOOT PIN (COMMERCIAL CONSTRUCTION ONLY)
513 TRAVELING TOWER CRANE (COMMERCIAL CONSTRUCTION ONLY)
514 TRUCK OR CRAWLER CRANE UP TO AND NOT INCLUDING 150 FEET OF BOOM, INCLUDING JIB (COMMERCIAL CONSTRUCTION ONLY)

GROUP 4 *	2023-12-26	46.99	25.20	72.19
	2024-04-29	48.68	26.40	75.08

515 CRAWLER BACKHOE INCLUDING ATTACHMENTS (COMMERCIAL CONSTRUCTION ONLY)

516 FIREPERSON, CHIEF BOILER LICENSE (COMMERCIAL CONSTRUCTION ONLY)
517 HOIST ENGINEER (THREE DRUMS OR MORE) (COMMERCIAL CONSTRUCTION ONLY)
518 LOCOMOTIVE (COMMERCIAL CONSTRUCTION ONLY)
519 OVERHEAD CRANE (INSIDE BUILDING PERIMETER) (COMMERCIAL CONSTRUCTION ONLY)
520 TRACTOR. BOOM TYPE (COMMERCIAL CONSTRUCTION ONLY)

GROUP 5	2023-12-26	44.91	25.20	70.11
	2024-04-29	46.51	26.40	72.91

521 AIR COMPRESSOR 450 CFM OR OVER (TWO OR MORE MACHINES) (COMMERCIAL CONSTRUCTION ONLY)
522 CONCRETE MIXER (COMMERCIAL CONSTRUCTION ONLY)
523 CONCRETE PUMP UP TO 31 METERS/101 FEET OF BOOM
524 DRILL RIGS, HEAVY ROTARY OR CHURN OR CABLE DRILL WHEN USED FOR CAISSON FOR ELEVATOR OR BUILDING CONSTRUCTION (COMMERCIAL CONSTRUCTION ONLY)
525 FORKLIFT (COMMERCIAL CONSTRUCTION ONLY)
526 FRONT END, SKID STEER 1 C YD AND OVER
527 HOIST ENGINEER (ONE OR TWO DRUMS) (COMMERCIAL CONSTRUCTION ONLY)
528 MECHANIC-WELDER (ON POWER EQUIPMENT) (COMMERCIAL CONSTRUCTION ONLY)
529 POWER PLANT (100 KW AND OVER OR MULTIPLES EQUAL TO 100KW AND OVER) (COMMERCIAL CONSTRUCTION ONLY)
530 PUMP OPERATOR AND/OR CONVEYOR (TWO OR MORE MACHINES) (COMMERCIAL CONSTRUCTION ONLY)
531 SELF-ERECTING TOWER CRANE UNDER 100 FEET MEASURED FROM BOOM FOOT PIN (COMMERCIAL CONSTRUCTION ONLY)
532 STRADDLE CARRIER (COMMERCIAL CONSTRUCTION ONLY)
533 TRACTOR OVER D2 (COMMERCIAL CONSTRUCTION ONLY)
534 WELL POINT PUMP (COMMERCIAL CONSTRUCTION ONLY)

GROUP 6 *	2023-12-26	43.28	25.20	68.48
	2024-04-29	44.82	26.40	71.22

535 CONCRETE BATCH PLANT (COMMERCIAL CONSTRUCTION ONLY)
536 FIREPERSON, FIRST CLASS BOILER LICENSE (COMMERCIAL CONSTRUCTION ONLY)
537 FRONT END, SKID STEER UP TO 1 C YD
538 GUNITE MACHINE (COMMERCIAL CONSTRUCTION ONLY)
539 TRACTOR OPERATOR D2 OR SIMILAR SIZE (COMMERCIAL CONSTRUCTION ONLY)
540 TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER

GROUP 7	2023-12-26	42.06	25.20	67.26
	2024-04-29	43.55	26.40	69.95

541 AIR COMPRESSOR 600 CFM OR OVER (COMMERCIAL CONSTRUCTION ONLY)
542 BRAKEPERSON (COMMERCIAL CONSTRUCTION ONLY)
543 CONCRETE PUMP/PUMPCRETE OR COMPLACO TYPE (COMMERCIAL CONSTRUCTION ONLY)
544 FIREPERSON, TEMPORARY HEAT SECOND CLASS BOILER LICENSE (COMMERCIAL CONSTRUCTION ONLY)
545 OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS AND MILLING MACHINES, OR OTHER SIMILAR POWER EQUIPMENT) (COMMERCIAL CONSTRUCTION ONLY)
546 PICK UP SWEEPER (ONE CUBIC YARD HOPPER CAPACITY) (COMMERCIAL CONSTRUCTION ONLY)
547 PUMP AND/OR CONVEYOR (COMMERCIAL CONSTRUCTION ONLY)

GROUP 8 *	2023-12-26	39.88	25.20	65.08
	2024-04-29	41.28	26.40	67.68

548 ELEVATOR OPERATOR (COMMERCIAL CONSTRUCTION ONLY)
549 GREASER (COMMERCIAL CONSTRUCTION ONLY)
550 MECHANICAL SPACE HEATER (TEMPORARY HEAT NO BOILER LICENSE REQUIRED) (COMMERCIAL CONSTRUCTION ONLY)

TRUCK DRIVERS

GROUP 1	2023-12-26	32.85	9.02	41.87

601 MECHANIC . WELDER
602 TRACTOR TRAILER DRIVER
603 TRUCK DRIVER (HAULING MACHINERY INCLUDING OPERATION OF HAND AND POWER OPERATED WINCHES)

GROUP 2 *	2023-12-26	36.43	22.70	59.13
	2024-05-01	38.39	23.70	62.09

604 FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK

GROUP 3	2023-12-26	22.50	6.50	29.00

605 BITUMINOUS DISTRIBUTOR DRIVER
606 BITUMINOUS DISTRIBUTOR (ONE PERSON OPERATION)
607 THREE AXLE UNITS

GROUP 4 *	2023-12-26	28.00	9.56	37.56

608 BITUMINOUS DISTRIBUTOR SPRAY OPERATOR (REAR AND OILER)
609 DUMP PERSON

610 GREASER
611 PILOT CAR DRIVER
612 RUBBER-TIRED, SELF-PROPELLED PACKER UNDER 8 TONS
613 TWO AXLE UNIT
614 SLURRY OPERATOR
615 TANK TRUCK HELPER (GAS, OIL, ROAD OIL, AND WATER)
616 TRACTOR OPERATOR, UNDER 50 H.P.

SPECIAL CRAFTS

701	HEATING AND FROST INSULATORS	2023-12-26	49.04	31.70	80.74
702	BOILERMAKERS	2023-12-26	44.37	30.55	74.92
		2024-01-01	46.00	31.93	77.93
703	BRICKLAYERS	2023-12-26	45.47	25.76	71.23
		2024-05-01	48.51	25.76	74.27
704	CARPENTERS	2023-12-26	43.94	27.89	71.83
		2024-04-29	46.49	27.89	74.38
705	CARPET LAYERS (LINOLEUM)	2023-12-26	43.65	25.53	69.18
		2024-04-29	46.20	25.53	71.73
706	CEMENT MASONS	2023-12-26	46.46	23.47	69.93
		2024-04-29	49.21	23.47	72.68
707	ELECTRICIANS	2023-12-26	52.00	32.80	84.80
708	ELEVATOR CONSTRUCTORS	2023-12-26	57.49	43.71	101.20
		2024-01-01	59.95	44.53	104.48
709	GLAZIERS	2023-12-26	46.73	25.50	72.23

		2024-06-03	49.73	25.50	75.23
710	LATHERS	2023-12-26	45.40	25.40	70.80
		2024-04-29	47.95	25.40	73.35
712	IRONWORKERS	2023-12-26	43.00	34.11	77.11
		2024-04-28	46.00	34.11	80.11
714	MILLWRIGHT	2023-12-26	41.70	31.81	73.51
715	PAINTERS (INCLUDING HAND BRUSHED, HAND SPRAYED, AND THE TAPING OF PAVEMENT MARKINGS)	2023-12-26	42.40	26.49	68.89
		2024-04-29	44.70	26.49	71.19
716*	PILEDRIVER (INCLUDING VIBRATORY DRIVER OR EXTRACTOR FOR PILING AND SHEETING OPERATIONS)	2023-12-26	43.53	27.91	71.44
		2024-05-01	47.03	27.91	74.94
717	PIPEFITTERS . STEAMFITTERS	2023-12-26	52.48	34.76	87.24
		2024-05-01	55.68	34.76	90.44
718	PLASTERERS	2023-12-26	45.98	23.99	69.97
		2024-06-01	48.78	23.99	72.77
719	PLUMBERS	2023-12-26	52.98	30.72	83.70
720	ROOFER	2023-12-26	44.65	21.89	66.54
		2024-05-06	46.65	21.89	68.54
		2024-11-04	48.65	21.89	70.54

721	SHEET METAL WORKERS	2023-12-26	50.46	33.32	83.78
722	SPRINKLER FITTERS	2023-12-26	51.26	34.10	85.36
723*	TERRAZZO WORKERS	2023-12-26	45.32	22.29	67.61
724	TILE SETTERS	2023-12-26	40.83	29.15	69.98
		2024-04-29	43.43	29.15	72.58
725*	TILE FINISHERS	2023-12-26	33.53	23.32	56.85
		2024-04-29	35.61	23.32	58.93
726	DRYWALL TAPER	2023-12-26	40.12	28.08	68.20
		2024-04-29	42.86	28.08	70.94
727	WIRING SYSTEM TECHNICIAN	2023-12-26	44.61	20.16	64.77
728	WIRING SYSTEMS INSTALLER	2023-12-26	31.25	16.34	47.59
729	ASBESTOS ABATEMENT WORKER	2023-12-26	37.63	23.36	60.99
		2024-01-01	39.86	24.11	63.97
730	SIGN ERECTOR	2023-12-26	32.37	19.40	51.77
		2024-06-01	34.12	19.40	53.52

END OF SECTION 007310

ALTERNATES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Description of Alternates. The total cost to add or deduct the Work related to each Alternate shall be identified in the corresponding Paragraph of the Quote Form.

B. Make modifications to the Work as required by accepted Alternates, at no additional cost to the Owner other than as indicated on the Quote Form. All costs incurred by all Divisions shall be included in the Alternates. All costs related to coordinating the Work of Accepted Alternates are to be included in the Alternates.

1.2 RELATED REQUIREMENTS

A. Document 00 4100 – Quote Form

1.3 ACCEPTANCE OF ALTERNATES

A. Alternates quoted on Quote Forms will be reviewed and accepted or rejected at Owner's option. Accepted alternates will be identified in the Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work to integrate the Work of each alternate.

1.4 SCHEDULE OF ALTERNATES

A. Alternate #1 – Provide demolition, drywall/framing, door, frame, hardware, electrical modifications, fire suppression modifications and all related work for the scope indicated at Storage D160 and described in the Documents.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Preconstruction meeting.

B. Progress meetings

C. Progress photographs.

E. Submittals

F. Daily Log of Construction

1.2 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Stages of the Work, Work covered by each contract, occupancy.

B. Section 01 7000 - Execution and Closeout Requirements: Additional Close-out requirements.

1.3 PROJECT COORDINATION

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PRECONSTRUCTION MEETING

A. Architect will schedule a meeting after Notice of Award.

B. Attendance Required:
1. Owner.
2. Architect.
3. Contractor.
4. Sub-contractors of major trades, including as a minimum all those whose work consists of at least five percent (5%) of the contract amount. .

C. Agenda:

A. Contract

B. Procedure

1. PreConstruction Submittals:
   a. Insurance Certificates
   b. Payment and Performance Bonds
   c. Schedule of Values
   d. Subcontractor/Supplier List
   e. Construction Schedule
   f. Submittal Schedule
2. Permit
   a. Review by responsible jurisdiction
   b. Watershed District
   c. MnDLI Plumbing
   d. MetCouncil SAC
3. Communication
4. Submittals – reviewed and stamped by GC, note any deviations from documents
5. Contract Time (01 1000)
   a. Construction start
   b. Substantial Completion
   c. Final date of work on site
   d. Final Completion (close-outs, etc.)
6. Applications for Payment/Lien Waivers/Payroll Reports/Daily Job Logs

7. Changes (ASI/C.O. G701)
8. Closeouts (01 7700)

C. Coordination
1. Access/use of premises
a. Site and Building access
b. Weekly job progress meetings
c. Other work by Owner (hazardous materials removal)
d. Firestopping requirements

D. Schedule

D. Contractor shall record minutes and distribute copies within one week after meeting to participants, with copies to Architect, Owner, participants, and those affected by decisions made.

3.4 PROGRESS MEETINGS

A. Weekly jobsite progress meetings will occur at a time determined by the Owner throughout progress of the Work until completion of all work on site and submittal of all Close-Out materials.

B. Make arrangements for meetings, prepare agenda with copies for participants, prepare and distribute minutes of meetings recording discussions, decisions and tasks assigned.

C. Attendance Required: Project Manager, Job superintendent, Owner, Architect, and major Subcontractors (HVAC, Plumbing, Electrical, etc.) and suppliers as appropriate to agenda topics for each meeting.

D. Agenda:
1. Review of construction progress from previous week, expected progress during the current week and anticipated progress during the following week.
2. Review of RFI's, ASI's and status of submittals.
3. Field observations, issues, and decisions.
4. Review minutes of previous meetings.
5. Overall progress schedule.
6. Other business relating to Work.

E. Record minutes and distribute copies within five business days after meeting to participants, with copies to Architect, Owner, participants, and those affected by decisions made.

F. Present Daily Log of Construction for review at each Job Progress Meeting.

G. Meetings are to begin with Preconstruction and will continue on a weekly basis until all close-outs are approved.

3.5 CONSTRUCTION PROGRESS SCHEDULES

A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the Work.

1. Division 27 and Division 28 work shall be individual items on the schedule, with interim completion dates included in the schedules and updated each time the schedule is updated.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Updated schedules shall be provided at a minimum of once every three months.

3.6 PROGRESS PHOTOGRAPHS

A. Provide photographs of site and construction throughout progress of Work.

B. In addition to periodic, recurring views, take photographs of each of the following events:
1. Completion of any roofing removal or exterior wall demolition if included.
2. Final completion, minimum of ten (10) photos.

C. Take photographs as evidence of existing project conditions as follows:
   1. Existing views: 10 min.

D. Views:
   1. Provide non-aerial photographs from four cardinal views of job site at each specified time, until Date of Substantial Completion.
   2. Provide photographs documenting specific locations or complex installations not visible in photographs from four cardinal views.

E. Frequency of photographs
   1. Photographs shall record progress at intervals of 1 week maximum.

F. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
   1. Delivery Medium: Via email, Dropbox or USB drive.
   2. File Naming: Include project identification, date and time of view, and view identification.

G. Submittal of Progress Photographs
   1. Progress photos shall be submitted electronically on or before the 10th day of each month. Photos included shall include those taken during the previous month.

3.7 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

C. Samples will be reviewed only for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7700 - CLOSEOUT.

3.8 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Certificates.
   2. Inspection reports.
   3. Manufacturer's instructions.
   4. Manufacturer's field reports.
   5. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for Owner.

3.9 NUMBER OF COPIES OF SUBMITTALS

A. Documents for review and for closeout: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

3.10 SUBMITTAL PROCEDURES

A. Within 20 calendar days of the execution of the Agreement, and prior to the start of construction, provide a schedule of submittals, including each submittal required in the documents, the date

they will be issued to the Architect and the date response is needed. Update the schedule at least monthly until all submittals have been fully and successfully processed.

B. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.

C. Apply Contractor's stamp, signed or initialed certifying that review, approval, 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.

D. Deliver submittals to the Architect via electronic delivery.

E. Schedule submittals to expedite the Project, and coordinate submission of related items.

F. For each submittal for review, allow 7 days excluding delivery time to and from the Contractor. No submittal shall include review periods of less than 7 days.

G. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.

H. Provide space for Contractor and Architect review stamps.

I. When revised for resubmission, identify all changes made since previous submission.

J. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

K. Submittals not requested will not be recognized or processed.

3.11 DAILY LOG OF CONSTRUCTION

A. A Daily Log of Construction shall be maintained on paper or electronic format developed specifically as a Daily Log of Construction.

B. The daily log shall be presented for review at each job progress meeting, and will be reviewed prior to approval of monthly applications for payment.

C. The Daily Log shall identify each of the following for each day work is performed on the project:

1. Date

2. **Names and trades of each worker on site, identified by employee's name, employer's name and trade.**

3. Description of all materials delivered.

4. Names and associations of all official visitors present on the jobsite (inspectors, Architects, Owner's Representatives, etc.)

5. General description of work performed

6. Weather

END OF SECTION

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services to not relieve the Contractor of responsibility for compliance with Contract Document requirements.

1. Specific quality assurance and quality control requirements for individual construction activities are specified in sections that specify those activities. Requirements in those sections may also cover production of standard products.

2. Specified test, inspections and related actions do not limit Contractor’s other quality assurance and quality control procedures that facilitate meeting Contract Document requirements.

3. Requirements for Contractor to provide quality assurance and quality control services by Architect, Owner or authorities having jurisdiction are not limited by provisions of this section.

4. Services include, but are not limited to the following:

a. Quality assurance submittals.

b. Mock-ups.

c. Control of installation.

d. Manufacturers' field services.

1.2 RELATED REQUIREMENTS

A Section 01 3000 - Project Management and Coordination: Submittal procedures.

B. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.3 REFERENCE STANDARDS

A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008.

B. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2011.

C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2009.

D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2010.

E. ASTM E329 - Standard Specification for Agencies Engaged Construction Inspection and/or Testing; 2011.

F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2009.

1.4 SUBMITTALS

A. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.

B. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities

specified for Product Data.

1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

C. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

D. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.

1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.5 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 CONTROL OF INSTALLATION

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

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.2 MOCK-UPS

A. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

C. Accepted mock-ups shall be a comparison standard for the remaining Work.

D. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, remove mock-up and clear area when directed to do so.

3.3 TESTING AND INSPECTION

A. The Owner will retain a testing agency to perform code-required testing and inspection services outside of this agreement. See individual specification sections for testing and inspection required.

B. Limits on Testing/Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the Work.
   3. Agency may not assume any duties of Contractor.
   4. Agency has no authority to stop the Work.

C. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
   3. Provide incidental labor and facilities:
      a. To provide access to Work to be tested/inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
      c. To facilitate tests/inspections.
      d. To provide storage and curing of test samples.
   4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
   5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
   6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

D. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect.

E. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

3.4 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.5 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

ABBREVIATIONS

@ At (the rate of)
& And
" Inch; Ditto (which means "same as above")
Number. or Pound
[circle with diagonal slash through it] Diameter, Round, Phase

A: Area, Ampere; Acre; Alcove; Compressed Air Line
AB: Anchor Bolt; Asbestos Board
ABV: Above
AC: Air Conditioning, Alternating Current, Acoustical
ACC: Access
ACF: Architectural Concrete Finish
ACFL: Access Floor
ACI: American Concrete Institute
ACL: Across the Line
ACOUST: Acoustical
ACPL: Acoustical Plaster
ACR: Acrylic
ACST: Acoustic
ACT: Acoustical Tile; Actual
AD: Access Door, Area Drain
ADA: Americans with Disabilities Act of 1992
ADAAG: Americans with Disabilities Act Architectural Guidelines
ADD: Addendum; Addition
ADDL: Additional
ADH: Adhesive
ADJ: Adjust, Adjustable, Adjacent
AF: Above the Floor
AFF: Above Finished Floor
AGA: American Gas Association
AGG: Aggregate
AGGR: Aggregate
AIA: American Institute of Architects, American Insurance Association
AIC: Amperes Interrupting Circuit
AIEE: American Institute of Electrical Engineers
AISC: American Institute of Steel Construction
AL: Aluminum
ALM: Alarm
ALT: Alternate, Alteration; Altitude
ALUM: Aluminum
ALS: Acrylic Latex Sealant
AMB: Ambient
AMP: Ampere, Ampacity
AMPY: Ampere
AMT: Amount
AN: Anode
ANCH: Anchor, Anchorage
ANN: Annunciator
ANOD: Anodized
ANT: Antenna
AP: Access Panel
APPD: Approved
APPROX: Approximate
APRVD: Approved
APT: Apartment
APX: Approximate
AR: Acid Resisting
ARCH: Architect, Architectural
ARS: Asbestos Roof Shingles
AS: Acoustic Sealant
ASB: Asbestos
ASC: Above Suspended Ceiling
ASCE: American Society of Civil Engineers
ASME: American Society of Mechanical Engineers
ASPH: Asphalt
ASSEM: Assemble
ASSOC: Association; Associate
ASSY: Assembly
ASTM: American Society for Testing and Materials
AT: Acoustical Tile; Asphalt Tile
ATC: Acoustical Tile Ceiling
ATTEN: Attenuation
ATM: Automatic Teller Machine; Atmospheric
AUTH: Authorized
AUTO: Automatic
AVG: Average
AW: Acid Waste
AWG: American Wire Gauge
AWM: Automatic Washing Machine
AWS: American Welding Society
AWWA: American Water Works Association
AX: Axis

B: Boiler, Bathroom, Bidet
B TO B: Back to Back
B & B: Balled and Burlapped, Bell and Bell
B & F: Bell and Flange
B & S: Bell and Spigot, Brown & Sharp
B/: Bottom (of)
BBD: Bulletin Board
BA: Bulb Angle
BAL: Balance, Ballast
BAF: Baffle
BB: Buffalo Box, Ball Bearing,, Bulletin Board
BBL: Barrel

BBLK: BURNISHED CONCRETE BLOCK
BC: Broom Closet
BD: Board, Blow Down (pipe)

BDL: Bundle
BDY: Boundary
BDRM: Bedroom
BEL: Below
BET: Between
BETW: Between
BEV: Bevel
BF: Board Foot, Back Face, Bottom Face, Both Faces, Boiler Feed
BG: Bag (e.g., of cement)
BHP: Brake Horsepower
BHD: Bulkhead
BIT: Bituminous
BJF: Bituminous Joint Filler
BKR: Breaker
BL: Base Line, Building Line, Block
BLDG: Building
BLK: Block
BLKG: Blocking
BLO: Blower
BLR: Boiler
BLT: Borrowed Lite, Bullet Tips (Hinges)
BLT-IN: Built-In
BM: Beam, Bench Mark
BMT: Butyl Mastic Tape Sealant
BN: Bullnose
BNDG: Bending (re-bars)
BNT: Bent
BO: Blow Off
BOT: Bottom
BP: Base Plate, Blueprint, Bypass
BPL: Bearing Plate
BR: Bedroom, Brick, Brass, Boiler Room Branch
BRDG: Bridge, Bridging
BRG: Bearing
BRK: Brick
BRKR: Breaker
BRKT: Bracket
BRS: Butyl Rubber Sealant, Brass
BRZ: Bronze
BRZG: Brazing
BS: Both Sides, Backset, Bluestone
BSMT: Basement
BT: Bathtub, Bolt
BTR: Better
BTU: British Thermal Units
BTUH: British Thermal Units per Hour
BUR: Built-up Roof
BUZ: Buzzer
BV: Butterfly Valve
BVL: Bevelled
BW: Both Ways
BWV: Back Water Valve
BYP: By Pass

C: Courses, Curb, Channel, Degrees Celsius, Clock Outlet, Calcimine
C/C: Center to Center
C TO C: Center to Center
CA: Compressed Air
CAB: Cabinet
CAD: Cadmium, Computer-Aided Drafting
CAIS: Caisson
CAP: Capacity
CAR: Carpet
CARP: Carpenter
CAT: Catalog
CAV: Cavity
CB: Catch Basin, Concrete Block, Cast Brass, Coal Bin
CBL: Concrete Block
CBX: Cast Box Strike
CC: Cubic Centimeter
CCT: Circuit
CCW: Counter Clockwise
CCTV: Closed Circuit TV
CD: Cold Drawn, Cadmium
CDS: Cold Drawn Steel
CEL: Cellar
CEM: Cement
CEM AB: Cement Asbestos Board
Cem P: Cement Water Paint
CER: Ceramic
CF: Cubic Feet
CFL: Counterflashing
CFM: Cubic Feet per Minute
CFS: Cubic Feet per Second
CFT: Cubic Foot
CG: Corner Guard
CH: Coat Hook
CHB: Chalk Board
CHR: Chilled Water Return
CHAM: Chamfer
CHAN: Channel
CHBD: Chalkboard
CHS: Chilled Water Supply
C.I.: Cast Iron
CI: Cast Iron
CIN BL: Cinder Block
CIP: Cast Iron Pipe, Cast-in-Place
CIR: Circle, Circular, Circuit
CIRC: Circumference
CISP: Cast Iron Soil/sewer Pipe
CITG: Clear Insulating Tempered Glass
CJ: Control Joint
CJF: Cork Joint Filler
CK: Caulking
CKT: Circuit
CL: Centerline, Clearance, Closing, Closure, Class, Closet
CLG: Ceiling
CLKG: Caulking

CLH: Clothes Line Hook
CLL: Contract Limit Line
CLO: Closet
CLP: Clamp
CLR: Clear
CLR OPG: Clear Opening
CLS: Closure
CM: Circular Mil (1/1000 inch), Center Matched
CMP: Corrugated Metal Pipe
CMT: Ceramic Mosaic Tile
CMU: Concrete Masonry Unit
CMUP: Concrete Masonry Unit Painted
CND: Condition, Conduit
CNDS: Condensate
CNTR: Center, Counter
CNVR: Conveyor
COAX: Coaxial
C.O.: Cased Opening
CO: Company, Cleanout, Cased Opening, Cut Out
COD: Cleanout Door
CO & DP: Cleanout & Deck Plate
COEF: Coefficient
COL: Column
COM: Common
COMB: Combination, Combustion
COML: Commercial
COMM ED: Commonwealth Edison
COMP: Composition, Compressed
COMPO: Composition
COMPT: Compartment
CON: Construction
CONC: Concrete
CONCP: Concrete Painted
COND: Condenser, Conduit
CONN: Connection
CONST: Construction
CONSTR: Construction
CONT: Continuous, Continue, Control
CONTR: Contractor
CONV: Convector, Convenience
COP: Copper
COR: Corner, Corridor
CORR: Corridor, Corrugate
COV: Cover
CP: Cathodic Protection, Clothes Pole, Cesspool
CPE: Chlorinated Polyethylene
CPL: Cement Plaster
CPP: Cement Plaster Painted
CPR: Copper
CPT: Carpet
CR: Chromium (plated), Curtain Rod
CRPT: Carpet
CRS: Course, Cold Rolled Steel
CS: Countersink, Cast Steel, Cast Stone, Commercial Standard
CSG: Casing
CSK: Countersink
CSMT: Casement
CSN: Caisson
CSS: Countersunk Screw
CSTG: Casting
CT: Ceramic Tile, Cork Tile, Cone Tip (hinges)
CTD: Coated
CTR: Center, Counter
CTSC: Communications Systems Terminal Cabinet
CTSK: Countersunk
CTWT: Counterweight
CU: Copper, Cubic, Coefficient of Utilization
CU. FT.: Cubic Feet
CU. YD.: Cubic Yard
CUR: Current
CV: Check Valve
CW: Clockwise, Cold Water
CWP: Circulating Water Pump
CWR: Condensate Waste Return
CWS: Condensate Waste Supply
CY: Cubic Yard, Cycle
CYL: Cylinder
CYL L: Cylinder Lock

D: Deep, Depth, Drop, Drain
D & M: Dressed & Matched
DA: Double Acting
DB: Decibel
DBL: Double
DBT: Drybulb Temperature
DC: Direct Current
DCV: Detector Check Valve
DD: Driveway Drain, Deck Drain
DEG: Degree
DEGC: Degree Celcius
DEGF: Degree Farenheit
DEM: Demolish
DEMO: Demolition
DEP: Dpressed
DEPT: Department
DET: Detail
DF: Drinking Fountain
DH: Double Hung
DIAG: Diagonal
DIA: Diameter
DIAM: Diameter
DIFF: Diffuser
DIM: Dimension
DISL: Disposal
DISP: Dispenser
DIV: Division
DL: Dead Load

DMH: Drop Manhole
DMT: Demountable
DN: Down
DO: Ditto, or Door Opening
DP: Dampproofing, Dew Point, Distribution Panel
DPDT: Double Pole Double Throw
DPST: Double Pole Single Throw
DPR: Damper
DR: Door, Drain, Dining Room
DRBD: Drainboard
DS: Downspout, Disconnect Switch, Door Switch
DSP: Dry Standpipe
DT: Drain Tile
DTL: Detail
DVTL: Dovetail
DW: Dumbwaiter, Distilled Water
DWG: Drawing
DWGS: Drawings
DWL: Dowel
DWP: Drywall, Painted
DWR: Drawer
DS: Downspout
DSP: Dry Standpipe
DX: Direct Expansion, Duplex

E: East, Enamel, Exhaust
E TO E: End to End
EA: Each
EB: Expansion Bolt
EC: Exposed Construction
ECC: Eccentric
ECP: Exposed Construction Painted
EDR: Equivalent Direct Radiation
EE: Each End
EF: Each Face
EFTS: Expanding Foam Tape Sealant
EG: Edge Grain
EIFS: Exterior Insulation and Finish System
EJ: Expansion Joint
EJECT: Ejector
EL: Elevation, Elevator
ELB: Elbow
ELEC: Electrical
ELECT: Electrical
ELEV: Elevator, Elevation
ELP: Emergency Lighting Panel
EM: Emergency
EMER: Emergency
ENAM: Enamel
ENCL: Enclosure
ENG: Engineer
ENGR: Engineer
ENJF: Expanded Neoprene Joint Filler
ENT: Entrance
ENTR: Entrance
EP: Electrical Panelboard, Explosion Proof
EPDM: Ethylene Propylene Diene Monomer
EPJF: Expanded Polyethelene Joint Filler
EQ: Equal
EQP: Equipment
EQPT: Equipment
EQUIP: Equipment
ERP: Emergency Receptacle Panel
ESC: Escalator
EST: Estimate
EVAP: Evaporator
EW: Each Way
EWC: Electric Water Cooler
EW & C: Electric Wiring and Communication
EWH: Electric Water Heater
EX: Exposed Construction, Exit, Existing
EXC: Excavate
EXCAV: Excavate
EXEC: Executive
EXG: Existing
EXH: Exhaust
EXH AIR: Exhaust Air
EXIST: Existing
EXP: Expansion, Exposed
EXPN: Expansion
EXPP: Existing Patched and Painted
EXS: Extra Strong
EXT: Exterior, Extinguish
EXTR: Extrude

F: Degrees Fahrenheit, Fuse
F TO F: Face to Face
FA: Fire Alarm, Fresh Air
FAB: Fabricate
FABR: Fabricate
FACP: Fire Alarm Control Panel
FAG: Fire Alarm Gong
FAO: Finish All Over
FAR: Floor Area Ratio
FAST: Fastener, Fasten
FB: Flat Bar, Face Brick, Floor Box
FBD: Fiberboard
FBM: Foot Board Measure
FBP: Fabric Panel
FBRK: Fire Brick
FC: File Cabinet, Foot Candle, Fault Current
FD: Floor drain
FDC: Fire Department Connection
FDN: Foundation
FDTN: Foundation
FE: Fire Extinguisher
FEC: Fire Extinguisher Cabinet
FF: Far Face, Finished Floor, Factory Finish
FFE: Finished Floor Elevation
FF&E: Fixtures, Furnishings & Equipment

FFL: Finished Floor Line
FGL: Fiberglass
FGR: Fiberglass reinforced
FH: Flat Head, Fire Hose
FHC: Fire Hose Cabinet
FHMS: Flat head machine screw
FHR: Fire Hose Rack
FHS: Fire Hose Station
FHWS: Flat Head Wood Screw
FHY: Fire Hydrant
FIL: Fillet
FIN: Finish, finished
FITG: Fitting
FIX: Fixture
FIXT: Fixture
FL: Floor, Fire Line
FLASH: Flashing
FLG: Flooring
FLEX: Flexible
FLG: Flange, Flashing, Flooring
FLR: Floor
FLUOR: Fluorescent
FLX: Flexible
FM: Fire Main, Factory Mutual Company
FND: Feminine Napkin Dispenser, Foundation
FO: Finished Opening
FOB: Free On Board
FOC: Face of Concrete
FOF: Face of Finish
FOS: Face of Studs
FP: Fireproof
FPL: Fireplace
FPM: Feet per minute
FPRF: Fireproof
FPS: Feet per Second
FR: Frame, Front, Fire Riser
FRG: Forged
FRM: Frame
FRPF: Fireproof
FRT: Fire Retardant
FS: Full Size, Far Side, Federal Standards, Fused Switch, Floor Sink
FSCW: Flush Solid Core Wood
FT: Foot, Feet, Fully Tempered
FTG: Footing, Fitting
FUR: Furred
FURN: Furnish, Furniture
FURR: Furring
FUT: Future
FVC: Fire Valve Cabinet

G: Gas, Girder, Gutter, Gram
GA: Gauge, Gage
GAGE: Gauge
GAL: Gallon
GALV: Galvanized
GB: Grab Bar, Glass Block, Gypsum Board
GC: General Contractor
GCMU: Glazed Concrete Masonry Unit
GD: Guard, Grade, Gutter Drain
GEN: General, Generator
GENL: General
GF: Ground Face
GFCI: Ground Fault Circuit Interrupted
GFI: Ground Fault Interrupted
GFRC: Glass Fiber Reinforced Concrete
GI: Galvanized Iron
GKT: Gasket
GL: Glass
GL BLK: Glass Block
GLB: Glass Block
GLVA: Globe Valve
GLZ: Glaze
GMU: Glazed Masonry Unit
GND: Ground
GOVT: Government
GP: Galvanized Pipe
GPDW: Gypsum Drywall
GPH: Gallons Per Hour
GPL: Gypsum Lath
GPM: Gallons Per Minute
GPP: Gypsum Plaster Painted
GPPL: Gypsum Plaster
GPS: Gallons Per Second
GR: Grade, Grille, Granite
GRAN: Granular, Granite
GRND: Ground
GRTG: Grating
GSS: Galvanized Sheet Steel
GSU: Glazed Structural Unit
GT: Grout
GV: Galvanized
GVA: Gate Valve
GVL: Gravel
GYP: Gypsum
GYP BD: Gypsum Board

H: High
HA: Hectare
HB: Hose Bib
HBD: Hardboard
HC: Hollow Core, Handicapped (better called Accessible")
HCT: Hollow Clay Tile
HD: Head, Heavy Duty
HDCP: Handicapped (better called "Accessible")
HDN: Harden
HDR: Header
HDW: Hardware
HDWD: Hardwood
HDWE: Hardware
HEX: Hexagonal

HGR: Hanger
HGT: Height
HH: Handhole
HHMB: Hex Head Machine Bolt
HID: High Intensity Discharge
HK: Hook or Hooks
HKD: Hooked (re-bars)
HL: Hydrant Line
HM: Hollow Metal
HMP: Hollow Metal, Painted
HNCG: Hollow Neoprene Compression Gasket
HOR: Horizontal
HORIZ: Horizontal
HOSP: Hospital
HP: High Point, High Pressure, Horse Power
HPS: High Pressure Sodium, High Pressure Steam
HR: Hour
HRS: Hot Rolled Steel, Hours
HS: Heat Strengthened
HSG: Housing
HT: Height, Heat, High Tension Duct
HTG: Heating
HTR: Heater
HTW: High Temperature Water
HV: High Voltage
HVAC: Heating, Ventilating & Air Conditioning
HVY: Heavy
HW: Hot Water, Heavy Wall
HWC: Hot Water Circulating, Heavy Wall Conduit
HWD: Hardwood
HWH: Hot Water Heater
HWR: Hot Water Recirculating Return
HWS: Hot Water Supply
HWY: Highway
HYD: Hydraulic
HYDRO: Hydrostatic
HZ: Hertz (Cycles Per Second)

I: Iron, Current (electrical)
IBV: Indicating Butterfly Valve
IC: Interrupting Capacity
ID: Inside Diameter
IE: Invert Elevation
ILK: Interlock
IMH: Inlet Manhole
IN: Inch
INC: Incandescent
INCAND: Incandescent
INCIN: Incinerator
INCL: Incline, Include
INCR: Increase
INFO: Information
INS: Insulate, Insulation
INSP: Inspect
INSTL: Install
INSUL: Insulation
INT: Interior, Internal
INTERM: Intermediate
INTM: Intermediate
INV: Invert
IP: Iron Pipe
IPS: Iron Pipe Size
IW: Indirect Waste
IWB: Interactive White Board

J: Joist
J-BOX: Junction Box
JAN: Janitor
JB: Junction Box
JC: Janitor's Closet
JCT: Junction
JF: Joint Filler
JST: Joist
JT: Joint

K: Kilopound (1000 pounds), Kelvin (temperature)
KAL: Kalamein
KCP: Keene's Cement Plaster
KG: Kilogram
KIP: Kilopound (1000 pounds)
KIT: Kitchen
KM: Kilometer
KO: Knockout
KP: Kickplate
KPL: Kickplate
KS: Kitchen Sink
KVA: Kilovolt-Ampere
KW: Kilowatt
KWH: Kilowatt Hour
KWHR: Kilowatt Hour

L: Angle, Left, Length, Lighting Panel, Long, Line
LA: Landscape Architect, Lightning Arrester
LAB: Laboratory, Labor
LAD: Ladder
LAM: Laminate, Laminated
LAT: Lateral
LAV: Lavatory
LB: Pound (weight), Lag Bolt
LBL: Label
LBR: Lumber
LC: Light Control, Lead Covered
LCD: Liquid Crystal Diode
LCL: Linen Closet
LCM: Lead Coated Metal
LD: Leader Drain
LH: Left Hand

LIB: Library
LIBR: Library
LIN: Linear
LINO: Linoleum
LIQ: Liquid
LKR: Locker
LL: Live Load
LMS: Limestone
LN: Length
LNDG: Landing
LNTL: Lintel
LOC: Locate
LOCS: Locations
LP: Low Point, Low Pressure, Lighting Panel, Light Proof
LPS: Low Pressure Sodium, Low Pressure Steam
LR: Living Room
LS: Limestone, Loud Speaker
LT: Light, Low Tension Duct, Laundry Tray
LTG: Lighting
LTL: Lintel
LT WT: Lightweight
LV: Low Voltage
LVR: Louver
LW: Light Weight
LWC: Light Weight Concrete
LWDP: Louvered Wood Door, Painted

M: Meter, Motor, Thousand (brick), Bending Moment
MACH: Machine
MAINT: Maintenance
MAN; Manual
MAR: Marble
MARB: Marble
MAS: Masonry
MAT: Material
MATL: Material
MAX: Maximum
MB: Mail Box, Machine Bolt, Mop Basin
MC: Medicine Cabinet, Mineral Core
MCC: Motor Control Center
MCM: Thousand Circular Mils (electrical wire size)
ME: Mechanical Engineer
MECH: Mechanical
MED: Medium
MED CAB: Medicine Cabinet
MEMB: Membrane
MERC: Mercury Vapor
MET: Metal
MEZZ: Mezzanine
MFD: Manufactured, Metal Floor Deck
MFG: Manufacturer, Manufacturing
MFR: Manufacture, Manufacturer
MH: Manhole
MHO: Magnetic Hold-Open
MI: Malleable Iron, Miles
MIKE: Microphone
MIN: Minimum
MIR: Mirror
MISC: Miscellaneous
MK: Mark
ML&P: Metal Lath & Plaster
MLD: Molding
MLDG: Molding
MM: Millimeter
MMB: Membrane
MO: Masonry Opening
MOD: Module
MONO: Monolithic
MOV: Movable
MP: Metal Acoustal Panel
MPS: Medium Pressure Steam
MR: Mop Receptor
MRD: Metal Roof Deck
MT: Mount, Mounted
MTD: Mounted
MTL: Material, Metal
MTR: Motor
MUL: Mullion
MULL: Mullion
MV: Mercury Vapor
MWP: Maximum Working Pressure
MWK: Millwork

N: North, Nitrogen
NAP: Napkin
NAT: Natural
NATL: Natural
NB: "Nota Bene" Latin phrase for "Take Special Note"
NC: Normally Closed, Noise Criteria
NEC: National Electrical Code
NEUT: Neutral
NF: Near Face
NFWH: Non-freeze Wall Hydrant
NI: Nickel
NIC: Not In Contract
NK: Neck
NMT: Non-Metallic
NO: Number, Normally Open
NOM: Nominal
NR: Noise Reduction
NRC: Noise Reduction Coefficient
NRP: Non-Removable Pin
NRS: Non Rising Steam Valve
NS: Near Side
NTS: Not To Scale

O: Oxygen
O TO O: Out to Out
OA: Outside Air, Overall
OB: Obscure
OBS: Obscure
OC: On Center
OD: Outside Diameter
OF: Outside Face
OFF: Office
OH: Overhead
OHD: Overhead Door
OHMS: Oval Head Machine Screw
OHWS: Oval Head Wood Screw
OI: Ornamental Iron
OP: Opaque
OPG: Opening
OPNG: Opening
OPP: Opposite
OPP H: Opposite Hand
OR: Outside Radius
ORN: Ornamental
OSD Open Sight Drain
OS&Y: Outside Screw & Yoke (valve)
OUT: Outlet
OVFL: Overflow
OW: Open Waste
OZ: Ounce

P. CONC.: Polished Concrete
P: Pitch, Power Panel, Paint
P. LAM: Plastic Laminate
P SL: Pipe Sleeve
PA: Public Address
PAF: Powder Actuated Fasteners
PAR: Parallel
PARTN: Partition
PASS: Passage, Passenger
PB: Pull Box, Push Button, Panic Bar
PBD: Particle Board
PBMT: Preshimmed Butyl Mastic Sealant Tape
PB STA: Push Button Station
PC: Pull Chain, Piece, Precast Concrete
PCF: Pounds per cubic foot
PCPL: Portland Cement Plaster
PD: Pump Discharge, Plaza Drain
PDP: Paneled Door, Painted
PE: Porcelain Enamel, Professional Engineer
PED: Pedestal, Pedestrian
PERF: Perforate, Performance
PERIM: Perimeter
PERP: Perpendicular
PFN: Prefinished
PG: Pressure Gauge
PH: Phase, Preheat, Phone
PIV: Pivoted, Post Indicator Valve
PJF: Preformed Joint Filler
PKG: Parking
PKWY: Parkway
PL: Plate, Plan, Property Line, Plastic Laminate, Plastic
PLAS: Plaster, Plastic
PLAS LAM: Plastic Laminate
PLBG: Plumbing
PLF: Pounds Per Lineal Foot
PLG: Plumbing
PLMBG: Plumbing
PLTF: Platform
PLWD: Plywood
PLYWD: Plywood
PLUMB: Plumbing
PNEU: Pneumatic
PNL: Panel
PNT: Paint
POL: Polish, Polished
PORC: Porcelain
PORT: Portable
POT W: Potable Water
PP: Plaster, Painted, Power Panel, Precast Panel
PR: Pair
PRC: Precast
PRCST: Precast
PRE: Prefinished
PREFAB: Prefabricated
PRES: Pressure
PRESS: Pressure
PRF: Preformed
PRFMD: Preformed
PRI: Primary
PRMLD: Premolded
PROT: Protection, Protective
PRSTR: Prestressed
PRTN: Partition
PRV: Pressure Reducing Valve
PS: Plumbing Stack
PSC: Prestressed Concrete
PSF: Pounds per square foot
PSI: Pounds per square inch
PSIG: Pounds per square inch gage
PT: Paint, Point, Part, Potential Transformer
PTC: Post-Tensioned Concrete
PTD: Painted, Paper Towel Dispenser
PTD/R: Combination Paper Towel Dispenser/Receptacle
PTN: Partition
PTR: Paper Towel Receptacle
PV: Paving
PVC: Polyvinyl Chloride
PVF: Polyvinylidene Finish
PVG: Paving
PVMT: Pavement
PVT: Private

PW: Pass Window
PWR: Power

QUAL: Quality
QUANT: Quantity
QT: Quarry Tile, Quart
QTR: Quarter
QTY: Quantity

R: Riser, Radius, Resistance, Relay Panel
R & S: Rod and Shelf
RA: Return Air, Registered Architect
RAD: Radius, Radiator
RADN: Radian
RB: Rubber, Rubber Base, Resilient Base
RBC: Rubber Base (Coved), Rubberized Bituminous Compound
RBS: Rubber Base (Straight)
RBT: Rabbet
RCF: Raised Computer Floor
RCP: Reflected Ceiling Plan, Reinforced Concrete Pipe
RD: Roof Drain, Round, Receptacle Distribution Panel
REBAR: Reinforcing Bar
REC: Receiver
RECEP: Receptacle
RECP: Receptacle
RED: Reducer
REF: Refer, Reference, Refrigerator
REFL: Reflected, Reflector
REFR: Refrigerate, Refrigerator
REG: Register, Regular
REINF: Reinforcement, or Reinforce
REM: Remove, Removable
REQ: Require, Required
REQD: Required
RES: Resilient
RESIL: Resilient
REST: Resistance
RET: Return, Retaining
RETG: Retaining
REV: Reverse, Revise, Revision
REV DR: Revolving Door
RF: Roof
RFG: Roofing
RGTR: Register
RGH: Rough
RGH OPNG:Rough Opening
RH: Right Hand, Reheat, Relative Humidity
RHC: Reheat Coil
RHMS: Round Head Machine Screw
RHR: Right Hand Reverse, Reheater
RHWS: Round Head Wood Screw
RL: Roof Ladder
RM: Room
RMV: Remove
RN: Riser Nipple
RO: Rough Opening
ROB: Rod Out Basin
ROW: Right of Way
RPM: Revolutions Per Minute
RPT: Repeat (like "Ditto")
RR: Railroad
RT: Rubber Tile, Right
RTR/RR Rubber Tread/Rubber Riser
RVS: Reverse Side
RVT: Rivet
RW: Redwood
RWC: Rain Water Conductor
RWD: Redwood
RWL: Rain Water Leader

S: South, Sealant, Supply, Sink
S4S: Surfaced 4 Sides
S&M: Surfaced & Matched
S&S: Stained & Sealed
S&V: Stain & Varnish
SACT: Suspended Acoustical Tile
SALV: Salvage
SAN: Sanitary
SB: Setting Basin, Splash Block
SC: Solid Core, Short Circuit, Self Closing, Sill Cock
SCD: Seat Cover Dispenser
SCFT: Structural Clay Facing Tile
SCH: Schedule
SCHED: Schedule
SCR: Screen
SCUP: Scupper
SCWD: Solid Core Wood
SD: Soap Dispenser
SE: Structural Engineer
SEAL: Sealant
SEC: Second, Section, Secondary, Security System
SECT: Section
SECY: Secretary
SED: Sewage Ejector Discharge
SEL: Select
SERV: Service
SEV: Sewage Ejector Vent
SF: Square Foot
SFGL: Safety Glass
SGG: Structural Glazing Gasket
SGS: Silicone Glazing Sealant
SH: Shelf, Sheet, Shower
SHR: Shower
SHT: Sheet
SHTH: Sheathing
SHTHG: Sheathing
SHWR: Shower

SIG: Signal
SIM: Similar
SJS: Silicone Joint Sealant
SK: Sink
SKL: Skylight
SL: Siamese Line
SLOT: Slotted
SLV: Sleeve
SND: Sanitary Napkin Dispenser
SNGG: Sponge Neoprene Glazing Gasket
SNR: Sanitary Napkin Receptacle
SNT: Sealant
SP: Soil Pipe, Standpipe, Soundproof, Single Pole
SPC: Spacer
SPD: Sump Pump Discharge
SPDT: Single Pole Double Throw
SPEC: Specification, Specifications
SPECS: Specifications
SPK: Speaker
SPL: Special
SPLR: Sprinkler
SPM: Sprinkler Main
SPP: Skim Coat Plaster Painted
SPST: Single Pole Single Throw
SQ: Square
SS: Stainless Steel, Set Screw, Soil Stack, Service Sink, Slop Sink
SSD: Sub-soil Drain
SSGS: Silicone Structural Glazing Sealant
SSK: Service Sink
SSS: Silicone Sanitary Sealant
SST: Stainless Steel
ST: Straight, Storm Water
STA: Station
STC: Sound Transmission Class
STD: Standard
STG: Storage, Seating
STGG: Structural Glazing Gasket
STGR: Stagger
STIFF: Stiffener
STK: Stack
STL: Steel
STM: Steam
STO: Storage
STOR: Storage
STP: Standard Temperature & Pressure, Standpipe
STR: Straight (re-bars), Strainer, Structural, Starter
STRL: Structural
STRT: Straight
STRUC: Structural
STRUCT: Structural
ST W: Storm Water
STWY: Stairway
SUCT: Suction
SUPP: Supplementary, Supplement
SUPT: Superintendent
SUR: Surface
SUSP: Suspended, Suspend
SV: Safety Relief Valve
SW: Switch
SWBD: Switchboard
SWGR: Switchgear
SY: Square Yard
SYM: Symmetrical
SYN: Synthetic
SYS: System

T: Tread, Thermostat, Tee
T/: Top
T&B: Top and Bottom
T&G: Tongue & Groove
T&P: Temperature & Pressure Relief Valve
TAN: Tangent
TB: Towel Bar
TC: Top of Curb, Terracotta
TCLO: Telephone Closet
TCS: Terne Coated Stainless Steel
TD: Trench Drain
TEL: Telephone
TEL CL: Telephone Closet
TEMP: Temporary, Tempered, Temperature
TEN: Tenant
TER: Terrazzo
TERR: Terrazzo
TERM: Terminal
TGL: Toggle
TH: Thermostat
THK: Thick, Thickness
THKNS: Thickness
THR: Threshold
THRESH: Threshold
THRM: Thermal
THRMST: Thermostat
THRU: Through
TKBD: Tackboard
TL: Twist Lock (receptacle)
TLT: Toilet
TOL: Tolerance
TP: Top of Pavement
TPD: Toilet paper Dispenser
TPH: Toilet Paper Holder
TPTN: Toilet Partition
TR: Tread, Transom
TRANS: Transformer, Translucent
TRAV: Travertine
TRD: Tread
TS: Time Switch
TSL: Top of Slab
TST: Top of Steel
TSTAT: Thermostat

TT: Terrazzo Tile, Traffic Topping
TTC: Telephone Terminal Closet
TV: Television
TW: Top of Wall, Thin Wall (conduit), Tempered Water
TYP: Typical
TZ: Terrazzo

UC: Undercut
UH: Unit Heater
UL: Underwriters' Laboratories
UNEX: Unexcavated
UNEXC: Unexcavated
UNF: Unfinished
UNFIN: Unfinished
UNO: Unless Noted Otherwise
UON: Unless Otherwise Noted
UP: Unpainted
UR: Urinal
USG: United States Gauge, United States Gypsum Company
USS: United States Standard
UT: Utility

V: Volt, Valve, Vinyl, Vent, Ventilator
VA: Volt Ampere
VAC: Vacuum
VACBR: Vacuum Breaker
VAR: Varnish, Varies
VAT: Vinyl Asbestos Tile
VB: Vapor Barrier, Valve Box, Vinyl Base, Vacuum Breaker
VBC: Vinyl Base (Coved)
VBS: Vinyl Base (Straight)
VC: Varnished Cambric
VCP: Vitrified Clay Pipe
VCT: Vinyl Composition Tile
VENT: Ventilate, Ventilator
VERT: Vertical
VEST: Vestibule
VF: Vinyl Fabric
VFGT: Vinyl Foam Glazing Tape
VIF: Verify In the Field
VIN: Vinyl
VIT: Vitreous
VLT: Vault
VNR: Veneer
VOL: Volume
VP: Vapor Proof, Vent Pipe
VR: Vapor Retarder, Vacuum Return, Vertical Riser
VRM: Vermiculite
VS: Vent Stack
VT: Vinyl Tile
VTR: Vent Through Roof
VWC: Vinyl Wall Covering

W: West, Width, Wide, Watt, Waste, Water, Water Main
W/: With
W/O: Without
W&M: Washburn & Moen Gauge
WAINS: Wainscot
WB: Wood Base
WC: Watercloset
WD: Wood
WDP: Wood, Painted
WDSS: Wood, Stained & Sealed
WDW: Window
WF: Wide Flange (structural steel)
WFS: Water Flow Switch
WG: Wired Glass
WGL: Wire-Glass
WH: Water Heater, Wall Hung, Wall Hydrant
WI: Wrought Iron
WIN: Window
WM: Wire Mesh, Water Meter
WP: Waterproof, Working Point, Working Pressure, Weatherproof
WPR: Waterproofing
WPT: Working Point
WR: Water Resistant, Water Repellant, Waste Receptacle
WRSTP: Weatherstripping
WS: Weatherstripping, Water Stop
WSCT: Wainscot
WT: Weight, Water Table, Watertight
WVNR: Wood Veneer
WW: Window Wall
WWF: Welded Wire Fabric

XH: Extra Heavy
X HVY: Extra Heavy
X STR: Extra Strong

YD: Yard
YR: Year

END OF ABBREVIATIONS

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Temporary utilities.

B. Temporary Heating and Ventilation

C. Temporary telecommunications services.

D. Temporary sanitary facilities.

E. Barriers, enclosures, and fencing.

F. Security requirements.

G. Vehicular access and parking.

H. Waste removal facilities and services.

I. Field offices

1.2 RELATED REQUIREMENTS

A. Section 01 1000 Summary of Work: Contractor use of premises

1.3 QUALITY ASSURANCE

A. Comply with industry standards and applicable laws and regulations of authorities having jurisdiction.

1.4 TEMPORARY UTILITIES

A. Electrical power is available in the space for light service. Welders and other large equipment shall be run from generators at Contractors own expense. Contractor shall make immediate repairs of any damage to the electrical system resulting from this use. Contractor to provide and pay for all other electrical power, lighting, water, gas, heating and cooling, and ventilation required for construction purposes.

B. At no time during the course of construction may existing services or utilities be compromised or eliminated for any duration except as expressly permitted on an individual basis by the Owner. Requests for temporary shut-down of services must be presented a minimum of 72 hours prior to the event. For all shut-downs during operating hours and where deemed necessary by the Owner, alternate services are to be provided at the expense of the Contractor.

C. New permanent facilities may not be used for construction related activities.

1.5 TEMPORARY HEATING AND VENTILATION

A. Contractor shall ventilate all Work areas as necessary to eliminate excessive dust, humidity and condensation. Power ventilation using temporary equipment, temporary ducts, etc. as necessary to provide a physical environment suitable to installation of all required materials and systems. Contractor shall protect Owner's systems from dust and damage.

B. Existing firm gas may be used provided that the Contractor works with the utility provider to determine that there is sufficient capacity without compromising the building during times of most extreme need. If conditions allow the Contractor access to firm gas, the Contractor is to provide a meter at their own expense and pay for the gas and all costs related to set-up and use.

1.6 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

B. Telecommunications services shall include:
   1. Personal computer dedicated to project telecommunications, with necessary software and printer.
   3. Internet Connections: Minimum of one.
   4. Email: Account/address reserved for project or Project Superintendent use.

1.7 TEMPORARY SANITARY FACILITIES

A. Existing facilities within the space may be used as long as it is maintained in clean, undamaged condition. Restrooms shall be cleaned on a weekly basis or more depending on need. Any damage is to be repaired immediately by the Contractor.

B. Maintain in clean and sanitary condition.

1.8 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
   1. Provide a 8-foot minimum high chain link fence with support posts at 10 foot maximum spacing around exterior areas used for construction and/or storage of materials or equipment.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way, for egress from the existing building and for public access to/from existing building.
   1. Provide a clear path and a gate with code compliant exit device through construction site/fence as required by Owner and/or local governing authority if necessary to maintain code-required access/egress.

C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

D. The Contractor shall at all times provide safe and satisfactory means for the workers, the Architect/Engineer and Owner's inspection of the work. The Contractor shall cover or enclose all openings through floor slabs, etc. with a railing.

1.9 EXISTING BUILDING EGRESS

A. The existing building will be occupied throughout the Project duration. Life-safety and exiting systems must be maintained throughout the duration of the Project. If Work is to take place near required exit doors, full egress must be maintained as required based on the Occupancy of the building during times of that portion of the Work.

B. The drawings may indicate certain walls, doors and other items to be provided to aid with protection of occupied spaces and egress. These are not intended to be comprehensive of all barrier and egress protection required. All means of protecting existing spaces and allowing for egress must be confirmed with the authorities having jurisdiction over the project, and any additional efforts required by these authorities must be included in the work.

1.10 CONTINUITY OF UTILITY SERVICES

A. Except as specifically identified in Divisions 22 – 26 of the Project Manual, the Work shall be executed in such a way as to maintain uncompromised continuity of all utility services to all parts of the existing building and property.

1.11 INTERIOR ENCLOSURES

A. Provide temporary closures as required to separate work areas from areas outside the project limits, to prevent penetration of dust and moisture into areas outside the project limits, and to prevent damage to existing materials and equipment.

B. Construction: Stud framing with gypsum board on each side and full depth batt insulation. Provide closed joints and sealed edges at intersections with existing surfaces:

1. STC rating of 35 in accordance with ASTM E90.
2. Maximum flame spread rating of 75 in accordance with ASTM E84.

1.12 SECURITY

A. Provide security and facilities to protect Work, and Owner's operations from unauthorized entry, vandalism, or theft.

B. Coordinate with Owner's security program.

1.13 VEHICULAR ACCESS AND PARKING

A. Coordinate access and haul routes with Owner.

B. Provide and maintain access to fire hydrants, free of obstructions.

C. Coordinate parking areas to accommodate construction personnel. Construction personnel shall not park within 100 feet of a mall entrance.

1.14 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Dumpsters will not be allowed on the street or Main Entry side of the building. All dumpsters are to be positioned to the side or rear of the building. Provide containers with lids. Remove trash from site periodically.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

1.15 MAINTENANCE OF CONSTRUCTION AREA

A. Maintain the construction site and project area to prevent the impact of weather. Snow removal and other maintenance needs within the project area and construction site are the responsibility of the Contractor.

1.16 NOT USED

1.17 FIELD OFFICES

A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack and drawing display table.

B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.

C. A temporary enclosure shall be used to store materials subject to damage or theft and shall be kept locked.

1.18 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore new permanent facilities used during construction to specified condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. General product requirements.

B. Existing products.

C. Transportation, handling, storage and protection.

D. Product option requirements.

E. Substitution limitations and procedures.

F. Maintenance materials, including extra materials, spare parts, tools, and software.

1.2 RELATED REQUIREMENTS

A. Document 00 7300 - Supplementary Conditions: Substitution of Materials - Product options and substitution procedures prior to bid date.\

1.3 REFERENCE STANDARDS

A. GreenSeal GS-36 - Commercial Adhesives; Green Seal, Inc.; 2000.

B. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.4 SUBMITTALS

A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.1 EXISTING PRODUCTS

A. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

B. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

C. Specific Products to be Reused: The reuse of certain materials and equipment already existing on the project site is encouraged.
   1. See Section 01 1000 for list of items required to be salvaged for reuse and relocation.
   2. If reuse of other existing materials or equipment is desired, submit substitution request.

2.2 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

B. Do not use products having any of the following characteristics:
   1. Made outside the United States, its territories, Canada, or Mexico.
   2. Made using or containing CFC's or HCFC's.
   3. Product or shipping containers knowingly containing asbestos.

C. Where all other criteria are met, Contractor shall give preference to products that:
   1. Are extracted, harvested, and/or manufactured closer to the location of the project.
   2. Have longer documented life span under normal use.
   3. Result in less construction waste.

E. Urea-Formaldehyde Prohibition:
   1. Overall Project Requirement: Provide composite wood and agrifiber products having no added urea-formaldehyde resins.
      a. Require each installer to certify compliance and submit product data showing product content.
   2. Specific Product Categories: Comply with limitations specified elsewhere.

F. Adhesives and Joint Sealants:
   1. Definition: This provision applies to gunnable, trowelable, and liquid-applied adhesives, sealants, and sealant primers used anywhere on the interior of the building inside the weather barrier, including duct sealers.
   2. Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.
      a. Require each installer to certify compliance and submit product data showing product content.
   3. Specific Product Categories: Comply with limitations specified elsewhere.

G. Aerosol Adhesives:
   1. Provide only products having lower volatile organic compound (VOC) content than required by GreenSeal GS-36.
      a. Require each installer to certify compliance and submit product data showing product content.
   2. Specific Product Categories: Comply with limitations specified elsewhere.

2.3 PRODUCT OPTIONS

A. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

B. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.4 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.1 SUBSTITUTION PROCEDURES

A. Architect will consider requests for substitutions only within 30 days after date of Agreement.

B. Substitutions after award of contract may be considered only when a product becomes unavailable through no fault of the Contractor.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

D. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.
   5. Will reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Whenever any article or any material is specified by a reference to a name of any manufacturer or dealer, or by specific reference to catalogues of any manufacture or dealer, intent is to establish a standard of excellence which the Architect/Engineer and Owner have determined upon as requisite and necessary for this project, and subject only therefore to such modifications as the Architect/Engineer and Owner may make in accordance with the procedure given in this article. It is therefore mandatory and binding upon bidders to abide within the limits of the restrictions imposed.

G. Where words "or equal", "as selected", "approved", "approved make", "alternate", or other synonymous terms are used in reference to material, quality, methods or apparatus in lieu of or in addition to other specific references, it is to be distinctly understood that approval of any such substitutions is vested in the Architect/Engineer whose decision shall be final.

3.2 TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.3 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

G. Prevent contact with material that may cause corrosion, discoloration, or staining.

H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

J. The Contractor and each subcontractor shall be responsible for and shall take such precautions as are necessary to adequately protect from damage or deterioration and to safeguard from theft or pilferage all materials, tools and equipment pertaining to the Contractor's work which are on site of building, whether stored or incorporated in the structure.

END OF SECTION

EXECUTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Laying out the work.

C. Protection of completed work.

D. Cutting and Patching

E. Maintaining acceptable project/site conditions

F. Installation of Products and Systems

1.2 RELATED REQUIREMENTS

A. Section 01 3000 – Project Management and Coordination: Submittals procedures.

B. Section 01 4000 - Quality Requirements: Testing and inspection procedures.

C. Section 01 7400 - Quality Requirements: Cleaning

D. Section 01 7700 - Closeout: Project record documents, operation and maintenance data, warranties and bonds.

1.3 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Not used

C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather exposed or moisture resistant element.
   3. Efficiency, maintenance, or safety of any operational element.
   4. Visual qualities of sight exposed elements.
   5. Work of Owner or separate Contractor.

1.4 NOT USED

1.5 PROJECT CONDITIONS

A. Not used

B. Not used

C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

E. Not used

F. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

G. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

H. Rodent Control: Provide methods, means, and facilities to prevent rodents from accessing or invading premises.

I. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.6 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate with Owner provided work and with Owner's vendors for HVAC system balancing, water treatment, Voice/Data modifications, Furniture, etc.

G. Coordinate completion and clean-up of work of separate sections.

H. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.1 PATCHING MATERIALS

A. New Materials: Where specified in product sections, use materials identified on those sections; Where existing materials are added to, modified or compromised, match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 00 7300.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that existing conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Examine and verify specific conditions described in individual specification sections.

C. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

D. Verify that utility services are available, of the correct characteristics, and in the correct locations.

E. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means

acceptance of existing conditions.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.3 LAYING OUT THE WORK

A. Verify locations of reference points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Contractor shall locate and protect reference points.

D. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Grid or axis for structures.
   2. Building foundation, column locations, ground floor elevations.

E. Periodically verify layouts by same means.

F. Maintain a complete and accurate log of layout work as it progresses.

3.4 GENERAL INSTALLATION REQUIREMENTS FOR ALL PRODUCTS AND SYSTEMS

A. Install products as specified in individual sections, in full accordance with manufacturer's instructions and recommendations, as defined within individual Specification Sections and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.5 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. Perform whatever cutting and patching is necessary to:
   1. Complete the work.
   2. Fit products together to integrate with other work.
   3. Provide openings for penetration of mechanical, electrical, and other services.
   4. Match work that has been cut to adjacent work.
   5. Repair areas adjacent to cuts to required condition.
   6. Repair new work damaged by subsequent work.
   7. Remove samples of installed work for testing when requested.
   8. Remove and replace defective and non-conforming work.

C. Execute cutting and patching to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.

D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing.

E. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

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

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

H. Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.

J. Patching:
   1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
   2. Match color, texture, and appearance.
   3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

K. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

L. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

3.6 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

END OF SECTION

CLEANING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Cleaning during construction.

B. Final Cleaning.

1.2 RELATED REQUIREMENTS

A. Individual Product Sections: Specific requirements for cleaning and protection.

PART 2 PRODUCTS

2.1 CLEANING MATERIALS

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

PART 3 EXECUTION

3.1 DURING CONSTRUCTION

A. From the time work is begun until the Contract is completed, the Contractor shall have care, custody and control of the premises, subject to rights of the Owner. The Contractor shall maintain all of the work areas on the premises in first-class condition during term of operations under this Contract. The Contractor shall be responsible for his/her debris and waste and shall not allow rubbish or waste material to accumulate on or about the premises.

B. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury

C. Do not throw waste material and rubbish down from upper levels.

D. Hammer in or bend over flush with the wood protruding nails in boards, planks, timbers, etc before disposing of them.

E. Dispose of hazardous wastes in accordance with applicable laws and regulations.

F. Promptly remove from the work area all waste materials and rubbish resulting from the performance of the work. Clean up on a day-to-day basis throughout the construction period.

G. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

H. Perform continuous clean-up of flammable debris to prevent accumulation.

I. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

3.2 FINAL CLEANING

A. Leave all surfaces broom clean and ready for final cleaning unless otherwise required by the Specifications.

B. The General Contractor will arrange for professional cleaners or experienced workers for other final cleaning, to remove dust, dirt, finger prints and labels from sight exposed interior and exterior surfaces and to polish glossy surfaces to a clear shine. Remove putty and paint from all glass and

wash and polish all glass surfaces. Replace at his own expense, all damaged, broken or scratched glass. Remove all marks, stains, soil or dirt from all painted or decorated work. Clean and polish all hardware. Remove all foreign matter from finished surfaces. Clean all fixtures and equipment to restore it to the original finish. Clean all graded areas of the site.

C. At Completion of the Work promptly remove tools, equipment, machinery, and surplus materials from the Project site.

D. If air handling equipment is operated during construction, filters for air handling equipment shall be replaced or thoroughly cleaned according to manufacturer's instructions, by the Heating and Ventilating Contractor. Refer to the Mechanical Specifications for additional requirements.

E. The electrical subcontractor shall wash, vacuum, dust or otherwise clean light fixtures and other electrical work in finished spaces as necessary to remove all stains, dust and dirt. Other electrical equipment in mechanical rooms, transformer vaults, switch gear rooms, and similar unfinished spaces shall be left "broom clean". Burned out lamps shall be replaced.

F. The Work shall be maintained in a clean condition until the Architect determines that the Project is substantially complete.

END OF SECTION

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Starting of systems and equipment.

B. Demonstration and instruction of Owner personnel.

C. Closeout procedures, except payment procedures.

D. General requirements for maintenance service.

E. Demonstration and instruction for Owner's personnel.

F. Project Record Documents.

G. Operation and Maintenance Data.

H. Warranties and bonds.

I. Progress Photos

J. Daily Log of Construction

K. Documentation of all project RFI's, ASI's and reviewed Submittals

L. Submittal of all Lien waivers from Contractor, all Subcontractors and Suppliers

M. Submittal of IC-134's from Contractor and Subcontractors

N. Submittal of Payroll Reports from Contractor and all Subcontractors

1.2 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Submittals procedures.

B. Individual Product Sections: Specific requirements for operation and maintenance data.

C. Individual Product Sections: Warranties required for specific products or Work.

1.3 SUBMITTALS

A. All submittals are to be provided in two sets of bound paper copies (plus a warranty binder) and one electronic copy. Submit electronic files via USB drive, Dropbox or Google Drive link. Electronic files are to be organized in subfolders for each Division, with a separate subfolder for the general contractor items. Provide submittal checklist (Paragraph 3.7) checked to indicate each item provided.

Paper copies are to be provided in 3 ring binders labeled on the front ***and on the binding end.***

Electronic submittals shall not include any single pdf of more than 50 pages.

B. Operation and Maintenance Data:

1. Manufacturer's detailed Operation and Maintenance instructions as required by individual specification sections.

2. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

3. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

4. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

5. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

6. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

7. Additional information as specified in individual product specification sections.

C. Warranties and Bonds: (provide in a single separate 3 ring binder).
1. Obtain electronic and original copies of warranties and bonds, executed by responsible Subcontractors, suppliers, and manufacturers, within 30 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
2. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
3. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
4. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

D. Record Submittals: Provide electronic copies of submittals (shop drawings, product data, etc.) as approved during the project. Submittals shall include, all approved documents, shop drawings, color and finish selections, etc.

E. Punch Lists: Provide electronic copies of the all completed punch lists (General construction, mechanical, electrical and civil) signed by the general contractor, with each item initialed by the general contractor indicating that each item has been verified as corrected.

F. Inspection Certificates: Submit scans of certification certificates, properly executed by the various authorities having jurisdiction, which indicate that the Work, various items of equipment and systems have been inspected and are approved for occupancy, operation and permanent use.

G. Evidence of Payment: Submit Contractor’s Affidavit of Payment of Debts and Claims, AIA Document G706 in electronic and original form.

H. Release of Liens: Submit Contractor’s Affidavit of Release of Liens, AIA Document G706A in electronic and original form

I. Consent of Surety for Final Payment: Submit Consent of Surety Company to Final Payment, AIA Document G707 in electronic and original form.

J. For Contractor and each subcontractor submit Form IC-134, Minnesota Department of Revenue Withholding Affidavit for Contractors per Minnesota Statutes 290.92 and 290.97, certified by Minnesota Department of Revenue in electronic form.

K. Payroll records showing compliance with Minnesota State Statute 177.41-44 regarding Prevailing Wage Rates for Commercial Construction in electronic form.

L. Lien waivers for all previous payments to subcontractors, consistent with the amounts indicated on Applications for Payment in electronic form.

M. Progress Photos for duration of project (See 03 3000).

N. Daily Log of Construction: electronic scans and paper prints, including names and trades of all individuals on site each day of work (See 01 3000).

O. Statement of Hazardous Materials Exclusion
1. Contractor shall provide a signed statement indicating that to the best of the Contractor's knowledge, no hazardous materials have been used in the course of construction. For purposes of this statement, hazardous materials include asbestos, PCB's, lead, mercury and chlorofluorocarbons.

P. Project Record Documents: Submit electronic (scanned) documents (drawings and Project Manual) describing deviations from or clarifications to the documents due to specific on-site conditions and describing any Addenda and/or Change Orders.

Q. Requests for Information: Submit electronic copies of all Requests for Information (RFI's), including all official responses and back-up documentation.

R. As-built site survey (where required by specifications).

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

D. Verify that wiring and support components for equipment are complete and tested.

E. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

F. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

G. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.2 DEMONSTRATION AND INSTRUCTION

A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.

D. Video tape with audio recording the demonstration and instruction given to the Owner's personnel and issue two copies on a compact disc for Owner's Operation Manual.

3.3 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.4 FINAL CLEANING

A. Execute final cleaning after Substantial Completion but before making final application for payment.

B. Use cleaning materials that are nonhazardous and Green Seal Certified.

C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

F. Clean filters of operating equipment.

G. Clean debris from roofs, gutters, downspouts, and drainage systems.

H. Clean site; sweep paved areas, rake clean landscaped surfaces.

I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.5 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities in the format such authorities may require.
   1. Obtain electronic copy from Civil Engineer to record revisions to original design, if any; and secure the required signatures on such drawing from the contractor having performed such work, if required by the governing authority.
   2. Provide copies to Architect and Owner.

B. Notify Architect when work is considered ready for Substantial Completion review.

   1. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's review.

   2. If Contractor is aware of any items that are incomplete or are not in conformance with the Documents, those items shall be provided in written form to the Architect.

   3. The Architect and Engineers will review the Work and provide a Punch List of items identified during the review as incomplete or inconsistent with the Documents. This list may not be comprehensive of incomplete or unacceptable items and does will not relieve the Contractor of responsibility complete the project in full conformance with the Documents.

   4. The Contractor shall correct items of work listed in Punch Lists and executed Certificates of Substantial Completion within 30 calendar days of the date of Substantial Completion and provide a copy of the punch list signed by an Owner/Officer of the General Contractor organization, and initialing each individual item, signifying they are personally aware that each item has been completed in conformance with the Documents.

C. Owner will occupy all of the building as specified in Section 01 1000.

D. Notify Architect when work is considered finally complete.

E. Complete items of work determined by Architect's final inspection.

F. Complete and submit Operations and Maintenance Data within 10 calendar days of the date of Substantial Completion. Contractor is encouraged to assemble and provide Operations and Maintenance Data and approved submittals upon approval of the last submittal. Warranties, completed Punch Lists and As-builts shall be submitted under separate cover within 30 days of Substantial Completion.

3.6 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

C. Furnish service and maintenance of components indicated in specification sections for one year from date of Substantial Completion.

D. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

E. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

F. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

3.7 SUBMITTAL VERIFICATION CHECKLIST (to be included with all items checked as they are submitted for review by the Architect).

- Operation and Maintenance data for each product
- Warranties and Bonds in a separate binder for each product
- Record Submittals for each product used
- Punch Lists for each Division, signed by the General Contractor affirming completion of each item
- Inspection Certificates
- AIA Document G706 in electronic and original form
- ;AIA Document G706A in electronic and original form
- Document G707 in electronic and original form
- IC-134’s
- Payroll records
- Lien waivers for all previous payments to subcontractors
- Progress Photos
- Daily Log of Construction
- Statement of Hazardous Materials Exclusion
- Project Record Documents (as-builts) for each trade
- Requests for Information (RFI’s)
- Site as-built survey (where specified)

END OF SECTION

SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Selective demolition of building elements for alterations purposes.

B. All demolition of materials, surfaces, finishes, ceilings, floors, walls, equipment, etc. required to accommodate the work of all disciplines, subcontractors and suppliers described in the Documents.

C. Removal of all furniture, cabinets (freestanding and wall-mounted), display cases, display boards, storage units, etc. within all rooms indicated or required to be demolished to accommodate the Work.

D. Turn over all door hardware (except hinges) and all door access controls devices to Owner.

E. Removal of systems, equipment, devices, etc. identified on the drawings to be removed shall include all related hardware, structure, attachments, brackets, etc., unless specifically noted otherwise on the drawings.

F. Where items are removed from existing surfaces to remain exposed, all holes, glue/sealant marks, or other blemishes are to be thoroughly removed or filled and/or repaired.

G. Not used

H. Remove all sleeves or enclosures left due to removal of services from floor penetrations, wall penetrations, etc.

1.2 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.

B. Section 01 6000 - Product Requirements: Handling and storage of items removed for salvage and relocation.

1.3 REFERENCE STANDARDS

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

B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2004.

1.4 NOT USED

1.5 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company specializing in the type of work required.
   1. Minimum of 5 years of documented experience.

PART 2 PRODUCTS

PART 3 EXECUTION

3.1 SCOPE

A. Remove items indicated for disposal, salvage, relocation or recycling, as well as items that must be removed or temporarily relocated to complete the Work.

3.2 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.

2. Comply with applicable requirements of NFPA 241.
3. Use of explosives is not permitted.
4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
5. Provide, erect, and maintain temporary barriers and security devices.
6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
8. Do not close or obstruct roadways or sidewalks without permit.
9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Do not begin removal until built elements to be salvaged or relocated have been removed.

D. Protect existing structures and other elements that are not to be removed.
1. Provide bracing and shoring.
2. Prevent movement or settlement of adjacent structures.
3. Stop work immediately if adjacent structures appear to be in danger.

E. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

F. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

G. Perform demolition in a manner that maximizes salvage and recycling of materials.
1. Comply with requirements of Section 01 7420 - Waste Management and Recycling.
2. Dismantle existing construction and separate materials.
3. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

H. Prior to cutting any floor, roof deck, wall or structural element these surfaces must be thoroughly investigated for the presence of any conduit, water line or any other item that may obstruct removals or that may negatively impact use of the building or space. All items are to be documented prior to cutting. This process may require test holes, x-ray or ground penetrating radar.

3.3 EXISTING UTILITIES

A. Coordinate work with Owner; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without 7 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if

necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

3.4 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Separate areas in which demolition is being conducted from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000 in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
   2. Remove items indicated on drawings in such a way as to protect existing materials and systems to remain. Saw-cutting shall be executed wherever existing materials are to be partially removed, and shall be done with tools properly selected to complete the task without damaging adjacent surfaces, and to create a clean cut.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
   2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   3. See Section 01 1000 for other limitations on outages and required notifications.
   4. Verify that abandoned services serve only abandoned facilities before removal.
   5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.

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

3.5 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site on a daily basis.

B. Remove from site all materials not to be reused on site.

C. Leave site in clean condition, ready for subsequent work.

D. Clean up spillage and wind-blown debris.

END OF SECTION

CONCRETE FLOOR POLISHING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Polished Concrete Floor Finish, including preparation, crack filling, joint filling, concrete dye, etc. at new concrete where the existing wall has been removed.

B. Infill depressions and trenches in the existing floor where walls have been removed.

D. Fill all floor penetrations with concrete to within 1” of the finished floor surface and with polishable material, level to the finished floor surface.

D. Provide a minimum of 3 days’ notice to Electrician and Owner to provide ‘pigtail’ devices for accessing power.

E. Remove and replace all existing joint/crack sealant in the existing concrete floor if present.

F. **Provide hand grinding, polishing and finishing along vertical elements and into every corner, so there remain no unfinished quarter-circle shaped areas at corners.**

G. Provide concrete dye at all locations.

1.4 SUBMITTALS

A. Product Data: Submit manufacturers' technical data and Materials Safety Data Sheet (MSDS) on manufactured products showing compliance with specified requirements.

B. Provide letter of certification from manufacturer of finish system to be used for Polished Concrete Finish, stating that installer is a certified applicator of manufacturer’s colored polished concrete finish system, and that installer is familiar with proper procedures and installation requirements by manufacturer.

C. Polished Concrete Finish contractor shall submit a reference list of projects completed in the last 3 years.

D. Submit Polished Concrete Finish manufacturer’s specifications and detailed step-by-step process proposed, including preparation and concrete grinding, densifying and polishing procedures which, when approved by Owner, will become the basis for accepting or rejecting actual installation procedures used on the work.

1.5 QUALITY ASSURANCE

A. Polished Concrete Finish work shall be performed by a contractor who specializes in products and procedures specified in this section, with not less than 5 years experience, and is a certified applicator/installer of polished concrete finish manufacturer being used.

Provide an adequate amount of skilled and experienced workers who are thoroughly trained and experienced in the necessary craft of polished concrete floors present on site at all times while work is being performed. Installing contractor shall be familiar with products being applied, manufacturer’s installation requirements and methods necessary for proper performance of Polished Concrete Finish as specified.

.6 NOT USED

1.7 POLISHED CONCRETE FINISH PRE-INSTALLATION CONFERENCE

A. Schedule a pre-installation conference at the project site prior to contractor proceeding with polishing floors. Conference attendees shall include Project Superintendent, Polished Concrete Finish contractor, concrete subcontractor, Architect and Owner.

1.8 POLISHED CONCRETE FINISH WARRANTY

A. Provide an installing contractors warranty that a structurally sound concrete surface prepared and

treated will remain permanently dustproof, hardened and water repellant for a period of no less than five (5) years including five (5) years labor. If after the specified sealing period the treated surface does not remain dustproof, hardened and water repellant, provide at manufacturer's expense sufficient material to reseal any defective areas.

PART 2 PRODUCTS

2.1 POLISHED CONCRETE FINISH – MATERIALS AND MANUFACTURERS

A. Acceptable Manufacturers: Subject to compliance with requirements if the Contract Documents, acceptable manufacturer's of polished concrete floor finish system are as follows:

1. L&M Construction Chemicals, Inc., Omaha, NE, 800-812-3331; "FGS PermaShine"

a. Densifier/Hardener: "FGS Hardener Plus"

2. Advanced Floor Products, Inc., Provo, UT, 801-812-3420:

a. Densifier/Hardener: "Retro-plate 99"

3. Bomanite Corporation:

a. Densifier/Hardener: "Stabilizer Pro"

b. Stain Resistant Sealer: "VitraFinish"

B. Densifier/Hardener Performance Criteria:

1. Abrasion Resistance: ASTM C779 – Up to 400% increase in abrasion resistance.

2. Impact Strength: ASTM C805 – Up to 21% increase impact strength

3. Ultraviolet (UV) Light and Water Spray: ASTM G23-81 – No adverse effect to ultraviolet and water spray.

4. Reflectivity: Up to 30% increase in reflectivity.

C. Crack and Void Filler: Urethane filler with sand additive or as approved by Architect.

D. Concrete Dye **(use at all locations the include existing and/or patched concrete)** Use of the following:

1. L&M Construction Chemicals, Inc., Omaha, NE, 800-812-3331: Vivid Dye or Vivid Dye WB Plus

2. Advanced Floor Products, Inc., Provo, UT, 801-812-3420: RetroPlate Dyes.

2.2 FLOOR LEVELER, PATCH AND FILLER

A. Ardex PC-T Polished Concrete Topping (or comparable product based on the size of the patch). Provide at all areas requiring filling to provide a smooth, even flat continuous surface throughout the entire room.

B. Provide at all locations where demolished walls have left trenches in the existing floor and at other similar voids, holes and depressions.

2.3 JOINT AND CRACK SEALANT

A. Ardex Ardifix two-part polyurethane. Provide at all existing floor cracks (or portions of floor cracks) wider than 1/32".

B. Metzger/McGuire MM-80 100% solids, two component joint filler. Provide at all existing control joints.

PART 3 EXECUTION

3.1 EXAMINATION

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

B. Polished Concrete Finish Surface Conditions: Examine substrate for conditions which may affect the performance and appearance of the final finish. Correct conditions which may be detrimental to achieving satisfactory and results and meeting Owner's expectations.

3.2 CONCRETE FINISHING

A. Repair surface defects, including holes and cracks prior to polishing.

1. Clean and fill all existing joints, and cracks larger than 1/32" at any point. Follow manufacturer's instructions for proper crack/joint depth. Saw-cut cracks and joints as necessary to obtain depth/width to meet manufacturer's instructions. Apply filler material full depth from the bottom to the top, leaving a slight raised crown. Use a razor blade to scrape off the crowned filler flush with the floor surface after the material has set, and prior to grinding.

B. 1. Polished Concrete Finish Application:

a. First Step:

i. This step shall consist of multiple grinding steps, depending upon the condition of the floor surface and concrete, and shall result in the uniform exposure of the fine aggregate within the concrete surface from wall to wall within floor areas to receive polished concrete floor finish to achieve a 'salt and pepper' pattern (to extent allowed by existing concrete).

ii. This step shall use metal bonded diamonds and include not less than N0. 40 wet, No. 80 dry and No. 150 dry to achieve smooth even, surface.

iii. Exposure of aggregate from wall to wall shall be uniform (to the extend allowable by existing concrete), **which shall include hand grinding along vertical elements and into every corner, so unfinished quarter-circle shaped areas at corners do not remain unfinished.**

b. Second Step: Install cementitious tapered transition floor finish filler at doorways if surface of floor becomes appreciable lower than adjacent dissimilar floor finish due to grinding process.

c. Third Step: Continue grinding process if required to achieve a uniform fine 'salt and pepper' exposure as approved by Owner.

d. Fourth Step: Apply densifier/hardener

e. Fifth Step: Grind to remove residue of the penetrating densifier/hardener dried on the surface and prepare concrete for finishing.

f. Sixth Step:

i. Perform several steps of diamond polishing that use progressively finer grit diamonds each pass.

ii. This step shall use resin bonded diamonds and consists of not less than No. 100, No. 200 and No. 400 grit diamonds, all dry.

iii. When this step is completed the floor should be smooth and have some light reflection.

g. Seventh Step: Perform final polishing using up to 800 grit diamonds to achieve a Level 3 Polished/Gloss finish as defined by the Concrete Polishing Council.

h. Eighth Step: Apply stain resistant sealer and burnish into floor surface with a high speed propane burnisher.

i. Ninth Step: Perform buffing process to remove any swirl marks

j. Tenth Step: Provide protective covering on floor which will protect floor finish from damage from subsequent construction.

3.3 WORKMANSHIP AND CLEANING

A. Remove equipment, unused materials, debris and concrete dust associated with the work as work progresses.

B. Remove spatter from adjoining surfaces.

C. Repair damages to surfaces, finishes and equipment caused by Polished Concrete Finish operations.

D. Remove debris from job site.

END OF SECTION

UNIT MASONRY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Concrete block patching at openings to accommodate the Work

B. Mortar and Grout.

C. Reinforcement and Anchorage.

D. Accessories.

1.2 NOT USED

1.3 REFERENCE STANDARDS

A. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures; American Concrete Institute International; 2009.

B. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 2008.

C. ASTM A82/A82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2007.

D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

E. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2009a.

F. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2011.

G. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2006.

H. ASTM C150 - Standard Specification for Portland Cement; 2011.

I. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006.

J. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2010.

K. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2007.

L. ASTM C476 - Standard Specification for Grout for Masonry; 2010.

1.4 NOT USED

1.5 QUALITY ASSURANCE

A. Comply with provisions of ACI 530/530.1/ERTA, except where exceeded by requirements of the contract documents.

1.6 WARRANTY

A. Provide warranty against defects for installation and for all products for a period of 12 months from date of project Substantial Completion (not from product installation).

PART 2 PRODUCTS

2.1 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Ultra Fine Finish (or approved equal as reviewed by Architect) units with nominal face dimensions of 16 x 8 inches and nominal depth of 8 inches.
   2. Special Shapes: Provide non-standard blocks configured for corners.

3. All outside corners shall be bullnosed.
4. Non-Loadbearing Units: ASTM C129.
   a. Hollow block, as indicated.

2.2 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C150, Type I; color as required to produce approved color sample.
   1. Not more than 0.60 percent alkali.

B. Hydrated Lime: ASTM C207, Type S.

C. Grout Aggregate: ASTM C404.

D. Water: Clean, potable and free of salts.

2.3 MORTAR AND GROUT MIXES

A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
   1. Masonry below grade and in contact with earth: Type S.
   2. Face Brick and Manufactured Stone: Type N.

B. Grout: ASTM C476. Consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 2 inches or less; coarse grout for spaces with smallest horizontal dimension greater than 2 inches.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.2 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

C. Install self-adhering grade-line flashing to substrates as detailed on the drawings and follow manufacturer's instructions for installation. Where foundation wall waterproofing is implemented engage waterproofing contractor to inspect installation before and after the flashing is installed.

3.3 COURSING

A. Establish lines, levels, and coursing to match existing conditions. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:
   1. Bond: Match existing
   2. Coursing: One unit and one mortar joint to equal 8 inches.
   3. Mortar Joints: Concave.

3.4 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

3.5 NOT USED

3.6 GROUTED COMPONENTS

A. Reinforce columns as detailed by structural drawings.

B. Lap splices minimum 48 bar diameters.

C. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

D. Place and consolidate grout fill without displacing reinforcing.

E. At bearing locations, fill masonry cores with grout for a minimum 16 inches either side of opening.

3.7 BUILT-IN WORK

A. As work progresses, install built-in metal door frames and other items to be built into the work and furnished under other sections.

B. Install built-in items plumb, level, and true to line.

C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
   1. Fill adjacent masonry cores with grout minimum 16 inches from framed openings.

3.8 CLEANING

A. Remove excess mortar and mortar droppings each day using brushes, clean rags or burlap. Do not allow excess mortar to dry or harden on the face of masonry walls.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution in strict accordance with instructions by masonry product manufacturer. Thoroughly pre-wet the area to be cleaned. Allow product to work for the duration required by the manufacturer then rinse with clean potable water.

END OF SECTION

STRUCTURAL STEEL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Structural steel support members.

1.2 RELATED REQUIREMENTS

A. Section 03 3000 Concrete

B. Section 05 5000 - Metal Fabrications

1.3 REFERENCE STANDARDS

A. AISC (MAN) - Steel Construction Manual; American Institute of Steel Construction, Inc.; 2016.

B. AISC S303 - Code of Standard Practice for Steel Buildings and Bridges; American Institute of Steel Construction, Inc.; 2005.

C. AISC S348 - Specification for Structural Joints Using ASTM A325 or A490 Bolts; 2004.

D. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2008.

E. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2010.

F. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished; 2007.

G. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

H. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength; 2010.

I. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2009a.

J. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010a.

K. ASTM A501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2007.

L. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts; 2007a.

M. ASTM A563M - Standard Specification for Carbon and Alloy Steel Nuts [Metric]; 2007.

N. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2006a.

O. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength, Low Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2011.

P. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability; 2010.

Q. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2011.

R. ASTM E709 - Standard Guide for Magnetic Particle Testing; 2008.

S. ASTM F436 - Standard Specification for Hardened Steel Washers; 2010.

T. ASTM F 1554 - Standard Specification for Anchor Rods, Steel, 36, 55, and 105-ksi Yield

Strength; 2007a.

U. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2007.

V. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2010.

W. ASTM E119 – Standard Test Methods for Fire Tests of Building Construction and Materials

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings:
1. Indicate profiles, sizes, spacing and locations of structural members, openings, attachments, fasteners, and splices.
2. Connections not detailed.
3. Indicate cambers and loads.
4. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.

C. Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.

D. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.5 QUALITY ASSURANCE

A. Fabricate structural steel members in accordance with AISC "Steel Construction Manual."

B. Comply with Section 10 of AISC "Code of Standard Practice for Steel Buildings and Bridges" for architecturally exposed structural steel.

C. Fabricator: Company specializing in performing the work of this section with minimum five years of documented experience.

D. Erector: Company specializing in performing the work of this section with minimum five years of documented experience.

PART 2 PRODUCTS

2.1 MATERIALS

A. Steel Angles, Plates, and Channels: ASTM A36/A36M.

B. Steel W Shapes and Tees: ASTM A992/A992M.

C. Rolled Steel Structural Shapes: ASTM A992/A992M.

D. Cold-Formed Structural Tubing: ASTM A500, Grade B.

E. Hot-Formed Structural Tubing: ASTM A501, seamless.

F. Steel Sheet: ASTM A1011/A1011M, Designation SS, Grade 30 hot-rolled, or ASTM A1008/A1008M, Designation SS, Grade 30 cold-rolled.

G. Pipe: ASTM A53/A53M, Grade B, Finish black.

H. Shear Stud Connectors: Made from ASTM A 108 Grade 1015 bars.

I. High-Strength Structural Bolts, Nuts, and Washers: ASTM A325 (ASTM A325M), Type 1, medium carbon, plain.

J. Unheaded Anchor Rods: ASTM F1554, Grade 36, plain, with matching ASTM A563 or A 563M nuts and ASTM F436 Type 1 washers.

K. Welding Materials: AWS D1.1; type required for materials being welded.

L. Grout: Non-shrink, non-metallic aggregate type, complying with ASTM C1107/C1107M and capable of developing a minimum compressive strength of 7,000 psi at 28 days.

M. Shop and Touch-Up Primer (except at items/components/accessories to receive Applied Fireproofing): Shop primer complying with VOC limitations of authorities having jurisdiction. SW Kem Aqua 70P or equal.

N. Shop and Touch-Up Primer at all items/components/accessories to receive Applied Fireproofing: Series 394 MIO/Zinc-filled PerimePrime by Tnemic Company Incorporated, Kansas City, MO, carrying a UL classification in accordance with U.L. 263, showing compliance with ASTM E119..

O. Below grade asphaltic coating: Koppers Bitumastic No. 50.

2.2 FABRICATION

A. Shop fabricate to greatest extent possible.

B. Continuously seal joined members by continuous welds. Grind exposed welds smooth.

C. Comply with the Fabrication tolerance units of AISCS "Code of Standard Practice for Steel Buildings and Bridges." Unless noted otherwise.

D. Identification: Steel furnished for structural load-carrying purposes shall be properly identified for conformity to the ordered grade in accordance with the specifed ASTM standard or other specification and the provisions of the 2006 International Building Code.

2.3 FINISH

A. Prepare structural component surfaces in accordance with SSPC SP 3 and as required to meet requirements of primer manufacturers.

B. Shop prime structural steel members. Do not prime surfaces that will be field welded, in contact with concrete, or high strength bolted.

C. All exterior exposed surfaces are to be hot-dip galvanized in full accordance with ASTM A-123. All surfaces to be field welded are to be ground free of zinc within 4” of the weld, and shall be coated in accordance with ASTM A780, *Practice for Repair and Uncoated Areas of Hot-Dip Galvanized Coatings.*

2.4 SOURCE QUALITY CONTROL

A. High-Strength Bolts: Provide verification of shop-bolted connections in accordance with AISC "Specification for Structural Joints Using ASTM A325 Bolts".

B. Welded Connections: Visually inspect all field-welded connections and test 100 percent of full and partial penetration groove welds using the following:
   1. Magnetic particle inspection performed in accordance with ASTM E709.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

3.2 ERECTION

A. Erect structural steel in compliance with AISC "Code of Standard Practice for Steel Buildings and Bridges".

B. Allow for erection loads, and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent

bracing.

C. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts".

D. Do not field cut or alter structural members without approval of Architect.

E. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

F. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for non-shrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees. Grout base plates prior to loading columns with roof joists and deck.

3.3 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

3.4 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 and as identified in structural inspections notes.

B. Visually Inspect 100 per cent of all bolted connections.

C. Welded Connections: Visually inspect all field-welded connections and test at least 100 percent of full and partial penetration groove welds using the following:
   1. Magnetic particle inspection performed in accordance with ASTM E709.

END OF SECTION

COLD FORMED METAL FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Steel stud wall and floor framing systems.

1.2 RELATED REQUIREMENTS

A. Section 07 9005 - Joint Sealers.

B. Section 09 2116 - Gypsum Board

1.3 REFERENCE STANDARDS

A. AISI SG02-1 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2001 with 2004 supplement. (replaced SG-971)

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2010.

D. ASTM C955 - Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases; 2010.

E. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2008.

F. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2009a.

G. PS 1 - Structural Plywood; 2007.

H. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with work of other sections that is to be installed in or adjacent to the metal framing system, including but not limited to structural anchors, cladding anchors, utilities, insulation, and firestopping.

1.5 NOT USED

1.6 QUALITY ASSURANCE

A. NOT USED

B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, and with minimum three years of documented experience.

C. Installer Qualifications: Company specializing in performing the work of this section with minimum five years of experience.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Metal Framing, Connectors, and Accessories:
   1. ClarkDietrich Building Systems LLC: www.clarkdietrich.com.
   3. Studco Corporation:
   4. MarinoWare.
   5. Substitutions: See Section 01 6000 - Product Requirements.

2.2 FRAMING SYSTEM

A. Provide primary and secondary framing members, bridging, bracing, plates, gussets, clips, fittings, reinforcement, and fastenings as required to provide a complete framing system.

B. Design Criteria: Provide completed framing system having the following characteristics:
   1. Design: Calculate structural characteristics of cold-formed steel framing members according to AISI North American Specification for the Design of Cold-Formed Steel Structural Members. Calculations for loading and stresses, bearing the seal and signature of Professional Engineer registered in the state of the assigned project.
   2. Structural Performance: Design, engineer, fabricate, and erect to withstand specified design loads for project conditions within required limits.
   3. Design Loads: As indicated on the drawings.
   4. Deflections: Live load deflection meeting the following under total design load, unless otherwise indicated:
      a. Exterior Walls: Maximum horizontal deflection of 1/240 of span.
      b. Brick Veneer: Maximum horizontal deflection of 1/600 of span.
      c. Exterior Insulation & Finish System: Maximum horizontal deflection of 1/240 of span.
      d. Design non-axial loadbearing framing to accommodate not less than 1/2 in vertical deflection.
   5. Able to tolerate movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
   6. Able to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

2.3 FRAMING MATERIALS

A. Studs and Track: ASTM C955; studs formed to channel, "C", or "Sigma" shape with punched web; U-shaped track in matching nominal width and compatible height.
   1. Gage and depth as determined by design and where indicated on the drawings, but not thinner than 20 gage.
   2. Galvanized in accordance with ASTM A653/A653M G90/Z275 coating.

2.4 Cold-Formed Steel Framing:

1. The floor joists and other floor framing components must be designed to meet the strength and deflection criteria specified in the contract documents.
2. The attachment flange or bearing edge for cold-formed steel must be a minimum 1-5/8" (41 mm) wide, 2” preferred, with at least 3/4" (19 mm) of the panel bearing on the supporting flange.
3. The size of the cold-formed steel framing flange required will vary based on the specified mil thickness/gauge and fastener selected.
4. Cold-formed steel framing thickness and size is always based on diaphragm capacity but must be a minimum 43 mil (18 gauge) and spaced no greater than 24" (610 mm) o.c. for up to 450 plf. When significant diaphragm capacity is required, 54 mil (16 gauge) may be required.
5. Joist bearing shall be provided at the foundation that is uniform and level.
6. Cold-formed steel joists shall be located directly over bearing studs or a header installed at the top of the bearing wall to distribute the load.
7. Joist framing must be perpendicular to rim joists.
8. On steel framing, a web stiffener shall be provided at reaction points and/or concentrated loads as specified in the contract documents. End blocking shall be provided where joist ends are not otherwise restrained from rotation.

9. Additional joists shall be provided under parallel partitions and around all floor openings that interrupt one or more spanning members. Framing must be properly fastened to the supporting walls or structure.
10. All blocking or bridging must be installed prior to the installation of 3/4" USG STRUCTO-CRETE® Brand Structural Panels.
11. Framing must be of good quality, free of bows, twists, or other malformations.

2.5 ACCESSORIES

A. Bracing, Furring, Bridging: Formed sheet steel, thickness and dimensions as determined by the Contractor to provide a permanent, durable installation at conditions encountered; finish to match framing components.

B. Plates, Gussets, Clips: Formed Sheet Steel, thickness determined for conditions encountered; finish to match framing components.

C. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

D. Wall gasket: ¼" thick Neoprene Isolation Gasket Tape, high density closed cell foam manufactured for sound isolation. Provide at all walls intersecting window mullions, concrete, CMU window sills or similar surfaces.

2.6 FASTENERS

A. Self-Drilling, Self-Tapping Screws, Bolts, Nuts and Washers: Hot dip galvanized per ASTM A153/A153M.

B. Anchorage Devices: Power actuated.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Verify field measurements and adjust installation as required.

3.2 INSTALLATION OF STUDS

A. Install components in accordance with manufacturers' instructions.

B. Align floor and ceiling tracks; locate to wall layout. Secure in place with fasteners at maximum 24 inches on center.

C. Place studs at 16 inches on center; not more than 2 inches from abutting walls and at each side of openings. Connect studs to tracks using clip and tie method.

D. Construct corners using minimum of three studs. Install double studs at wall openings, door and window jambs.

E. Install load bearing studs full length in one piece. Splicing of studs is not permitted.

F. Install load bearing studs, brace, and reinforce to develop full strength and achieve design requirements.

G. Coordinate placement of insulation in multiple stud spaces made inaccessible after erection.

H. Install intermediate studs above and below openings to align with wall stud spacing.

I. Provide deflection allowance in stud track, directly below horizontal building framing at non-load

bearing framing.

J. Attach cross studs to studs for attachment of fixtures anchored to walls.

K. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.

L. Touch-up field welds and damaged galvanized surfaces with primer.

3.3 TOLERANCES

A. Maximum Variation from True Position: 1/4 inch.

B. Maximum Variation of any Member from Plane: 1/8 inch.

END OF SECTION

METAL FABRICATIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Shop fabricated steel items, including brick angles, steel angle bracing, etc.

1.2 RELATED REQUIREMENTS

1.3 REFERENCE STANDARDS

A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; American Architectural Manufacturers Association; 1998.

B. ANSI A14.3 - American National Standard for Ladders -- Fixed -- Safety Requirements; 2008.

C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2008.

D. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2010.

E. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.

F. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

G. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2003 (Reapproved 2007).

H. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2009a.

I. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2009.

J. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010a.

K. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2007.

L. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2007.

M. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2008.

N. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2007.

O. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2007.

P. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2010.

Q. AWS D1.2/D1.2M - Structural Welding Code - Aluminum; American Welding Society; 2003, and Errata 2004.

R. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).

S. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
   1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.

PART 2 PRODUCTS

2.1 MATERIALS - STEEL

A. Steel Sections: ASTM A992 for wide flange sections. ASTM A36 for other sections.

B. Steel Tubing: ASTM A500, Grade B cold-formed structural tubing.

C. Plates: ASTM A283 or ASTM 36.

D. Pipe: ASTM A53/A53M, Grade B Schedule 40 or ASTM A 53/A 53M, Grade B Schedule 80, black finish.

E. Bolts, Nuts, and Washers: ASTM A325 (ASTM A325M), Type 1, galvanized to ASTM A153/A153M where connecting galvanized components.

F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

H. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

I. Steel Protection Plates: Ives 8400 Commercial Protection Plates or equal, with countersunk stainless steel screws.

2.3 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

D. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.4 NOT USED

2.5 NOT USED

2.5 FINISHES - STEEL

A. Prime paint all steel items.
   1. Exceptions: Galvanize items to be embedded in concrete or masonry and items specified for galvanized finish.

B. Prepare surfaces to be primed in accordance with SSPC-SP 3.

C. Prime Painting: minimum 2 mil dry film thickness.

D. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.

2.6 NOT USED

2.7 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8 inch in 48 inches.

E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.2 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.3 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Field weld components indicated on drawings.

D. Perform field welding in accordance with AWS D1.1/D1.1M.

E. Obtain approval prior to site cutting or making adjustments not scheduled.

F. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.

3.4 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Installation of doors, wood frames, door hardware and other related items.

C. Installation of work under Section 05 5000.

D. Concealed wood blocking, nailers, and supports.

1. Provide 16” x 16” solid blocking at all wall mounted door stops and hooks.

E. Fire retardant treated FRT wood materials.

F. All other carpentry/installation work required for the execution of the Work.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 2009.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.

D. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood Protection Association; 2003.

E. AWPA C9 - Plywood -- Preservative Treatment by Pressure Processes; American Wood Protection Association; 2003.

F. AWPA C20 - Structural Lumber -- Fire Retardant Treatment by Pressure Processes; American Wood-Protection Association; 2003.

G. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood Protection Association; 2010.

H. PS 1 - Structural Plywood; 2007.

I. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.

J. WCLIB (GR) - Standard Grading Rules for West Coast Lumber No. 17; West Coast Lumber Inspection Bureau; 2004, and supplements.

1.04 SUBMITTALS

1.05 DELIVERY, STORAGE, AND HANDLING

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

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. All blocking within
   2. Species: Spruce-Pine-Fir (South), fire retardant treated at all locations, unless otherwise

indicated.

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

B. Lumber fabricated from old growth timber is not permitted.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Grading Agency: West Coast Lumber Inspection Bureau (WCLIB).

B. Sizes: Nominal sizes as indicated on drawings or as required to provide a permanent, stable installation, S4S.

C. Moisture Content: S-dry or MC19.

D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
1. Lumber: S4S, No. 2 or Standard Grade.
2. Boards: Standard or No. 3.

2.03 ACCESSORIES

A. Fasteners and Anchors:
1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.

2.04 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.
1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
a. Treat lumber exposed to weather.
2. Treat lumber in contact with roofing, flashing, or waterproofing.
3. Treat lumber in contact with masonry or concrete.
4. Treat lumber less than 18 inches above grade.
5. Preservative Pressure Treatment of Plywood Above Grade: AWPA U1, Use Category UC2 and UC3B, Commodity Specification F using waterborne preservative to 0.25 lb/cu ft retention.
a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
b. Treat plywood in contact with roofing, flashing, or waterproofing.
c. Treat plywood in contact with masonry or concrete.
d. Treat plywood less than 18 inches above grade.

PART 3 EXECUTION

3.01 PREPARATION

A. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

3.03 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

3.05 INSTALLATION OF CONSTRUCTION PANELS

A. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
   1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
   2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
   3. Install adjacent boards without gaps.

3.06 CLEANING

A. Waste Disposal: Comply with the requirements of Section 01 7419.(optional)
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Batt insulation at all new walls, and where indicated.

1.2 RELATED REQUIREMENTS

A. Section 05 4000 - Cold-Formed Metal Framing: Supporting construction for batt insulation.

B. Section 06 1000 - Rough Carpentry: Supporting construction for batt insulation.

C. Section 09 2116 - Gypsum Board Assemblies: Acoustic insulation.

1.3 REFERENCE STANDARDS

A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2010a.

B. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2006.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.

D. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2011.

PART 2 PRODUCTS

2.1 BATT INSULATION MATERIALS

A. Where batt insulation is indicated, either glass fiber or mineral fiber batt insulation may be used, at Contractor's option.

B. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
   1. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
   2. Thermal Resistance: R of 19.
   3. Thickness: 6 inch.
   4. Manufacturers:
      a. CertainTeed Corporation: www.certainteed.com.
      b. Johns Manville Corporation: www.jm.com.
      c. Owens Corning Corp: www.owenscorning.com.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation and adhesive.

B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.2 BATT INSTALLATION

A. Install insulation in accordance with manufacturer's instructions.

B. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

C. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services

within the plane of the insulation.

D. At metal framing, place vapor retarder on warm side of insulation; lap and seal sheet retarder joints over member face.

3.3 PROTECTION

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

END OF SECTION

JOINT SEALERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Sealants and joint backing

B. Provide at all joints between new and old materials and between all dissimilar materials, including but not limited to gypsum board or brick/CMU to CMU, ceramic tile, louver infills, door frames, louvers, etc.

C. Provide at perimeter of all millwork, countertops, lavatories, window sills, etc.

D. Provide at all interior and exterior horizontal and vertical control joint locations. Color to match adjacent surface color.

E. Provide at all locations where existing construction conditions prevent flush, tight connections with new construction, resulting in gaps greater than 1/8".

F. Provide at all inside corners where both at least one wall is wall tile. Color to match wall tile color.

G. Provide at all joints between aluminum framing and adjacent surfaces.

1.2 RELATED REQUIREMENTS

A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

B. Section 08 8000 - Glazing: Glazing sealants and accessories.

1.3 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants; 2010.

B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2011.

C. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2009.

D. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with other sections referencing this section.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating sealant chemical characteristics.

C. Samples: Submit two samples, 1/4 x 2 inch in size illustrating sealant colors for selection.

1.6 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years experience.

1.7 MOCK-UP

A. Provide mock-up of sealant joints in conjunction with window and wall mock-up under provisions of Section 01 4000.

B. Construct mock-up with specified sealant types and with other components noted.

C. Locate where directed.

D. Mock-up of the final color may remain as part of the Work.

E. Provide up to 5 colors for selection as directed by the architect.

1.8 FIELD CONDITIONS

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

1.9 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Silicone Sealants
1. Tremco Global Sealants: www.tremcosealants.com.
2. BASF Construction Chemicals-Building Systems: www.chemrex.com.
3. Pecora Corporation: www.pecora.com.
4. Dow Corning; Product 756 or 786 or 999-A.
5. G.E. Silicones; Product SCS9000NB or SCS 1700 or SCS 1200
6. Substitutions: See Section 01 6000 - Product Requirements.

B. Polyurethane Sealants:
1. Tremco Global Sealants: www.tremcosealants.com.
2. BASF Construction Chemicals-Building Systems: www.chemrex.com.
3. Pecora Corporation: www.pecora.com.
4. Sonneborn
5. Substitutions: See Section 01 6000 - Product Requirements.

C. Acrylic Emulsion Latex Sealants:
1. Tremco; Product 834.
2. Sonneborn; Product Sonolac
3. Substitutions: See Section 01 6000 - Product Requirements.

2.2 SEALANTS

A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168, for interior products only.

B. Type A - General Purpose Exterior Sealant: Polyurethane; ASTM C 920, Grade NS, Class 50, Uses M, G, and A; multi- component.
1. Color: To be selected by Architect from manufacturer's standard range.
2. Product: Dymeric 240FC manufactured by Tremco.
3. Applications: Use for:
a. Joints between concrete and other materials.
b. Other exterior joints for which no other sealant is indicated.

C. Type B - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
1. Color: Standard colors matching finished surfaces.
a. Tremco Tremflex 834- Acrylic Latex manufactured by Tremco, Inc.

b. Sonneborn Sonolac
2. Applications: Use for:
   a. Interior wall and ceiling control joints. Match color of adjacent materials or provide paintable product.
   b. Painted wood trim.
   c. Interior door frames
   d. Other interior joints for which no other type of sealant is indicated.

D. Type C – Restroom Fixture Sealant: White silicone; ASTM C920, Uses I, M and A; single component, mildew resistant.
1. Tremco Tremsil 200.
2. Dow Corning 786.
3. G.E. Silicone SCS 1700
4. Applications: Use for:
   a. Restroom fixtures.

E. Type D - Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C920, Class 25, Uses T, I, M and A; multi- component.
1. Color: Color as selected.
   a. THC-901 manufactured by Tremco Inc.
   b. SL-2 manufactured Sonneborn
   c. Substitutions: See Section 01 6000 - Product Requirements.
2. Applications: Use for:
   a. Joints in sidewalks and vehicular paving.
   b. Joints between paving materials and the exterior building walls.

F. Type E - Butyl Sealant: ASTM C920, Grade NS, Class 12-1/2, Uses NT, M, A, G, O; single component, solvent release, non-skinning, non-sagging.
1. Color: To be selected by Architect from manufacturer's standard range.
   a. Tremco Butyl Sealant manufactured by Tremco, Inc.
2. Applications: Use for:
   a. Under thresholds at doors in exterior walls.
   b. Metal flashing joints and seams.
   c. Roof mounted curb perimeters.

G. Type F - Silicone Sealant: ASTM C920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, neutral curing, non-sagging, non-staining, fungus resistant, non-bleeding.
1. Color: Standard colors matching finished surfaces.
   a. Tremco Spectrem 4 (For full range of available colors)
   b. G.E. Silicones SCS9000NB
   c. Dow Corning 756
   d. Dow Corning 791(at EIFS)

2. Movement Capability: Plus and minus 25 percent.
3. Service Temperature Range: -65 to 180 degrees F.
4. Shore A Hardness Range: 15 to 35.
5. Applications: Use for:
   a. Exterior joints in vertical surfaces of masonry and exterior insulation and finish system.
   b. Interior and exterior perimeter joints of metal frames in exterior walls.

H. Type G – Corner Guard Sealant Restroom Tile Sealant: Silicone; ASTM C920, single component, mildew resistant.
1. Tremco Spectrem 1
2. Dow Corning comparable silicone sealant.
3. G.E. comparable Silicone sealant
2. Applications: Use for:
   a. Provide at all floor and wall tile connections to dissimilar materials, where metal trim is

not elsewhere specified. Color to match wall tile color.

b. Provide at all inside corners where both at least one wall is wall tile. Color to match wall tile color.

I. Type H – Corner Guard Sealant: Polyurethane; ASTM C 920, Grade NS, Class 50, Uses M, G, and A; multi- component.
   1. Color: To be selected by Architect from manufacturer's standard range.
   2. Product: BASF MasterSeal NP 2 (or Dymeric 240FC manufactured by Tremco).
   3. Applications: Use for:
      a. Joints along each edge of all corner guards (appr. 48 at 4'-0" long).

2.3 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Exterior Joint Backing: Round foam rod compatible with sealant; closed cell polyethylene; oversized 25 to 35 percent larger than joint width; Green Rod manufactured by Nomaco.

C. Interior Joint Backing: Round foam rod compatible with sealant; bi-cellular open and closed cell polyolefin foam plastic material ; oversized 25 to 33 percent larger than joint width; Green Rod manufactured by Nomaco..

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

E. Exterior Seal System – Michael Rizza Company, Inc. Exterior Vertical Seal System 2" (EV2). Provide at all connections between existing concrete exterior wall panels and new masonry.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

3.3 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

D. Install bond breaker where joint backing is not used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

G. Tool joints concave.

3.4 CLEANING

A. Clean adjacent soiled surfaces.

3.5 PROTECTION

A. Protect sealants until cured.

END OF SECTION

HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated steel doors and frames.

B. Steel frames for wood or plastic laminate doors.

1.02 RELATED REQUIREMENTS

A. Section 08 7100 - Door Hardware.

B. Section 09 9000 & 09 9123 - Exterior & Interior Painting and Coating: Field painting.

1.03 REFERENCE STANDARDS

A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2003.

B. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003.

C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998 (R2004).

D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2010.

E. BHMA A156.115 - Hardware Preparation in Steel Doors and Steel Frames; 2006.

F. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; The National Association of Architectural Metal Manufacturers; 2007.

G. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2010.

H. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

I. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced grade standard.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.

1.05 QUALITY ASSURANCE

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

B. Maintain at the project site a copy of all reference standards dealing with installation.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store in accordance with NAAMM HMMA 840.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Steel Doors and Frames:
   1. Assa Abloy Ceco or Curries: www.assaabloydss.com.
   2. Steelcraft; www.steelcraft.com.
   3. Substitutions: See Section 01 6000 - Product Requirements.

2.02 DOORS AND FRAMES

A. Requirements for All Doors and Frames:
   1. Accessibility: Comply with ANSI/ICC A117.1.
   2. Door Top Closures: Flush with top of faces and edges.
   3. Door Edge Profile: Beveled on both edges.
   4. Door Texture: Smooth faces.
   5. Hardware Preparation: In accordance with BHMA A156.115, with reinforcement welded in place, in addition to other requirements specified in door grade standard.
      a. Hinge tabs shall be arc welded, not spot welded.
   6. Finish: Factory primed, for field finishing.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with all the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 STEEL DOORS

A. Interior Doors: Non-Fire-Rated:
   1. Core: Vertical steel stiffeners.
   2. Thickness: 1-3/4 inches.
   3. Texture: Smooth faces.
   4. Finish: Factory primed, for field finishing.
   5. Gauge: 18 gauge

2.04 STEEL FRAMES

A. General:
   1. Comply with the requirements of grade specified for corresponding door.
      a. ANSI A250.8 Level 1 Doors: 16 gage frames for doors 4 feet or less in width. Frames over 4 feet in width to be not less than 14 gauge.
   2. Finish: Factory primed, for field finishing.
   3. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
   4. Frame Reinforcement for Hardware

      a. Factory/shop mortise, reinforce, drill, and tap frames for door hardware attachment.
      b. Receive hardware or templates from hardware supplier and prepare frames for hardware installation. Frame manufacturer is responsible for proper fit and performance of installed hardware.
      c. Frame Reinforcement For Hardware: Factory install at all openings in frames for doors. Provide adequate size and strength of reinforcement to accommodate hardware and to support door.
         Hinge Reinforcement: Not less than 7 gauge (0.179 inch).
         Strike Clips: Not less than 16 gauge (0.0598 inch) by 12 inches long.
         Strike Clips: Not less than 16 gauge (0.0598 inch), and be prepared for ANSI-A115.1-2 strike.
         Reinforcement For Closer or Door Stop/Holder: Not less than 12 gauge (0.1046 inch).
         Provide continuous across head of all frames at door openings.

Mortar (Masonry Grout) Boxes: Fully enclosing over hardware mortises.

B. Exterior Door Frames: Fully welded. Knock-down frames are not acceptable.
   1. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness.
   2. Weatherstripping: Separate, see Section 08 7100.
   3. Not less than 14 Gauge

C. Interior Door Frames at new locations, Non-Fire-Rated: Fully welded type. Knock-down frames are not acceptable.

   1. 16 gage frames for doors 4 feet or less in width. Frames over 4 feet in width to be not less than 14 gauge.

D. Interior Door Frames, Fire-Rated: Fully welded type. Knock-down frames are not acceptable.
   1. Fire Rating: Same as door, labeled.
   2. 16 gage frames for doors 4 feet or less in width. Frames over 4 feet in width to be not less than 14 gauge.

E. Double Egress Frames
   1. Steelcraft DE Series Double Egress 14 Ga. Frames or identical frames by other manufacturers listed above.
   2. Provide fire rating required where indicated on the drawings.

2.05 ACCESSORY MATERIALS

A. Grout for Frames: Portland cement grout of maximum 4-inch slump for hand troweling; thinner pumpable grout is prohibited.

B. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.

2.06 FINISH MATERIALS

A. Primer: Rust-inhibiting, complying with ANSI A250.10, door manufacturer's standard.
B. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

3.02 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

A. Install in accordance with the requirements of the specified door grade standard and NAAMM HMMA 840.

B. In addition, install fire rated units in accordance with NFPA 80.

C. Coordinate frame anchor placement with wall construction.

D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

E. Coordinate installation of hardware.

F. Coordinate installation of glazing.

G. Touch up damaged factory finishes.

3.04 TOLERANCES

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

3.05 ADJUSTING

A. Adjust for smooth and balanced door movement.

3.06 SCHEDULE

A. Refer to Door and Frame Schedule on the drawings.

END OF SECTION

WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wood veneer doors

1.02 RELATED REQUIREMENTS

A. Section 08 1113 – Door Frames

B. Section 08 8000 - Glazing.

C. Section 08 7100 - Door Hardware

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.

B. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2005, 8th Ed., Version 2.0.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Warranty.

C. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria.

D. Samples: Submit two samples of door finish, 6 x 6 inch in size illustrating wood grain, color, and sheen.

E. Manufacturer's Installation Instructions: Indicate special installation instructions.

1.05 QUALITY ASSURANCE

A. Maintain one copy of the specified door quality standard on site for review during installation and finishing.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver and store doors in accordance with specified quality standard.

B. Accept doors on site in manufacturer's packaging. Inspect for damage.

C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach finish. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Interior Doors: Provide manufacturer's warranty for the life of the installation.

C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Wood Veneer Faced Doors:
   1. Eggers Industries www.eggersindustries.com
   2. Algoma Hardwoods www.algomahardwoods.com
   3. VT Industries, Inc: www.vtindustries.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 DOORS

A. All Doors: See drawings for locations and additional requirements.
   1. Quality Level: Premium Grade, in accordance with AWI/AWMAC/WI Architectural Woodwork Standards.
   2. Quality Level: Premium Grade with A grade veneer, in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Section 1300.

B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
   1. Provide solid core doors at all locations.
   2. Maple veneer stained to match Architect's sample

2.03 DOOR AND PANEL CORES

A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated above.

2.04 DOOR FACINGS

A. Plain sliced red oak veneer stained to match Masonite Aspiro Series Marshfield-Algoma Nutmeg.

2.05 ACCESSORIES

A. Glazing Stops for glass lites: Wood to match door facing, mitered corners; with countersink style tamper proof screws.

2.06 DOOR CONSTRUCTION

A. Fabricate doors in accordance with door quality standard specified.

B. Low-emitting Materials and recycled content: Provide doors made with recycled wod content and adhesives, composite wood products and documentation indicating that product contains no urea formaldehyde.

C. Cores Constructed with stiles and rails:

D. Provide solid blocks at lock edge and top of door for closer for hardware reinforcement.

E. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

F. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

G. Provide edge clearances in accordance with the quality standard specified.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and specified quality standard.

B. Do not field cut or trim; if fit or clearance is not correct, replace door.

C. Use machine tools to cut or drill for hardware.

D. Coordinate installation of doors with installation of frames and hardware.

E. Coordinate installation of glazing.

F. Install door louvers plumb and level.

3.03 TOLERANCES

A. Conform to specified quality standard for fit and clearance tolerances.

B. Conform to specified quality standard for telegraphing, warp, and squareness.

3.04 ADJUSTING

A. Adjust doors for smooth and balanced door movement as well as plumb, straight, level and even reveals on all sides.

B. Adjust closers for full closure and effective back check.

END OF SECTION

SECTION 08 71 00
DOOR HARDWARE

PART 1 - GENERAL

1.1 CONDITIONS

A. Conditions of the contract (General and Supplementary Conditions) and Division 01 - General Requirements, govern the work of this section.

B. This section includes all material and related service necessary to furnish all finish hardware indicated on the drawings or specified herein.

C. Furnish UL listed hardware for all labeled and 20 min. openings in conformance with the requirements for the class of opening scheduled. Underwriters' requirements shall have precedence over specification where conflicts exist.

D. All work shall be in accordance with all applicable state and local building codes. Code requirements shall have precedence over this specification where conflicts exist.

1.2 WORK INCLUDED

A. This section includes the following:

1. Furnish door hardware (for hollow metal, wood doors) specified herein, listed in the hardware schedule, and/or required by the drawings.
2. Thresholds and Weather-stripping
3. Electro-Mechanical Devices
4. Access Control components and or systems specified within this section.

B. Where items of hardware are not definitely or correctly specified and is required for the intended service, such omission, error or other discrepancy should be directed to the Architect prior to the bid date for clarification by addendum. Otherwise furnish such items in the type and quantity established by this specification for the appropriate service intended.

1.3 RELATED WORK IN OTHER SECTIONS

A. This section includes coordination with related work in the following sections:

1. Division 06 Section "Finish Carpentry".
2. Division 08 Section "Hollow Metal Doors and Frames".
3. Division 08 Section "Wood Doors"
4. Division 26 Sections “Electrical”
5. Division 28 Sections "Electronic Safety and Security".

1.4 REFERENCES

A. Publications of agencies and organizations listed below form a part of this specification section to the extent referenced.

1. DHI - Recommended Locations for Builders' Hardware.
2. NFPA 80 - Standards for Fire Doors and Windows.
3. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures.
4. UL - Building Material Directory.
5. DHI - Door and Hardware Institute
6. WHI - Warnock Hersey
7. BHMA - Builders Hardware Manufacturers Association
8. ANSI – American National Standards Institute
9. ANSI ICC500 – Standard for the Design and Construction of Storm Shelters
10. IBC- International Building Code (as adopted and amended by local building code)

1.5 SUBMITTALS

A. Within ten days after award of contract, submit detailed hardware schedule in quantities as required by Division 01 - General Requirements.

B. Schedule format shall be consistent with recommendations for a vertical format as set forth in the Door & Hardware Institute's (DHI) publication "Sequence and Format for the Hardware Schedule". Hardware sets shall be consolidated to group multiple door openings which share similar hardware requirements. Schedule shall include the following information:

1. Door number, location, size, handing, and rating.
2. Door and frame material, handing.
3. Degree of swing.
4. Manufacturer
5. Product name and catalog number
6. Function, type and style
7. Size and finish of each item
8. Mounting heights
9. Explanation of abbreviations, symbols, etc.
10. Numerical door index, indicating the hardware set/ group number for each door.

C. When universal type door closers are to be provided, the schedule shall indicate the application method to be used for installation at each door: (regular arm, parallel arm, or top jamb).

D. The schedule will be prepared under the direct supervision of a certified Architectural Hardware Consultant (AHC), or certified Door Hardware Consultant (DHC) employed by the hardware distributor. The hardware schedule shall be signed and embossed or stamped with the DHI certification seal of the supervising AHC or DHC. The supervising AHC or DHC shall attend any meetings related to the project when requested by the architect.

E. Check the specified hardware for suitability and adaptability to the details and surrounding conditions.

F. Review drawings from related trades as required to verify compatibility with specified hardware. Indicate unsuitable or in compatible items, and proposed substitutions in the hardware schedule.

G. Provide documentation for all hardware to be furnished on labeled fire doors indicating compliance with positive pressure fire testing UL 10C.

H. Furnish manufacturers' catalog data for each item of hardware in quantities as required by Division 01 - General Requirements.

I. Submit a sample of each type of hardware requested by the architect. Samples shall be of the same finish, style, and function as specified herein. Tag each sample with its permanent location so that it may be used in the final work.

J. Furnish with first submittal, a list of required lead times for all hardware items.

K. After final approved schedule is returned, transmit corrected copies for distribution and field use in quantities as required by Division 01 - General Requirements.

L. Furnish approved hardware schedules, template lists, and pertinent templates as requested by related trades.

M. Furnish necessary diagrams, schematics, voltage and amperage requirements for all electro-mechanical devices or systems as required by related trades. Wiring diagrams shall be opening specific and include both a riser diagram and point to point diagram showing all wiring terminations.

N. After receipt of approved hardware schedule, Hardware supplier shall initiate a meeting including the owner’s representative to determine keying requirements. Upon completion of initial key meeting, hardware supplier shall prepare a proposed key schedule with symbols and abbreviations as set forth in the door and hardware institute’s publication “Keying Procedures, Systems, and Nomenclature”. Submit copies of owner approved key schedule for review and field use in quantities as required by Division 01 - General Requirements. Wiring diagrams shall be included in final submittals transmitted for distribution of field use.

1.6 QUALITY ASSURANCE

A. Manufacturers and model numbers listed are to establish a standard of function and quality. Similar items by approved manufacturers that are equal in design, function, and quality, may be considered for prior approval of the architect, provided the required data and physical samples are submitted for approval as set forth in Division 01 - General Requirements.

B. Where indicated in this specification, products shall be independently certified by ANSI for compliance with relevant ANSI/BHMA standards A156.1 - A156.36 – Standards for Hardware and Specialties. All products shall meet or exceed certification requirements for the respective grade indicated within this specification. Supplier shall provide evidence of certification when requested by the architect.

C. Obtain each type of hardware (hinges, latch & locksets, exit devices, closers, etc.) from a single manufacturer, although several may be indicated as offering products complying with requirements.

D. Electrical drawings and electrical specifications are based on the specific electrified hardware components specified in hardware sets. When electronic hardware components other than those indicated in hardware sets are provided, the supplier shall be responsible for all costs incurred by the design team and their consultants to review and revise electrical drawings and electrical specifications. Supplier shall also be responsible for any additional costs associated with required changes in related equipment, materials, installation, or final hook up to ensure the system will operate and function as indicated in the construction documents, including hardware set operational / functional descriptions.

E. All hardware items shall be manufactured no earlier than 6 months prior to delivery to site.

F. Hardware supplier shall be factory trained and certified by the manufacture to provide and support all computer managed locks and system components.

G. Installation of hardware shall be installed or directly supervised and inspected by a skilled installer certified by the manufacturer of locksets, door closers, and exit devices used on the project, or with not less than 3 years' experience in successful completion of projects similar in size and scope.

H. Provide hardware for all labeled fire doors, which complies with positive pressure fire testing UL 10C.

I. Comply with all applicable provisions of the standards referenced within section 1.4 of this specification.

J. Hardware supplier shall participate when reasonably requested to meet with the contractor and or architect to inspect any claim for incorrect or non-functioning materials; following such inspection, the hardware supplier shall provide a written statement documenting the cause and proposed remedy of any unresolved items.

1.7 DELIVERY, STORAGE AND HANDLING

A. Hardware supplier shall deliver hardware to the job site unless otherwise specified.

B. All hardware shall be delivered in manufacturers' original cartons and shall be clearly marked with set and door number.

C. Coordinate with contractor prior to hardware delivery and recommend secure storage and protection against loss and damage at job site.

D. Contractor shall receive all hardware and provide secure and proper protection of all hardware items to avoid delays caused by lost or damaged hardware. Contractor shall report shortages to the Architect and hardware supplier immediately after receipt of material at the job site.

E. Coordinate with related trades under the direction of the contractor for delivery of hardware items necessary for factory installation.

1.8 PRE-INSTALLATION MEETING

A. Schedule a hardware pre-installation meeting on site to review and discuss the installation of continuous hinges, locksets, door closers, exit devices, overhead stops, and electromechanical door hardware.

B. Meeting attendees shall be notified 7 days in advance and shall include: Architect, Contractor, Door Hardware Installers (including low voltage hardware), Manufacturers representatives for above hardware items, and any other effected subcontractors or suppliers.

C. All attendees shall be prepared to distribute installation manuals, hardware schedules, templates, and physical hardware samples.

1.9 WARRANTY

A. All hardware items shall be warranted against defects in material and workmanship as set forth in Division 01 - General Requirements.

B. Repair, replace, or otherwise correct deficient materials and workmanship without additional cost to owner.

PART 2 - PRODUCTS

2.1 FASTENERS

A. All exposed fasteners shall be Phillips head or as otherwise specified and shall match the finish of the adjacent hardware. All fasteners ex-posed to the weather shall be non-ferrous or stainless steel. Furnish correct fasteners to accommodate surrounding conditions.

B. Coordinate required reinforcements for doors and frames. Seek approval of the architect prior to furnishing through-bolts. Furnish through-bolts as required for materials not readily reinforced.

2.2 BUTT HINGES

A. Acceptable manufacturers and respective catalog numbers:

	Ives	Stanley	Hager	McKinney
1. Standard Weight, Plain Bearing	5PB1	F179	****	T2714
2. Standard Weight, Ball Bearing	5BB1	BB179	BB1279	TB2714
3. Standard Weight, Ball Bearing, Non-Ferrous	5BB1	FBB191	BB1191	TB2314
4. Heavy Weight, Ball Bearing	5BB1HW	FBB168	BB1168	T4B3786
5. Heavy Weight, Ball Bearing, Non-Ferrous	5BB1HW	FBB199	BB1199	T4B3386

B. Hinges shall be independently certified by ANSI for compliance with ANSI A156.1 (2006). Hinges shall meet or exceed the following ANSI grade requirements as indicated below:

1. Standard Weight, Plain Bearing Hinges: Grade 3
2. Standard Weight, 2 Ball Bearing Hinges: Grade 2
3. Heavy Weight, 4 Ball Bearing Hinges: Grade 1

C. Unless otherwise specified, furnish the following hinge quantities for each door leaf.

1. 3 hinges for doors up to 90 inches.
2. 1 additional hinge for every 30 inches on doors over 90 inches.
3. 4 hinges for Dutch door applications.

D. Unless otherwise specified, top and bottom hinges shall be located as specified in Division 08 Section "Hollow Metal Doors and Frames". Intermediate hinges shall be located equidistant from others.

E. Unless otherwise specified, furnish hinge weight and type as follows:

1. Standard weight: plain bearing hinge 5PB1 or ball bearing hinge 5BB1 for interior openings through 36 inches wide without a door closer.
2. Standard weight: ball bearing hinge 5BB1 for interior opening over 36 through 40 inches wide without a door closer, and for interior openings through 40 inches wide with a door closer.

3. Heavyweight: 4 ball bearing hinge 5BB1HW for interior openings over 40 inches wide, and for all vestibule doors.
4. Heavyweight: 4 ball bearing hinge 5BB1HWss for exterior openings unless otherwise listed in groups.
5. Heavyweight: 4 ball bearing hinge 5BB1HWss 5” for all exterior doors or 4 ball bearing hinge 5BB1HW 5” for interior doors, that have an automatic operator.

F. Unless otherwise specified, furnish hinges for exterior doors, fabricated from brass, bronze, or stainless steel. Unless otherwise specified, hinges for interior doors may be fabricated from steel.

G. Unless otherwise specified, furnish hinges in the following sizes:

1. 5" x 5" 2-1/4" thick doors
2. 4-1/2" x 4-1/2" 1-3/4" thick doors
3. 3-1/2" x 3-1/2" 1-3/8" thick doors

H. Furnish hinges with width to accommodate trim and allow for 180-degree swing.

I. Unless otherwise specified, furnish hinges with flat button tips with non-rising pins. Furnish non-removable pin (NRP) hinges at all reverse-handed doors that are furnished with lockable hardware.

J. Unless otherwise specified, furnish all hinges to template standards.

2.3 FLUSH BOLTS AND DUST PROOF STRIKES

A. Acceptable manufacturers and respective catalog numbers:

	Ives	Door Controls	Hager
1. Dust Proof Strike	DP2	80	280X
2. Auto Flush Bolt (Metal Door)	FB31P	842	292D
3. Auto Flush Bolt (Wood Door)	FB41P	942	291D
4. Constant Latching Bolt (Metal Door)	FB51P	845	293D
5. Constant Latching Bolt (Wood Door)	FB61P	945	294D

B. Unless otherwise specified, provide 12" rods for manual flush bolts for door 7'6" or less, 24" top rods for doors over 7'6" to 8'6".

C. Unless otherwise specified, provide doors over 8'6" with automatic top bolts.

D. Provide automatic flush bolts where required to maintain fire door listing and or egress requirements on pairs of doors.

E. All flush-bolt applications shall be UL listed to be installed with top flush-bolt only. Provide auxiliary fire bolt as required for fire rated openings where less bottom bolt has been specified.

F. Provide all bottom flush bolts with non-locking dust proof strikes.

2.4 EXIT DEVICES

A. Acceptable manufacturers and respective catalog numbers:

	Von Duprin	No Substitution
1. Wide Stile, Push Pad	99 Series	
2. Lever Trim	996 Series	
3. Pull Trim	990 Series	

A. Exit devices shall be independently certified by ANSI for compliance with ANSI A156.3, Grade 1 (2008).

B. Obtain exit devices from a single manufacturer, although several may be indicated as offering products complying with requirements.

C. All exit devices shall be equipped with a sound-dampening feature to reduce touch pad return noise.

D. Quiet Electric Latch Retraction shall be accomplished using a motor driven assembly, and shall incorporate the following features:
   1. Motor shall retract both the push pad assembly and latchbolt.
   2. Automatic calibration of latch throw and pull.
   3. Built-in time delay.
   4. On-board installation and troubleshooting diagnostics built into power supply and device.
   5. Retry mode if device does not pull on the first try.

E. On full glass doors there shall be no exposed fasteners on the back of the mechanism visible through the glass.

F. All exit devices shall be provided with flush end caps to reduce potential damage from impact.

G. All exit devices shall be provided with dead-locking latch bolts to ensure security.

H. All exit devices shall be U.L. listed for accident hazard. Exit device for use on fire doors shall also be U.L. listed for fire exit hardware.

I. Provide optional strikes, special length rods, and adapter plates to accommodate door and frame conditions. Provide narrow style series devices in lieu of wide stile series devices where optional strikes will not accommodate door and frame conditions.

J. Coordinate with related trades to ensure adequate clearance and reinforcement is provided in doors and frames. Provide thru bolts as required.

K. Refer to hardware groups for exit device applications utilizing the option of: "less bottom rod and floor strike" (LBR)

L. All exit devices shall be provided with optional trim designs to match other lever and pull designs used on the project.

M. Unless specific exit device dogging options are noted within hardware sets, provide dogging options as follows:
   1. Fire Rated devices: Dogging not permitted.
   2. Non-Rated Exit Only functions not equipped with outside trim or pull: Less Dogging.
   3. Non-Rated Classroom functions: Less Dogging.
   4. Non-Rated devices utilizing electric latch retraction or electrified outside trim: Less Dogging.
   5. All Other Non-Rated devices: Cylinder Dogging utilizing interchangeable core cylinders. Cylinder keyway shall match locksets furnished on this project (Best 7-pin small format).

N. Provide glass bead kits as required to accommodate door conditions. Screws shall not be visible through full glass doors.

O. Where specified, provide compatible keyed mullions with cylinder for pairs of doors.

P. Provide Von Duprin #154 or equivalent mullion stabilizers at all doors with removable mullions.

Q. Provide reinforced crossbars for all traditional style exit devices applied to doors over 36" wide.

2.5 LOCKS AND LATCHES

A. Acceptable manufacturers and respective catalog numbers:

	Schlage	Best	No Substitution
1. Grade 1 Cylindrical	ND Series SPA	9K Series 14D	

B. Bored locks shall be independently certified by ANSI for compliance with ANSI A156.2 (2011).

C. Mortise locks shall be independently certified by ANSI for compliance with ANSI A156.13 (2012).

D. Provide full narrow escutcheon at mortise locks with indicators.

E. Minimize transmission of heat to lock trim. Provide temperature control modules (TCM) on all electrified locks when cataloged by the lock manufacturer.

F. Unless otherwise specified, all locks and latches to have:

1. 2-3/4" Backset
2. 1/2" minimum throw latchbolt
3. 1" throw deadbolt
4. ANSI A115.2 strikes

G. Provide guarded latch bolts for all locksets, and latch bolts with throw to maintain fire rating of both single and paired door assemblies.

H. Provide strike with lip length adequate to clear surrounding trim.

I. Provide wrought boxes for strikes at inactive doors, wood frames, and metal frames without integral mortar covers.

J. All locks to be compatible with Owner's Best 7-PIN small format Master Keying system.

2.6 COORDINATORS

A. Acceptable manufacturers and respective catalog numbers:

	Ives	Door Controls	Hager
1. Bar Coordinator	COR x FL	600 x Filler	297D x 297F
2. Mounting Bracket	MB Series	AB, C Series	297 Series

B. Provide coordinators at all pairs of doors having automatic flush bolts and closers on the inactive leaf, and for pairs of doors having vertical rod/mortise exit device combinations with overlapping astragals.

C. Provide appropriate filler bars, closer mounting brackets, carry bars, and special top latch preparations as required by adjacent hardware.

2.7 CLOSERS

A. Acceptable manufacturers and respective catalog numbers:

	LCN	No Substitution
1.	4040XP / 4040XP EDA	

B. Door closers shall be independently certified by ANSI for compliance with ANSI A156.4, Grade 1 (2013).

C. Obtain door closers from a single manufacturer, although several may be indicated as offering products complying with requirements.

D. Provide extra heavy-duty arm (EDA / HD) when closer is to be installed using parallel arm mounting.

E. Hardware supplier shall coordinate with related trades to ensure aluminum frame profiles will accommodate specified door closers.

F. Provide "SPECIAL TEMPLATE - #1728 / #0723" closer arms as required to accommodate aluminum frame head details with "non-structural stops" when closers will be required to utilize parallel arm mounting positions. Frame mounting shoe shall be shortened, and pivot hub height shall be increased to permit frame mounted shoe to be positioned on frame rabbit (rather than the frame stop), and behind the frame stop rather than on top of the frame stop. Contact LCN Door Closers at: 877-671-7011 for pricing and design assistance.

G. Closers shall use high strength cast iron cylinders, forged main arms, and one-piece forged steel pistons.

H. Closers shall utilize a stable fluid withstanding temperature range of +120deg F to -30deg F without seasonal adjustment of closer speed to properly close the door. Closers for fire-rated doors shall be provided with temperature stabilizing fluid that complies with standards UL10C.

I. Unless otherwise specified, all door closers shall have full covers and separate adjusting valves for sweeps, latch, and backcheck.

J. Provide closers for all labeled doors. Provide closer series and type consistent with other closers for similar doors specified elsewhere on the project.

K. Provide closers with adjustable spring power. Size closers to ensure exterior and fire rated doors will consistently close and latch doors under existing conditions. Size all other door closers to allow for reduced opening force not to exceed 5 lbs.

L. Install closers on the room side of corridor doors, stair side of stairways and interior side of exterior doors.

M. Closers shall be furnished complete with all mounting brackets and cover plates as required by door and frame conditions, and by adjacent hardware.

N. Door closers shall be provided with a powder coat finish to provide superior protection against the effects of weathering. Powder coat finish shall successfully pass a 100-hour salt spray test.

O. Closers with pressure relief valve (PRV) shall not be acceptable.

2.8 KICK PLATES AND MOP PLATES

A. Furnish protective plates as specified in hardware groups.

B. Where specified, provide 10" kick plates, 34" armor plates, and 4" mop plates. Unless otherwise specified, metal protective plates shall be .050" thick; plastic plates shall be 1/8" thick.

C. Protective plates shall be 2" less door width, or 1" less door width at pairs. All protective plates shall be beveled 4 sides and counter sunk.

D. Protection plates over 16" shall not be provided for labeled doors unless specifically approved by door manufacturers listing. When protection plates over 16” are provided for labeled doors, the plate shall be labeled.

E. Where specified, provide surface mounted door edges. Edges shall butt to protective plates. Provide edges with cutouts as required adjacent hardware.

F. Adjust dimensions of protection plates to accommodate stile and rail dimensions, lite and louver cutouts, and adjacent hardware. Where required by adjacent hardware, protection plates shall be factory drilled for cylinders or other mortised hardware.

2.9 OVERHEAD STOPS

A. Acceptable manufacturers and respective catalog numbers:

	Glynn-Johnson	Rixson	Sargent
1. Heavy Duty Surface Mount	GJ900 Series	9 Series	590

B. Unless otherwise specified, furnish GJ900 series overhead stop for hollow metal or 1-3/4” solid core doors equipped with regular arm surface type closers that swing more than 140 degrees before striking a wall, for hollow metal or 1-3/4” solid core doors that open against equipment, casework, sidelights, or other objects that would make wall bumpers inappropriate, and as specified in hardware groups.

C. Furnish sex bolt attachments for wood and mineral core doors unless doors are supplied with proper reinforcing blocks.

D. Provide special stop only (“SE” suffix) overhead stops when used in conjunction with electronic hold open closers.

E. Do not provide holder function for labeled doors.

2.10 WALL STOPS AND HOLDERS

A. Acceptable manufacturers and respective catalog numbers:

	Ives	Hager	Burns
1. Wrought Convex Wall Stop	WS406CVX	232W	570
2. Wrought Concave Wall Stop	WS406CCV	236W	575

3. Automatic Wall Holder	WS40	326W	533	

B. Furnish a stop or holder for all doors.

C. Provide concave style wall stop at all adjacent integral push button locks; provide convex style wall stop at all other locations.

D. Where wall stops are not applicable, furnish overhead stops.

E. Furnish floor stops only where specified in hardware sets.

F. Do not provide holder function for labeled doors.

2.11 WEATHERSTRIP, GASKETING

A. Acceptable manufacturers and respective catalog numbers:

	Zero	Pemko	NGP	Reese
1. Adhesive Gasket	188	S88	5050	797

B. Weatherstrip and gasketing shall be independently certified by ANSI for compliance with ANSI A156.22 (2005).

C. Where specified in the hardware groups, furnish the above products unless otherwise detailed in groups.

D. Provide weatherstripping all exterior doors and where specified in hardware sets.

E. Provide intumescent and other required edge sealing systems as required by individual fire door listings to comply with positive pressure standards UL 10C.

F. Provide Zero 188 smoke gaskets at all fire rated doors and smoke and draft control assemblies.

G. Provide gasketing for all meeting edges on pairs of fire doors. Gasketing shall be compatible with astragal design provided by door supplier as required for specific fire door listings.

2.12 ELECTRIC STRIKES

A. Acceptable manufacturers and respective catalog numbers:

	Von Duprin	HES
1. Type 1	6300 Series	9500 Series

B. Provide electric strikes compatible with the type of locks shown at each opening where specified.

C. Electric strikes shall be UL listed as Burglary-Resistant Electric Door Strikes and where required shall be UL listed as Electric Strike for Fire Doors.

D. Provide transformers and rectifiers for each strike as required. Verify voltage with electrical contractor.

2.13 POWER SUPPLIES

A. Provide quantities and types as specified in hardware sets. Shared power supplies will not be accepted without prior approval from the owner.

B. All power supplies shall have the following features:

1. 12/24 VDC Output, field selectable.
2. Class 2 Rated power limited output.
3. Universal 120-240 VAC input.
4. Low voltage DC regulated and filtered.
5. Polarized connector for distribution boards.
6. Fused primary input.
7. AC input and DC output monitoring circuit w/LED indicators.
8. Cover mounted AC Input indication.
9. Tested and certified to meet UL294.
10. NEMA 1 enclosure.
11. Hinged cover w/lock down screws.

12. High voltage protective cover.

C. All power supplies shall incorporate fused distribution boards.

D. All electro-mechanical systems requiring fail safe circuits shall be capable of interfacing with the fire alarm system to cut power to appropriate system components. Unless already provided in another system component, all power supplies utilized in fail safe circuits shall include an integral relay which when connected to the N/C fire alarm contact will cut power to all openings connected to the individual power supply. Power supply, unless otherwise specified, will automatically reset itself when fire alarm relay returns to normal state following a fire alarm.

2.14 FINISHES AND BASE MATERIALS

A. Unless otherwise indicated in the hardware groups or herein, hardware finishes shall be applied over base metals as specified in the following finish schedule:

	HARDWARE ITEM	BHMA FINISH
1.	Butt Hinges: Interior	652 (US26D - Satin Chromium)
2.	Flush Bolts	626 (US26D - Satin Chromium)
3.	Exit Devices	626 (US26D - Satin Chromium)
4.	Locks and Latches	626 (US26D - Satin Chromium)
5.	Pulls and Push Plates/Bars	630 (US32D - Satin Stainless Steel)
6.	Coordinators	600 (Prime painted or mill alum.)
7.	Closers	689 (Powder Coat Aluminum)
8.	Protective Plates	630 (US32D - Satin Stainless Steel)
9.	Overhead Stops	630 (US32D - Satin Stainless Steel)
10.	Wall Stops and Holders	630 (US32D - Satin Stainless Steel)
11.	Miscellaneous	626 (US26D - Satin Chromium)

2.15 KEYING

A. Acceptable manufacturers and respective catalog numbers:

1. Best No Substitution

B. Provide all locks and cylinders in keyways as required to accommodate owners existing Best master key system.

C. All locks under this section shall be keyed as directed by the Owner to match Owner's Best 7-pin small format master key system.

D. Keying shall be by lock manufacturer where permanent records shall be kept.

E. Provide temporary brass construction cores for all exterior lock cylinders. Provide 10% additional temporary cores and or cylinders as required to provide secure storage locations during construction.

F. Furnish a total of 2 keys per cylinder. Actual cut keys to be determined by owner.

G. Permanent cylinder cores shall be installed by the owner, or owner's representative. Temporary cylinders and cores shall be returned to the distributor once permanent cores have been installed.

H. Permanent master keys, control keys, and change keys shall be delivered by registered mail to the owner. Construction keys shall be delivered to the contractor.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to installation of hardware, installer shall examine door frame installation to ensure frames have been set square and plumb. Installer shall examine doors, door frames, and adjacent wall, floor, and ceiling for conditions, which would adversely affect proper operation and function of door assemblies. Do not proceed with hardware installation until such deficiencies have been corrected.

3.2 INSTALLATION

A. Before hardware installation, general contractor/construction manager shall coordinate a hardware installation seminar with a 1 week notice to all parties involved. The seminar is to be conducted on the installation of hardware, specifically of locksets, closers, exit devices, continuous hinges and overhead stops. Manufacturer's representative of the above products to present seminar. Seminar to be held at the job site and attended by installers of hardware (including low voltage hardware) for aluminum, hollow metal and wood doors. Training to include use of installation manuals, hardware schedule, templates and physical products samples.

B. Provide blocking or reinforcement for all hardware mounted to drywall construction, including wall mounted door stops and holders.

C. Shim doors as required to maintain proper operating clearance between door and frame.

D. Install all hardware in accordance with the approved hardware schedule and manufacturer’s instructions for installation and adjustment.

E. Set units level, plumb and true to the line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

F. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accord with industry standards.

G. Drill appropriate size pilot holes for all hardware attached to wood doors and frames.

H. Unless otherwise specified, locate all hardware in accordance with the recommended locations for builders hardware for standard doors and frames as published by the Door and Hardware Institute.

I. Use only fasteners supplied by or approved by the manufacturer for each respective item of hardware.

J. Conceal push and pull bar fasteners where possible. Do not install through bolts through push plates.

K. Install hardware on UL labeled openings in accordance with manufacturer's requirements to maintain the label.

L. Apply self-adhesive gasketing on frame stop at head & latch side and on rabbet of frame at hinge side.

M. Install hardware in accordance with supplemental "S" label instructions on all fire rated openings.

N. Install wall stops to contact lever handles or pulls. Do not mount wall stops on casework, or equipment.

O. Where necessary, adjust doors and hardware as required to eliminate binding between strike and latchbolt. Doors should not rattle.

P. Overhead stops used in conjunction with electrified hold open closers shall be templated and installed to coincide with engagement of closer hold open position.

Q. Install door closers on corridor side of lobby doors, room side of corridor doors, and stair side of stairways.

R. Adjust spring power of door closers to the minimum force required to ensure exterior and fire rated doors will consistently close and latch doors under existing conditions. Adjust all other door closers to ensure opening force does not to exceed 5 lbs.

S. Adjust "sweep", "latch", & "back check" valves on all door closers to properly control door throughout the opening and closing cycle. Adjust total closing speed as required to comply with all applicable state and local building codes.

T. Install "hardware compatible" (bar stock) type weatherstripping continuously for an uninterrupted seal. Adjust templating for parallel arm door closers, exit devices, etc., as required to accommodate weatherstripping.

U. Unless otherwise specified or detailed, install thresholds with the bevel in vertical alignment with the outside door face. Notch and closely fit thresholds to frame profile. Set thresholds in full bed of sealant.

V. Compress sweep during installation as recommended by sweep manufacturer to facilitate a water-resistant seal.

W. Deliver to the owner 1 complete set of installation and adjustment instructions, and tools as furnished with the hardware.

3.3 FIELD QUALITY CONTROL

A. After installation has been completed, the hardware supplier and manufacturer's representative for locksets, door closers, exit devices, and overhead stops shall check the project and verify compliance with installation instructions, adjustment of all hardware items, and proper application according to the approved hardware schedule. Hardware supplier shall submit a list of all hardware that has not been installed correctly.

B. After installation has been completed, the hardware supplier and manufacturer's representative shall meet with the owner to explain the functions, uses, adjustment, and maintenance of each item of hardware. Hardware supplier shall provide the owner with a copy of all wiring diagrams. Wiring diagrams shall be opening specific and include both a riser diagram and point to point diagram showing all wiring terminations.

3.4 ADJUSTMENT AND CLEANING

A. At final completion, and when H.V.A.C. equipment is in operation, installer shall make final adjustments to and verify proper operation of all door closers and other items of hardware. Lubricate moving parts with type lubrication recommended by the manufacturer.

B. All hardware shall be left clean and in good operation. Hardware found to be disfigured, defective, or inoperative shall be repaired or replaced.

3.5 HARDWARE SCHEDULE

A. The following schedule of hardware groups are intended to describe opening function. The hardware supplier is cautioned to refer to the preamble of this specification for a complete description of all materials and services to be furnished under this section

END OF SECTION

GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glass for new doors where indicated on the drawings..

B. Glazing compounds and accessories.

1.02 RELATED REQUIREMENTS

A. Section 07 9005 - Joint Sealers: Sealant and back-up material.

1.03 REFERENCE STANDARDS

A. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005.

B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2011.

C. ASTM C1036 - Standard Specification for Flat Glass; 2006.

D. ASTM C1048 - Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass; 2004.

E. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2009.

F. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2009a.

G. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2010.

H. GANA (GM) - GANA Glazing Manual; Glass Association of North America; 2009.

I. GANA (SM) - FGMA Sealant Manual; Glass Association of North America; 2008.

J. GANA (LGDG) - Laminated Glazing Reference Manual; Glass Association of North America; 2009.

K. Underwriter's Laboratories - UL 752 Bullet Resisting Equipment.

L. National Institute of Justice - NIJ 0108.01 Ballistic Resistant Protective Materials.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.

C. Samples: Submit two samples 10 x 10 inch in size of glass units.

1.06 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years documented experience.

1.07 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 50 degrees F.

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

PART 2 PRODUCTS

2.01 GLAZING TYPES

A. Type GL-1A - Not Used

B. Type GL-2 – Not Used

C. Type GL-3 – Interior glazing
   1. 1/4” thick clear float tempered safety glass meeting requirements of ASTM C1048 (FT).
   2. For use at all interior glass except as noted otherwise.

D. Type GL-4 – Glass in Rated Conditions
   1. Fire-Lite or approved equal. Meet rating based on size and rating required at opening
   2. Interior Laminated Glazing shall consist of two lites of 1/4” clear tempered glass separated with a .060” vinyl PVB innerlayer. Rate glazing for 45 minute openings. May be used where allowed by applicable codes based on rating and size of lite.

E. Type GL-5 – Not Used

F. Type GL-6 – Not Used

2.02 GLASS MATERIALS

A. Float Glass Manufacturers:
   1. AGC Flat Glass North America, Inc: www.afgglass.com .
   2. Guardian Industries Corp: www.sunguardglass.com .
   3. Pilkington North America Inc: www.pilkington.com/na.
   4. PPG Industries, Inc: www.ppgglazing.com .
   5. OldCastle Glass: www.oldcastle.com .
   6. Substitutions: Refer to Section 01 6000 - Product Requirements.

B. Float Glass: All glazing is to be float glass unless otherwise indicated.
   1. Annealed Type: ASTM C1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).
   2. Heat-Strengthened and Fully Tempered Types: ASTM C1048.
   3. Tinted Types: Color and performance characteristics as indicated.
   4. Thicknesses: As indicated; for exterior glazing comply with specified requirements for wind load design regardless of specified thickness.

2.03 GLAZING COMPOUNDS

A. Manufacturers:
   1. Bostik Inc: www.bostik-us.com.
   2. Pecora Corporation: www.pecora.com.
   3. BASF Construction Chemicals-Building Systems: www.chemrex.com.
   4. Substitutions: Refer to Section 01 6000 - Product Requirements.

B. Polyurethane Sealant: Single component, chemical curing, non-staining, non-bleeding; ASTM C 920, Type S, Grade NS, Class 25, Uses M, A, and G; Shore A Hardness Range 20 to 35; Black color.
   1. For Interior Sealants and Sealant Primers: Maximum VOC Content in accordance to SCAQMD Rule 1168.

C. Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C 920, Type S, Grade NS, Class 25, Uses M, A, and G; cured Shore A hardness of 15 to 25; black color.

2.04 GLAZING ACCESSORIES

A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness, ASTM C864 Option I. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.

B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness, ASTM C 864 Option I. Minimum 3 inch long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face.

C. Glazing Tape: Preformed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; black color. For Interior Sealants and Sealant Primers: Maximum VOC Content in accordance to SCAQMD Rule 1168.
   1. Manufacturers:
      a. Tremco Global Sealants: Product: POLY Shim II; www.tremcosealants.com.
      b. Substitutions: Refer to Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that openings for glazing are correctly sized and within tolerance.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

3.02 PREPARATION

A. Clean contact surfaces with solvent and wipe dry.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Install setting blocks in rabbets as recommended by referenced glazing standards in GANA Glazing Manual and IGMA Glazing Guidelines.

D. Prime surfaces scheduled to receive sealant.

E. Install sealants in accordance with ASTM C1193 and FGMA Sealant Manual.

F. Install sealant in accordance with manufacturer's instructions.

G. Install products using the recommendations of manufacturers of glass, sealants, gaskets and other glazing materials, except where more stringent requirements are indicated on the drawings, including those in the "GANA Glazing Manual".

3.03 INSTALLATION - INTERIOR DRY METHOD (TAPE AND TAPE)

A. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch (1.6 mm) above sight line.

B. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.

C. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.

D. Place glazing tape on free perimeter of glazing in same manner described above.

E. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.

F. Knife trim protruding tape.

3.04 INSTALLATION - INTERIOR WET/DRY METHOD (TAPE AND SEALANT)

A. Cut glazing tape to length and install against permanent stops, projecting 1/16 inch (1.6 mm) above sight line.

B. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.

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

D. Install removable stops, spacer shims inserted between glazing and applied stops at 24 inch intervals, 1/4 inch below sight line.

E. Fill gaps between pane and applied stop with polyurethane type sealant to depth equal to bite on glazing, to uniform and level line.

F. Trim protruding tape edge.

3.05 CLEANING

A. Remove glazing materials from finish surfaces.

B. Remove labels after Work is complete.

C. Clean glass and adjacent surfaces.

3.06 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

END OF SECTION

GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Gypsum board and/or metal stud assemblies, including framing, fasteners, bracing, acoustical sealant, etc.

B. Acoustic insulation.

C. Gypsum wallboard at walls, ceilings, soffits, dropped headers and over wood members at roof openings.

D. Joint treatment and accessories.

E. Patching of openings indicated in the documents, and where electrical or other items are removed from existing gyp. bd., leaving holes larger than 1 inch in any dimension.

F. Cementitious tile backer board at all new wall tile on all steel stud framed partitions.

1.2 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wood blocking product and execution requirements.

B. Section 07 9005 - Joint Sealers: Acoustic sealant.

1.3 REFERENCE STANDARDS

A. Not used

B. ANSI A108.11 - American National Standard for Interior Installation of Cementitious Backer Units; 1999 (R2005).

C. Not used

D. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002 (Reapproved 2007).

E. Not used

F. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2006.

G. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2009a.

H. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2008.

I. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2009a.

J. ASTM E72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 2010.

K. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.

L. ASTM E413 - Classification for Rating Sound Insulation; 2010.

M. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2010.

N. GA-226 - Application of Gypsum Board to Form Curved Surfaces; Gypsum Association; 2008.

O. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2009.

P. ICC (IBC) - International Building Code; 2009.

Q. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.4 Not used

1.5 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: For gypsum board assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction. Products used in the assembly shall carry a classification label from a testing laboratory acceptable to authority having jurisdiction. Maintain one copy of all installation standards at project site.

B. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.

1.6 DELIVERY, STORAGE, AND HANDLING

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

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

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

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

PART 2 PRODUCTS

2.1 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
1. Georgia-Pacific Gypsum LLC; www.gp.com/gypsum.
2. National Gypsum Company; www.nationalgypsum.com.
3. United States Gypsum; www.usg.com.

B. Gypsum Wallboard: Basis of Design: National Gypsum Gold Bond® BRAND Hi-Abuse XP® Gypsum Board. Comparable products by Georgia-Pacific or United States Gypsum may be allowed subject to review of moisture and abuse resistance characteristics and product composition by the Architect.
1. Panel Physical Characteristics:
a. Core: Regular gypsum core
b. Thickness: 5/8 inch
c. Long Edges: Tapered.
d. Mold Resistance: 10 when tested in accordance with ASTM D 3273
e. Flexural Strength - Parallel: 45 lbs, when tested in accordance with ASTM C 473
f. Humidified Deflection: less than 5/8 inch when tested in accordance with ASTM C 473
g. Nail pull resistance: 80 lbs, when tested in accordance with ASTM C 473
h. Water Absorption: less than 5 percent when tested in accordance with ASTM C 473
i. Permeance: greater than 37 perms, when tested in accordance with ASTM E 96
j. Combustibility: Noncombustible when tested in accordance with ASTM E 136
k. Flame spread/Smoke Developed: 0/0 when tested in accordance with ASTM E 84

l. Environmental Requirements: Provide products that comply with testing and product requirements for low emitting materials

1. Application: Use for all vertical surfaces 10'-0" AFF and below.
2. Thickness:
   a. Vertical Surfaces: 5/8 inch.
   b. Ceilings: 5/8 inch.

C. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Use for horizontal and vertical surfaces above 10'-0" AFF, unless otherwise indicated.
2. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
3. Thickness:
   a. Vertical Surfaces: 5/8 inch.
   b. Ceilings: 5/8 inch.

D. Tile backer board
1. Rigid substrate 5/8" thick made of Portland cement, aggregate and glass mesh that provides an exceptionally hard, durable surface that is able to withstand prolonged exposure to moisture, in accordance with ASTM C1325 or ANSI A118.9 specifications. Provide at all locates where new tile is being installed on a new or modified surface.
   a. National Gypsum Company PermaBase
   b. United States Gypsum Board Company, Durock

2.3 ACCESSORIES

A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced.

B. Acoustic Sealant: As specified in Section 07 9005.

C. Water-Resistive Barrier: As specified in Section 07 2500.

D. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
1. Ready-mixed vinyl-based joint compound.
2. Chemical hardening type compound.

E. High Build Drywall Surfacer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.

F. Textured Finish Materials: Latex-based compound; plain.

G. Screws: ASTM C 1002; self-piercing tapping type; cadmium-plated for exterior locations.

H. Wall gasket: ¼" thick Neoprene Isolation Gasket Tape, high density closed cell foam manufactured for sound isolation. Provide at all walls intersecting window mullions, concrete, CMU or similar surfaces.

PART 3 EXECUTION

3.1 EXAMINATION

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

B. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

D. Suspended Ceilings: Coordinate installation of ceiling suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers at spacing required to support ceilings and that hangers will develop their full strength.

3.2 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

3.3 BOARD INSTALLATION

A. Comply with ASTM C 840. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.

C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

D. Exterior Soffit Board: Install perpendicular to framing, with staggered end joints over framing members or other solid backing.

E. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.

F. Installation on Metal Framing: Use screws for attachment of all gypsum board.

G. Install gypsum board on neoprene sound isolation tape around and across window sills to meet window mullions where walls are indicated to terminate at window mullions. Face of wall toward window mullion to receive gypsum board and be fully finished.

H. Curved Surfaces: Apply gypsum board to curved substrates in accordance with GA-226.

I. Moisture Protection: Treat cut edges and holes in moisture resistant gypsum board with sealant.

J. All gypsum board is to be installed with a ½" gap between the bottom of the gypsum board panel and the finished floor.

3.6 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated and at a spacing of not more than 30 feet where there is no other relief.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Wall gasket: Install ¼" thick Neoprene Isolation Gasket Tape on the faces or all intersecting window mullions, and on window sills where walls cross over sills.

3.7 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   2. Level 3: Walls to receive textured wall finish.
   3. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
   4. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.

B. Finish gypsum board in scheduled areas in accordance with levels defined in ASTM C 840 and as scheduled below.
   1. Above Finished Ceilings Concealed From View: Level 1.
   2. Utility Areas and Areas behind Cabinetry: Level 2.
   3. Walls to Receive Textured Wall Finish: Level 3.
   4. Walls and Ceilings to Receive Flat or Eggshell Paint Finish: Level 4.
   5. Walls and Ceilings to Receive Semi-Gloss or Gloss Paint Finish: Level 5.

C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch.
   2. Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile and fixed cabinetry.
   3. Taping, filling and sanding is not required at base layer of double layer applications.

D. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

E. Fill and finish joints and corners of cementitious backing board as recommended by manufacturer.

3.8 TOLERANCES

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

END OF SECTION

ACOUSTIC TILE CEILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Removal and reinstallation plus new Suspended metal grid ceiling system and Acoustic Ceiling Tile as defined in the documents and as required to accomplish the Work.

1.2 RELATED REQUIREMENTS

A. Section 26 5100 - Interior Lighting: Light fixtures in ceiling system.

1.3 REFERENCE STANDARDS

A. ASTM C635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2007.

B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels; 2008.

C. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2006.

D. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2011.

E. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2008e1.

1.4 SUBMITTALS

A. Product Data: Provide data on suspension system components.

B. Samples: Submit ONE sample 6 x 6 inch in size illustrating material and finish of acoustical units. NO GRID SAMPLES ARE TO BE SUBMITTED.

1.5 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years experience.

1.6 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

1.7 ATTIC STOCK

A. Provide a minimum of one full box of acoustical units for each type included in the work.

PART 2 PRODUCTS

2.1 ACOUSTICAL UNITS

A. Manufacturers:
   1. USG: www.usg.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

B. Acoustical Units - General: ASTM E1264, Class A.

C. Acoustical Panels Type 1: ACT-1: Painted mineral fiber, ASTM E1264 Type III, with the following characteristics:
   1. Size: 24 x 24 inches.
   2. Thickness: 5/8 inches.
   4. NRC Range: 0.55, determined as specified in ASTM E1264.
   5. Edge: SQ Square edge within all rooms except hallways, lobbies, corridors,

vestibules, etc. Tegular edge in all hallways, corridors, lobbies, vestibules and other public areas.

6. Surface Color: White.
7. Surface Pattern: Non-directional.
8. Product: 2210 Radar ClimaPlus by USG Interiors.
9. Suspension System: Exposed grid Type 15/16 inch wide - color to match tile.

2.2 SUSPENSION SYSTEM(S)

A. Manufacturers:
   1. Armstrong World Industries, Inc: www.armstrong.com.
   2. Chicago Metallic Corporation: www.chicagometallic.com.
   3. USG: www.usg.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

B. Suspension Systems - General: ASTM C635; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required.

C. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled; intermediate-duty.
   1. Profile: Tee; 15/16 inch wide face.
   2. Construction: Double web.
   3. Finish: White

2.3 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Perimeter Moldings: Same material and finish as grid.
   1. At ALL New Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.

E. Touch-up Paint: Type and color to match acoustical and grid units.
   1. Armstrong "SuperCoat" Ceiling Panel Touch-up Paint.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work or add excessive loads to the structural components above.

3.2 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Locate system on room axis according to reflected plan.

D. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.

E. Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.

F. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where

carrying members are spliced, avoid visible displacement of face plane of adjacent members.

G. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

I. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

J. Do not eccentrically load system or induce rotation of runners.

K. Any exterior suspended ceiling system shall be properly braced so as to prevent uplift from a 45 mph wind.

L. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.
   2. Overlap corners.

M. Install light fixture boxes constructed of gypsum board or acoustical tile above light fixtures in accordance with fire rated assembly requirements and light fixture ventilation requirements when required.

3.3 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install units after above-ceiling work is complete.

E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

F. Cutting Acoustical Units:
   1. Cut to fit irregular grid and perimeter edge trim.
   2. Make field cut edges of same profile as factory edges.
   3. Double cut and field paint exposed reveal edges.

G. Where round obstructions occur, provide preformed closures to match perimeter molding.

3.4 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

RESILIENT FLOORING (PATCHING)

PART 1 GENERAL

1.1 SECTION INCLUDES

A. New vinyl composition tile floor patching at areas where flooring has been removed to accommodate construction described in the documents.

B. New resilient wall base on all new walls and walls/parts of walls left without base as a result of construction.

C. Rubber transitions pieces at all connections between dissimilar flooring materials.

1.2 RELATED REQUIREMENTS

A. Not used

1.3 REFERENCE STANDARDS

A. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2008.

B. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile; 2004 (Reapproved 2010)e1.

C. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008.

D. BAAQMD 8-51 - Bay Area Air Quality Management District Regulation 8, Rule 51, Adhesive and Sealant Products; www.baaqmd.gov; 2002.

E. FS RR-T-650 - Treads, Metallic and Nonmetallic, Skid Resistant; Federal Specifications and Standards; Revision E, 1994.

F. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Verification Samples: Submit two samples, 8x8 inch in size illustrating color and pattern for each resilient flooring product specified.

D. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of sub-floor is acceptable.

E. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect roll materials from damage by storing as needed.

1.6 FIELD CONDITIONS

A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions

above 55 degrees F.

PART 2 PRODUCTS

2.1 TILE FLOORING

A. Vinyl Composition Tile: Basis of Design (To be product identified, or alternate product as required to match existing adjacent tile in areas to be patched). Standard Excelon Imperial Texture by Armstrong Commercial Flooring.

Color: 51910 Classic Black

1. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.

2.2 RESILIENT BASE

A. Resilient Base: ASTM F 1861, Type TS rubber, vulcanized thermoplastic; top set Style B, coved, and as follows: See drawings for selection of all materials.
   1. Height: 4”
   2. Length: Roll where available. 48” sections where roll is not available.
   3. Color: To match existing in adjacent areas, match color of Johnsonite 63 Burnt Umber in new areas – (verify prior to ordering).
   4. Substitutions: See Section 01 6000 - Product Requirements.

2.3 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.
   1. Provide only products having lower volatile organic compound (VOC) content than required by the more stringent of the South Coast Air Quality Management District Rule No.1168 and the Bay Area Air Quality Management District Regulation 8, Rule 51.

C. Moldings, Transition and Edge Strips: Rubber in color to be selected by Architect from manufacturers full line of standard colors.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.

B. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive resilient flooring.

C. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.

D. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for resilient flooring installation by testing for moisture and pH.
   1. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

E. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.

F. Verify that concrete sub-floor surfaces are ready for resilient flooring installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within the following limits:
   1. Moisture emission rate: Not greater than 3 lb per 1000 sq ft per 24 hours when tested using calcium chloride moisture test kit for 72 hours.
   2. Alkalinity: pH range of 5-9.

G. Verify that required floor-mounted utilities are in correct location.

3.2 PREPARATION

A. Remove sub-floor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.

B. Prohibit traffic until filler is cured.

C. Clean substrate.

D. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

3.3 INSTALLATION

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install in accordance with manufacturer's instructions.

C. Spread only enough adhesive to permit installation of materials before initial set.

D. Fit joints tightly.

E. Set flooring in place, press with heavy roller to attain full adhesion.

F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.

G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.

H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.4 TILE FLOORING

A. Install in accordance with manufacturer's instructions.

B. Mix tile from container to ensure shade variations are consistent when tile is placed, unless manufacturer's instructions say otherwise.

C. Spread only enough adhesive to permit installation of materials before initial set.

D. Set flooring in place, press with heavy roller to attain full adhesion.

E. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.

F. Where floor finishes are different on opposite sides of door, terminate flooring under centerline of door.

G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated. Before installation of flooring, secure metal strips with stainless steel screws.

H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

I. Install feature strips and floor markings where indicated. Fit joints tightly.

3.5 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean in accordance with manufacturer's instructions.

C. Clean, seal, and wax resilient flooring products in accordance with manufacturer's instructions, if recommended by manufacturer.

3.6 PROTECTION

A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION

PAINTING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Interior paint and coatings systems including surface preparation. Provide paint at all new gypsum board, doors frames, HM doors and other products that do not have a prefinished coating, and all surfaces indicated elsewhere to be painted.

B. Patch all holes/imperfections on all new and existing surfaces to receive new paint. For bidding purposes, existing rooms are to be assumed to have 100 such conditions each.

1.2 RELATED SECTIONS

A. Section 05120 - Structural Steel: Shop priming structural steel.

B. Section 09260 - Gypsum Board Assemblies: Surface preparation of gypsum board.

1.3 REFERENCES

A. Steel Structures Painting Council (SSPC):
1. SSPC-SP 1 - Solvent Cleaning.
2. SSPC-SP 2 - Hand Tool Cleaning.
3. SSPC-SP 3 - Power Tool Cleaning.
4. SSPC-SP5/NACE No. 1, White Metal Blast Cleaning.
5. SSPC-SP6/NACE No. 3, Commercial Blast Cleaning.
6. SSPC-SP7/NACE No. 4, Brush-Off Blast Cleaning.
7. SSPC-SP10/NACE No. 2, Near-White Blast Cleaning.
8. SSPC-SP11, Power Tool Cleaning to Bare Metal.
9. SSPC-SP12/NACE No. 5, Surface Preparation and Cleaning of Metals by Waterjetting Prior to Recoating.
10. SSPC-SP 13 / NACE No. 6 Surface Preparation for Concrete.
11. SSPC-SP 16 Brush-Off Blast Cleaning of Coated and Uncoarted Galvanized Steel, Stainless Steels and Non-Ferrous Metals.

B. Material Safety Data Sheets / Environmental Data Sheets: Per manufacturer’s MSDS/EDS for specific VOCs (calculated per 40 CFR 59.406). VOCs may vary by base and sheen.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: For each paint system indicated, including.
1. Product characteristics.
2. Surface preparation instructions and recommendations.
3. Primer requirements and finish specification.
4. Storage and handling requirements and recommendations.
5. Application methods.
6. Cautions for storage, handling and installation.

C. Selection Samples: Submit a complete set of color chips that represent the full range of manufacturer's products, colors and sheens available.

D. Verification Samples: For each finish product specified, submit samples that represent actual product, color, and sheen.

E. Only submit complying products based on project requirements. Products, systems and installalers must also comply with the regulations regarding VOCs (CARB, OTC, SCAQMD, LADCO). To ensure compliance with district regulations and other rules, businesses that perform coating activities should

contact the local district in each area where the coating will be used.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

B. Paint exposed surfaces. If a color of finish, or a surface is not specifically mentioned, Architect will select from standard products, colors and sheens available.

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

D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Finish surfaces for verification of products, colors and sheens.
2. Finish area designated by Architect.
3. Provide samples that designate primer and finish coats.
4. Do not proceed with remaining work until the Architect approves the mock-up.

E. Testing: Owner will retain a testing agency to review surface preparation, mil thickness, adhesion, etc. Contractor shall cooperate with and provide access to all surfaces for testing agency.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver manufacturer's unopened containers to the work site. Packaging shall bear the manufacturer's name, label, and the following list of information.
1. Product name, and type (description).
2. Application and use instructions.
3. Surface preparation.
4. VOC content.
5. Environmental handling.
6. Batch date.
7. Color number.

B. Storage: Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

C. Store materials in an area that is within the acceptable temperature range, per manufacturer's instructions. Protect from freezing.

D. Handling: Maintain a clean, dry storage area, to prevent contamination or damage to the coatings.

1.7 PROJECT CONDITIONS

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

1.8 EXTRA MATERIALS

A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.

B. Furnish Owner with an additional one percent of each material and color, but not less than 1 gal (3.8 l) or 1 case, as appropriate.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: Painting systems are specified using the products of Sherwin-Williams, Cleveland, OH; www.sherwin-williams.com. Comparable systems by Benjamin Moore & Company, PPG and Diamond Vogel Paint are acceptable subject to approval by the Architect of minor deviations from paint coating systems described herein.

B. Substitutions: Requests for substitutions will be considered in accordance with provisions of Section 01 6000 Product Requirements.

2.2 APPLICATIONS/SCOPE

A. Interior Paints and Coatings:(LEED-09 NC/CI/CS COMPLIANT)
1. Masonry: Concrete masonry units, including split-face, scored, and smooth block.
2. Metal: Aluminum, galvanized steel.
3. Metal: Structural steel, joists, trusses, beams, partitions and similar items.
4. Drywall: Drywall board, Gypsum board.

B. Interior High Performance Paints and Coatings:
1. Metal Ferrous: Ceilings, structural steel, joists, trusses, beams, and similar items including dryfall coatings.

C. Exterior Paints and Coatings:
1. Masonry: Concrete masonry units, cinder or concrete block.
2. Metal: Aluminum, galvanized steel.
3. Metal: Miscellaneous iron, ferrous metal.

2.3 PAINT MATERIALS - GENERAL

A. Paints and Coatings.
1. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
2. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color. Or follow manufactures product instructions for optimal color conformance.

B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

C. Coating Application Accessories: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required, per manufacturer's specifications.

D. Color: Refer to Drawings for paint colors, and as selected by Architect (assume two colors per room).

2.4 INTERIOR PAINT SYSTEMS (LEEDv4 NC/CI/CS COMPLIANT)

A. MASONRY: CMU - Concrete, Split Face, Scored, Smooth, High Density, Low Density, Fluted.
1. Latex Systems:
a. Eg-Shel / Satin Finish:
1) 1st Coat: S-W PrepRite Block Filler, B25W25 (75-125 sq ft/gal).
2) 2nd Coat: S-W K45 Series Pro Industrial Pre-/Cat Epoxy Eg-Shel
3) 3rd Coat: S-W K45 Series Pro Industrial Pre-/Cat Epoxy Eg-Shel

B. METAL:
1. Latex Systems:
a. Eg-Shel / Satin Finish:

1) 1st Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series (5.0 mils wet, 2.0 mils dry).
2) 2nd Coat: S-W K46 (Semi-Gloss) Series Pro Industrial Pre-/Cat Epoxy Eg-Shel
3) 3rd Coat: S-W K46 (Semi-Gloss) Series Pro Industrial Pre-/Cat Epoxy Eg-Shel

C. DRYWALL - (Walls, Ceilings, Gypsum Board and similar items)
2. Latex Systems:
a. Eg-Shel / Satin Finish:
1) 1st Coat: S-W ProMar 200 Zero VOC Interior Latex Primer, B28W2600 (4 mils wet, 1.5 mils dry).
2) 2nd Coat: S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series.
3) 3rd Coat: S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series (4 mils wet, 1.7 mils dry per coat).

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared; notify Architect of unsatisfactory conditions before proceeding. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

B. Proceed with work only after conditions have been corrected and approved by all parties, otherwise application of coatings will be considered as an acceptance of surface conditions.

C. Previously Painted Surfaces: Verify that existing painted surfaces do not contain lead based paints, notify Architect immediately if lead based paints are encountered.

3.2 SURFACE PREPARATION

A. General: Surfaces shall be dry and in sound condition. Remove oil, dust, dirt, loose rust, peeling paint or other contamination to ensure good adhesion and to meet the preparation recommendations of the coatings manufacturers.
1. Remove mildew before painting by washing with a solution of 1 part liquid household bleach and 3 parts of warm water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with clean water and allow the surface to dry a minimum of 48 hours before painting. Wear protective glasses or goggles, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach/water solution.
2. Remove items including but not limited to thermostats, electrical outlets, switch covers, exit signs, wall hung light fixtures, paper towel/soap dispensers, clocks, speakers, telephones, pencil sharpeners, window treatments, signs under 4 square feet and and similar items prior to painting. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
3. No exterior painting should be done immediately after a rain, during foggy weather, when rain is predicted, or when the temperature is below 50 degrees F (10 degrees C), unless products are designed specifically for these conditions. On large expanses of metal siding, the air, surface and material temperatures must be 50 degrees F (10 degrees F) or higher to use low temperature products.

B. Prepare and apply all coatings and materials consistent with the manufacturer’s specifications, recommendations and requirements, including techniques, methods, atmospheric conditions, surface conditions, etc. Mix and thin coatings according to manufacturer's recommendations and requirements.

C. Aluminum: Remove all oil, grease, dirt, oxide and other foreign material by cleaning per SSPC-SP1, Solvent Cleaning.

D. Block (Concrete Masonry Units): Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement, and hardeners. Concrete and mortar must be cured at least 30 days at 75 degrees F (24 degrees C). The pH of the surface should be between 6 and 9, unless the products are designed to be used in high pH environments. On tilt-up and poured-in-place concrete, commercial detergents and abrasive blasting may be necessary to prepare the surface. Fill bug holes, air pockets, and other voids with a cement patching compound.

E. Concrete, SSPC-SP13 or NACE 6: This standard gives requirements for surface preparation of concrete by mechanical, chemical, or thermal methods prior to the application of bonded protective coating or lining systems. The requirements of this standard are applicable to all types of cementitious surfaces including cast-in-place concrete floors and walls, precast slabs, masonry walls, and shotcrete surfaces. An acceptable prepared concrete surface should be free of contaminants, laitance, loosely adhering concrete, and dust, and should provide a sound, uniform substrate suitable for the application of protective coating or lining systems.

F. Drywall - Interior: Must be clean and dry. All nail heads must be set and spackled. Joints must be taped and covered with a joint compound. Spackled nail heads and tape joints must be sanded smooth and all dust removed prior to painting.

G. Galvanized Metal: Clean per SSPC-SP1 using detergent and water or a degreasing cleaner to remove greases and oils. Apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, Brush Blast per SSPC-SP7 is necessary to remove these treatments.

H. Steel: Structural, Plate Steel, Shop Fabricated Steel Shapes/Assemblies/Fabrications and all Similar Items: Shall be cleaned by one or more of the surface preparations described below, as required to provide surfaces in compliance with these specifications and the recommendations of the paint manufacturer.

1. Solvent Cleaning, SSPC-SP1: Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants. Solvent cleaning does not remove rust or mill scale. Change rags and cleaning solution frequently so that deposits of oil and grease are not spread over additional areas in the cleaning process. Be sure to allow adequate ventilation.
2. Hand Tool Cleaning, SSPC-SP2: Hand Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before hand tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
3. Power Tool Cleaning, SSPC-SP3: Power Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before power tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
4. High- and Ultra-High Pressure Water Jetting for Steel and Other Hard Materials: SSPC-SP12 or NACE 5: This standard provides requirements for the use of high- and ultra-high pressure water jetting to achieve various degrees of surface cleanliness. This standard is limited in scope to the use of water only without the addition of solid particles in the stream.
5. Water Blasting, SSPC-SP12/NACE No. 5: Removal of oil grease dirt, loose rust, loose mill scale, and loose paint by water at pressures of 2,000 to 2,500 psi at a flow of 4 to 14 gallons per minute.
6. Brush-Off Blast Cleaning: SSPC-SP 16 Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels and Non-Ferrous Metals.

3.3 INSTALLATION

A. Prepare and apply all coatings and materials consistent with the manufacturer’s specifications, recommendations and requirements, including techniques, methods, atmospheric conditions, surface conditions, etc. Mix and thin coatings according to manufacturer's recommendations and requirements.

B. Do not apply to wet or damp surfaces. Wait at least 30 days before applying to new concrete or masonry. Or follow manufacturer's procedures to apply appropriate coatings prior to 30 days. Test new

concrete for moisture content. Wait until wood is fully dry after rain or morning fog or dew.

C. Apply coatings using in methods recommended by manufacturer.

D. Uniformly apply coatings without runs, drips, or sags, without brush marks, and with consistent sheen.

E. Apply coatings at spreading rate required to achieve the manufacturers recommended dry film thickness.

F. Regardless of number of coats specified, apply as many coats as necessary for complete hide, and uniform appearance.

G. Inspection: All surfaces must be inspected and approved by the Architect and/or the Inspecting Agency just prior to the application of each coat, including the initial/first coating. If any conditions are found to be deficient, those conditions are to be remedied and surfaces re-inspected prior to application of coatings.

3.4 PROTECTION

A. Protect finished coatings from damage until completion of project.

B. No products are to be exposed to moisture or extreme temperatures (under 45 degrees F or above 90 degrees F) until they are fully cured.

C. Touch-up damaged coatings after substantial completion, following manufacturer's recommendation for touch up or repair of damaged coatings. Repair any defects that will hinder the performance of the coatings.

END OF SECTION