AUDIO-TECH ACOUSTIC UPGRADES

1701 E. Front St.
Traverse City, MI 49686
PROJECT NO. 26.503

SPECIFICATIONS

Bid/Permit Set
November 9, 2026

Architecture

Cornerstone Architects
122 S. Union Street, Suite 200
Traverse City, MI 49684
phone: 231.947.2177
contact: John Dancer, AIA

Owner

Northwestern Michigan College
1701 E. Front St.
Traverse City, MI 49686
phone: 231.995.1114
contact: Patrick Quinlan

Mechanical / Electrical /Plumbing

Nealis Engineering
1419 Industry Dr.
Traverse City, MI 49686
phone: 231.933.0510
contact: Jason VanBrocklin, PE

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SECTION 00 11 13

ADVERTISEMENT FOR BID

FROM:

The Owner (hereinafter referred to as Owner):
Northwestern Michigan College (NMC)
1701 E. Front St.
Traverse City, MI 49686
Phone: 231.995.1147
Contact Person: Laura Kingman

And the Architect:
Cornerstone Architects, Inc.
122 S. Union Street, Suite 200
Traverse City, MI 49684
Phone: 231.947.2177
Contact Person: Andy Lin, AIA

DATE: November 9th, 2026

TO: POTENTIAL BIDDERS

The Owner will receive sealed bids for a Single Prime, Stipulated Sum Contract for the **NMC Audio-Tech Acoustic Upgrades** located at **Founder's Hall at 1701 E. Front Street, Traverse City, MI 49686**

Bids for a Stipulated Sum contract shall be received by Tuesday, **December 1st, 2026 at 2:00 pm.** Bid proposals must be attached as a PDF in an email to Don Loeffler (dloeffler@nmc.edu). The email subject line shall be indicated for – "**NMC Audio Tech Acoustic Upgrades**". Any bids received after the specified date and time will not be considered.

Project Description:

Interior renovation of existing classroom spaces including a new audio-tech control room, a new sound vestibule, and acoustic enhancements to existing walls,

The Project Scope include but is not limited to:

- Interior renovation in existing space including selective demolition of existing, modification to existing, and new construction work.
- Fire Alarm & Fire Suppression modification: design and installation.
- Electrical work: Demolition of existing lighting/power, new lighting/power, new emergency lighting
- Mechanical work: Demolition/modification of existing mechanical system/components and installation of new mechanical components

Schedule:

A. It is the intent of the Owner to award a contract within thirty (30) days after opening bids.
B. A complete list of all subcontractors, material and equipment suppliers shall be furnished to the Owner's PM by the apparent low bidder within 24 hours after bid opening.
C. The successful bidder is to prepare a Preliminary Construction Schedule for review with the Owner within three (3) calendar days of the bid opening.
D. Construction period to begin on **December 11th** (If Board Approval is required, the start date will be December 15th) with Substantial Completion in tentatively planned for January 11th.

E. Contractor to coordinate schedule of work with Owner's PM, Phasing of work, and temporary protection if work occurs when classes are in session. Contractor shall not begin work prior to receiving proper authorization from Owner's PM.

Bidding Documents:

Requirements, drawings and specifications for submissions are available on/at or through:

- Northwestern Michigan College RFPs: https://www.nmc.edu/departments/finance-administration/requests-for-proposals/index.html
- Builder's Exchange Northwest Michigan
- Traverse Reproduction / 1373 Barlow Rd / Traverse City, MI 49686 at the bidders' expense.

Pre-Bid Meeting:

A Pre-Bid Conference, mandatory for General Contractors and sub-contractors, will be held on Wednesday, **November 18th**, 2026 at the project site beginning at 10:00 AM. Supplemental conferences will **not** be held.

It is expected all bidders will be familiar with the site, project and existing conditions at the time their bid is submitted.

Bidding:

Refer to other bidding requirements described in **Document 00 21 13 - Instructions to Bidders**; and Document 00 30 00 - Information Available to Bidders.

Submit your offer on the Bid Form provided – **Document 00 41 00 – Bid Form**. Bidders may supplement this form as appropriate.

Bids shall be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the Owner or any employee of the bidder.
Use the Form provided as **Section 00 45 50 – Statement Regarding Familial Relationship.**

Bids shall be accompanied by a sworn and notarized statement certifying bidder and subcontractors to this bidder are not Iran-linked business.
Use the Form provided as **Section 00 45 51 – Iran Economic Sanctions Act Certification.**

Your offer will be required to be submitted under a condition of irrevocability for a period of 60 days after submission.

The Owner reserves the right to accept or reject any or all offers, waive irregularities, and to accept the bid that in their opinion is in the best interest of the Owner.

END OF SECTION 00 11 16

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.1 PROJECT IDENTIFICATION

A. Project: **NMC Audio-Tech Acoustic Upgrades**
1701 E. Front St, Traverse City, MI 49686

B. Owner: Northwestern Michigan College

C. Owner Contact(s)
Laura Kingman
lkingman@nmc.edu
231.995.1930

D. Architect: Representative:
Andy Lin
Cornerstone Architects
122 S. Union, Suite. 200
Traverse City, MI 49684
alin@cornerstone-arch.com
231.947.2177

1.2 SUMMARY OF WORK

A. The Work of the Project is defined by the Contract Documents and includes but is not limited to the following:

1. Provide all work, permits and coordinate inspections, testing and start-up necessary for a complete and operational facility. Work of this proposed Contract comprises renovation and demolition, including general construction, mechanical, and electrical work.

B. Type of Contract

1. Project will be constructed under a single prime contract.
2. The Contract form of agreement between the Owner and Contractor shall be: according to **AIA document A104-2017**. (*Standard Abbreviated Form of Agreement Between the Owner and Contractor)*

1.3 QUALITY CONTROL

A. The Contractor shall maintain continuously, a competent superintendent, satisfactory to the Owner, with authority to act for him in all matters pertaining to the work.

1.4 PROCUREMENT OF DOCUMENTS

A. Bid documents are available in PDF format at:

- Northwestern Michigan College RFPs: https://www.nmc.edu/departments/finance-administration/requests-for-proposals/index.html
- Builders Exchange of Northwest Michigan / 1373 Barlow Street / Traverse City / MI.
- Bid sets may be printed & purchased from Traverse Reproduction / 1373 Barlow Rd / Traverse City, MI 49686 at the bidders' expense.

B. Bid Documents are made available only for the purpose of obtaining offers for this project. Their use does not grant a license for other purposes. Only full sets of Bid Documents will be provided. Partial distribution of the Bid Documents to bidding parties is not permitted.

C. Upon receipt of Bid Documents verify that documents are complete. Notify Architect should the documents be incomplete.

D. Immediately notify Architect upon finding discrepancies or omissions in the Bid Documents.

1.5 INQUIRIES/ADDENDA

A. Email questions to Cornerstone Architects:

(Andy Lin, alin@cornerstone-arch.com)

B. Addenda will only be issued to General Contractors who are plan holders.

C. Addenda may be issued via email during the bidding period.
1. Provide your email contact information to Architect's office upon receiving Bid Documents.

D. All Addenda become part of the Contract Documents. Include resultant costs in the Bid Amount.

E. Verbal answers are not binding on any party.

F. Clarifications requested by bidders must be in writing not less than 4 days before date set for receipt of bids. The reply will be in the form of an Addendum, a copy will be forwarded to known recipients via email.

1.6 PRODUCT/ASSEMBLY/SYSTEM SUBSTITUTIONS

A. Where the Bid Documents stipulates a particular product, substitutions will be considered up to 4 days before receipt of bids.

B. When a request to substitute a product is made, Architect may approve the substitution and will issue an Addendum to known bidders.

C. The submission shall provide sufficient information to determine acceptability of such products.

D. Provide complete information on required revisions to other work to accommodate each proposed substitution.

E. Provide products as specified unless substitutions are submitted in this manner and accepted.

F. See Section 01 60 00 - Product Requirements for additional requirements.

SITE ASSESSMENT

1.7 SITE EXAMINATION

A. It shall be understood that each Bidder has been given the opportunity to visit the site (by appointment only) and knows the conditions under which the work will be done. Lack of such knowledge will not constitute a basis for any claims whatsoever for extra compensation or extension of time.

1.8 PRE-BID MEETING

A. A Pre-Bid Conference, mandatory for General Contractors and Sub-Contractors, will be held on Wednesday, **November 18th**, 2026 at the project site beginning at 10:00 AM. Supplemental conferences will not be held.

B. Individuals present and listed on sign-in sheet for the conference will be included on the distribution list for future issued addenda or clarifications.

C. Representatives of Architect will be in attendance.

D. Information relevant to the Bid Documents will be recorded in an Addendum, issued to Bid Document recipients.

1.9 SCHEDULE

A. It is the intent of the Owner to award a contract within thirty (30) days after opening bids.

B. A complete list of all subcontractors, material and equipment suppliers shall be furnished to the Owner's PM by the apparent low bidder within 24 hours after bid opening.

C. The successful bidder is to prepare a Preliminary Construction Schedule for review with the Owner within three (3) calendar days of the bid opening.

D. Construction period to begin on **December 11th** (If Board Approval is required, the start date will be December 15th) with Substantial Completion in tentatively planned for January 11th.

E. Contractor to coordinate schedule of work with Owner's PM, Phasing of work, and temporary protection if work occurs when classes are in session. Contractor shall not begin work prior to receiving proper authorization from Owner's PM.

1.10 BID RECEIPT

A. Bids for a Stipulated Sum contract shall be received by Wednesday, **December 1st, 2026 at 2:00 pm.** Bid proposals must be attached as a PDF in an email to Don Loeffler (dloeffler@nmc.edu).The email subject line shall be indicated for – "**NMC Audio Tech Acoustic Upgrades**". Any bids received after the specified date and time will not be considered.

B. Bids will be privately opened. The Owner complies with all federal and state laws and regulations including the requirement not to contact with sanctioned individuals or companies

1.11 WORK RESTRICTIONS

A. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

B. Parking: Contractor vehicles must be parked in legal parking areas or will be subject to towing, unless specific consent has been given by the Owner for purposes of loading or unloading tools, equipment, materials, etc. Parking of vehicles on sidewalks, landscape or other areas is prohibited.

C. Trash disposal: Contractor is responsible for the removal of all trash, debris, excess material, etc. The use of the Owner's dumpsters is not permitted.
   1. Failure to abide by this may render Contractor subject to back charges.

D. Use of the Owner's owned equipment, lifts, ladders, tools, custodial equipment or supplies, etc is specifically prohibited. Contractor shall supply all necessary tools, equipment and materials necessary to complete the work.

1.12 ACCESS TO SITE

A. Use of Site: Limit use of Project site to areas within the Contract limits. Do not disturb portions of site beyond areas in which the Work is indicated. Contractor to protect all adjacent building materials, surfaces, Owner's furnishings, etc and is responsible for any repair/restoration/replacement required as a result of any damage caused by the contractor's operations. Worker access will be badged through employee entrance.

B. Area of Work: Contractor must keep the area of work reasonably presentable and clean throughout the duration of the work.

C. Security: Contractor is responsible for barricades, signage, etc necessary to secure the area of work during construction.

D. Driveways, Walkways, Entrances, Doors: Keep all means of access and egress serving premises clear and available to Owner, Owner's staff, students, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Do not restrict, close or obstruct access to premises unless given specific written permission from the Owner's PM.

E. Deliveries: Schedule deliveries to minimize use of driveways and entrances by construction operations and to minimize space and time requirements for storage of materials and equipment on-site. Materials delivers to come through door west of Employee entrance. Route will be walked during Pre-bid meeting.

F. Storage: Staging of contractor equipment, materials, tools or other project related items in data closets, janitorial closets, penthouses, tunnels or areas other than those specifically directed by the Owner is prohibited. Contractor shall safeguard their materials, tools, equipment. The Owner is not responsible for vandalism and/or theft of same.

1.13 COORDINATION WITH OCCUPANTS

A. Owner Occupancy: Owner will occupy the premises during entire construction period, including potentially the areas under construction.

B. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations.

C. Provide not less than 72 hours notice to Owner's Representative of activities that will affect Owner's operations or building occupants, including but not limited to utility interruptions, odor, noise, vibration.

1.14 PROJECT CLOSEOUT

A. Cleaning: Contractor is responsible for final cleaning of work area. No dust, debris, trash, excess materials etc. may be left behind.
   1. Failure to properly clean work area may result in the contractor being back charged for the use of the Owner's custodial staff.

B. As-built Record Drawing(s): Provide Owner with record documents of installation including but not limited to:
   1. Detailed layout drawings of system showing piping and device locations.
   2. Wiring and control diagrams.
   3. Other requirements as noted in other specification sections.

C. Warranties: Provide one (1) year warranty on all materials and labor. Provide additional warranty information for all products, systems, materials, equipment, etc

D. Operation & Maintenance Data: Refer to system specification section(s).

E. Certified Payroll: Submit with each invoice for the work.

F. Final payment will not be made until all closeout documents have been received, punch list items are complete and the work area is clean and the Owner's PM has approved the work.

PART 2 – MATERIALS

2.1 OWNERSHIP OF DOCUMENTS

A. Drawings and specifications purchased by Bidders for bidding remain property of the Bidders and shall not be sent to the Owner or Architect for a refund of the "Cost to Purchase."

PART 3 - EXECUTION

3.1 EXAMINATION OF DOCUMENTS AND SITE

A. It is the Bidder's responsibility to study the drawings and specifications, visit the construction site and examine existing conditions to correlate site observations with requirements of the Contract Documents.

B. All bidders must give prior notification to Owner's PM and schedule a time to examine the site after the pre-bid meeting.

C. No "EXTRA" payment or allowance will be made to cover obvious discrepancies or changes required due to existing site conditions not visually determined and addressed in writing to the Owner before bid opening, or by reason of any error or oversight on the Contractor's part.

D. Drawings shall not be scaled by Bidders for the purpose of bidding. Information required for bidding shall be obtained by using the indicated dimensions of each plan, elevation, section or detail. All discrepancies noted by the Bidders shall be immediately brought to the Owner's attention.

3.2 INTERPRETATIONS AND CORRECTIONS OF DOCUMENTS

A. Written requests must be submitted to the Owner's PM a minimum of four (4) days before receipt of bids for clarification or interpretation of errors, inconsistencies or ambiguities found in contract documents.

B. An addendum will be issued to Bidders to clarify the subject or request a minimum of two (2) days before receipt of bids; the addendum will become part of the Contract Documents.

C. Only interpretations, corrections or changes made by addendum will be binding.

3.3 SUBSTITUTIONS

A. To obtain approval to use unspecified products, Bidders shall submit a written request to the Architect a minimum four (4) days before receipt of bids. Requests received after this time will not be considered.

B. Submit, with the request, all-necessary samples and substantiating data to prove equal quality and performance to the product originally specified.

C. If proposed product is accepted, an addendum will be issued to Bidders a minimum two (2) days before receipt of bids and will become part of the Contract Documents.

D. Only substitutions accepted by addendum are binding.

E. No substitutions will be allowed after receipt of bids.

3.4 CODES, ORDINANCES AND REGULATIONS

A. Furnish and install all labor and material according to latest codes, ordinances and regulations for all governing bodies having project jurisdiction.

B. The quality of labor and material shall be as required by drawings and specifications except when exceeded by local codes, ordinances, or regulations.

C. Contracts for work under this bid will require the Contractor and subcontractors to maintain policies of employment and to pay wage rates as described in the General Conditions and/or this Section.

3.5 BASIS OF BID

A. SECTION 1.2 SUMMARY OF WORK describes the basis of bids.

B. A Stipulated Sum bid is to be provided.

C. The Bidder shall include all unit cost items and allowances included in the Proposal Form. Bids, which are incomplete, conditional, obscure or which contain additions not asked for will be subject to rejection.

3.6 PREPARATION AND SUBMITTAL OF BID

A. Bids are due no later than the time, date and location noted in **Section 1.10 A. BID RECEIPT.**

B. The Bidder shall fill in all blanks by typing or lettering in ink. Sums are to be given both numerically and written, with the amount written in words to govern in case of discrepancy. Bid shall give legal name of Bidder and shall be signed by a person legally authorized to bind the Bidder to a contract.

C. All addenda received by the Bidder shall be acknowledged by placing all identifying addendum numbers and dates on bid proposal form.

D. Required documentation to be submitted with the bid:
   1. Signed Bid Form
   2. Signed Iran Economic Sanctions Act Certification
   3. Signed Statement Regarding Familial Relationship
   4. Bid Bond

E. Bids to be submitted via email.

F. Failure to submit the minimum requirements may render the bid unresponsive and may eliminate the bid from consideration for award.

G. The bidding contractor is solely responsible for the timely delivery of the proposal. Submissions received after the posted due date and time will be returned unopened. No employee of the Owner will be held responsible for prematurely opening an incorrectly addressed bid proposal.

H. All program and contract administration costs must be spelled out, including subcontracting, managing, documentation, containment, reporting, installation, delivery, service, maintenance, material and consumables, and replacement costs. The Owner will not accept hidden costs or fees not otherwise documented.

3.7 BID SECURITY

A. A bid Security is required to accompany each bid in the amount of five percent (5%) of total base bid in the form of a cashier's check or bid bond, made payable to the Owner, and insured by a licensed surety doing business in the State of Michigan.

B. Failure to furnish Bid Bond at time of bid opening will be cause for rejection of bid.

C. Bid Bonds will be returned to unsuccessful Bidders after bid opening. Bond will be returned to successful Bidder after execution of further documents and bonds required by the specifications.

D. Owner reserves the right to retain security of the three lowest Bidders until it has entered into contract with one of the Bidders or until sixty (60) days after bid opening date. If any

Bidder refuses to enter into a contract, Owner will retain his bond as liquidated damage.

3.8 BID MODIFICATION AND WITHDRAWAL

A. Bid may NOT be modified, withdrawn, or canceled for sixty (60) days after date of bid opening.

B. Prior to bid date and time, Bidder may modify, cancel, withdraw and/or resubmit his bid in person or by signed, written notice. Notice must be mailed to party receiving bids, in confirming envelope, post-marked before date and time of receipt of bids. Modification of bids may require modification of bid security.

3.9 GUARANTY BONDS AND INSURANCE

A. The Contractor, before commencing the Work, is required to furnish a Performance Bond and a Labor and Material Payment Bond.

The Performance Bond shall be in an amount equal to 100 percent of the full amount of the Contract Sum as security for the faithful performance of the obligations of the Contract Documents, and the Labor and Material Payment Bond shall be in an amount equal to 100 percent of the full amount of the Contract Sum as Security for the payment of all persons performing labor and furnishing materials in connection with the Contract Documents. Such bond shall be on A.I.A. Document A-311, issued by the American Institute of Architects, shall be issued by a surety satisfactory to the Owner and shall name the Owner as primary co-obligee. Labor and Material Bonds shall comply with Public Act 213 of 1963. Performance Bonds shall comply with Public Act 32 of 1956 and all amendments. Bonds containing Stature of Limitations or time limitation will NOT be acceptable. All bonds shall be underwritten by companies authorized to do business in the State of Michigan.

B. Refer to Section 007300 Supplementary Conditions for additional requirements.

3.10 SELECTION OF SUCCESSFUL BIDDER AND CONTRACT AWARD

A. Owner reserves the right to waive bid irregularities and to accept the bid in the Owner's best interest and to award to other than the low bid.

B. Owner reserves the right to reject any or all bids where incomplete or irregular, lacking bid bond, data required by bidding documents, or where proposals exceed funds available.

A. The Owner will consider the qualification and experience of the Bidder and the amount of the bid when determining the award of the contract.

B. If requested, the Bidders under consideration for award of contract shall submit a contractor's solvency qualification statement.

C. Before award of contract, considered Bidder will be notified in writing if the Owner has reasonable objection to a person or entity proposed by Bidder. Bidder may then withdraw bid, or submit substitute person or entity together with adjustment in bid for Owner's acceptance or disqualification. In event of withdrawal by Bidder or disqualification by Owner, bid security will not be forfeited.

D. Sub-contracts, material and equipment contract shall not be awarded until they have been accepted by the Owner.

E. This bid in no manner obligates the Owner to the eventual contract for any items described, implied, or which may be proposed, until confirmed by written agreement issued by the Purchasing Department and may be terminated by the Owner without

penalty or obligation at any time prior the issuance of an award.

3.11 ADDITIONAL WORK

A. All requests for work that will require additional payment beyond the original scope of work must be submitted to the Owner's PM prior to execution of the work. Failure to obtain advanced written approval may result in non-payment.

3.12 PREVAILING WAGE REQUIREMENT- this is **NOT** a prevailing wage project.

3.13 INSURANCE REQUIREMENTS

A. Refer to Section 00 7300 Supplementary Conditions for requirements.
B. Contractor agrees to provide the following **minimum insurance coverage**:

1. Worker's compensation insurance at the current statutory limits
2. Employer's liability insurance, in conjunction with worker's compensation insurance, for claims for damages because of bodily injury, occupational sickness or disease or death of an employee when worker's compensation may not be an exclusive remedy, subject to a limit of liability of not less than $1,000,000.
3. Commercial general liability insurance for claims for damages because of bodily injury or death of any person, other than the contractor's employees, or damage to tangible property of others, including loss of use resulting there form, to the extent that such kinds of liability are not insured by other specific liability insurance and are ordinarily insurable under commercial general liability insurance, subject to bodily injury limits of not less than $1,000,000; personal injury coverage limits of not less than $1,000,000; property damage limits of not less than $1,000,000; and sexual abuse, sexual molestation and sexual misconduct coverage subject to limits of not less than $1,000,000; or combined bodily injury/property damage/sexual abuse, sexual molestation and sexual misconduct of not less than $5,000,000. A combination of primary and/or umbrella/excess policies may be utilized.
4. Contractual liability insurance of not less than $1,000,000 for claims concerning indemnification for errors, omissions or negligent acts in the course of the professional service or other provision within this contract to the extent that such kinds of contractual liability are insurable.
5. Policies must be primary.
6. Contractor must furnish to the Owner, certificates of insurance evidencing the above coverage and additional insurance requirements in Section 007300 Supplementary Conditions. Certificates must be provided before contractor commences contract duties and prior to each policy renewal, or contract duties will not be allowed to commence or continue.
7. Certificates of insurance relating to the policies required under this award must contain the following words: "It is agreed that this insurance will not be canceled, not renewed or the limits of coverage in any way reduced without providing a minimum of thirty [30] days advance written notice and ten [10] days for non-payment of premium emailed to: Troy Kierczynski, tkierczynski@nmc.edu
8. Proof of such policies must be provided to the Buyer prior to the commencement of any work.
9. Contractor waives any and all rights of subrogation, with regard to property insurance, against Owner.

3.14 ADDITIONAL TERMS & CONDITIONS

A. The Contractor, and the agents and employees of the Contractor, in the performance of this agreement, shall act in an independent capacity and not as officers, employees, or agents of the Owner.

B. Upon request Contractor will provide the Owner with Material Safety Data Sheets [MSDS] for all chemicals, glues, cleaning solvents, etc. used in the building prior to, during or following the work to be performed. Such sheets shall be submitted to the following email address: lkingman@nmc.edu

C. Contractors who must access a confined space or permit-required confined space to fulfill the service they provide to the Owner must submit a current confined space training program, and/or a permit [for permit-required confined space entry] to the Owner's Project Manager.

D. Access to confined spaces and permit-required confined spaces will only be given after a notice to enter has been given to the Owner's Project Manager, and only then after [s]he has confirmed receipt of the contractor's current confined space training program and/or permit.

E. Owner will not pay for any information requested herein, nor is it liable for any costs incurred by the contractor in responding to this request. Submitted proposals will not be returned and may be subject to the Freedom of Information Act.

F. The Contractor agrees to indemnify, defend and hold harmless the Owner, its officers, agents and employees from any and all claims and losses accruing or resulting to any and all Contractors, subcontractors, material persons, laborers and any other person, firm or corporation furnishing or supplying work, services, materials or supplies in connection with the performance of this contract; from any and all claims and losses accruing or resulting to any person, firm or corporation who may be injured or damaged by the Contractor in the performance of this agreement; or from any misrepresentation or breach of warranty by the Contractor.

G. The contractor shall be responsible for maintaining satisfactory standards of employees' competency, conduct, courtesy, language, appearance, honesty, and integrity, and shall be responsible for taking such disciplinary action with respect to any employee, as may be necessary. The Owner may request the contractor to immediately remove from this assignment any employee found unfit to perform duties due to one or more of the following reasons:

1. Neglect of duty
2. Disorderly conduct, use of abusive or offensive language, quarreling, intimidation by words or actions or fighting
3. Theft, vandalism, immoral conduct or any other criminal action
4. Smoking or tobacco use
5. Selling, consuming, possessing, or being under the influence of intoxicants, including alcohol, or illegal substances while on assignment for the Owner.

H. The Contractor shall be responsible to the Owner for the acts and omissions of all his/her employees and all Subcontractors, their agents and employees, and all other persons performing any of the work under a contract with the Contractor.

I. The Owner shall have the right to terminate the award with the Contractor without penalty pursuant to seven (7) days written notice of termination to the Contractor under the following circumstances:

1. Default of Contractor - It shall be considered a default whenever the Contractor shall:
    a. Disregard or violate the material provisions of the contract documents or College instructions; violate applicable law, regulation or guidance of any governmental authority; present an unreasonable risk of personal injury or property damage; or failure to execute the work according to the agreed schedule of completion and/or time of completion specified, including extensions thereof or fail to reach agreed upon performance results.
    b. Declare bankruptcy, become insolvent, or assign company assets for the benefit of credits.
2. Lack of Funds of the Owner - Lack of funds shall be construed to mean when the Owner, in the judgment of its Chief Financial Officer, determines that it cannot continue the funding of its contract services, without undue hardship to the Owner.
3. Termination of contract services will be rendered if it is construed by the Owner to be in its best interests for serving the community and its students, faculty, and staff.

Any different or additional terms and conditions contained in the Contractor's acknowledgement forms or documents furnished by the Contractor are rejected by the Buyer and are not a part of the agreement between the parties.

END OF SECTION 00 21 13

SECTION 00 41 00

BID FORM

THE PROJECT AND THE PARTIES

TO:
Owner: Northwestern Michigan College, 1701 E. Front St. Traverse City, MI 49686

FOR:
NMC Audio Tech Acoustic Upgrades; Project No. 26.503

DATE: _____ (Bidder to enter date)

SUBMITTED BY: (Bidder to enter name and address)

Bidder's Full Name _____

Address _____

City, State, Zip _____

OFFER

Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by the Architect for the above-mentioned projects, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of:

_____ dollars

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

All applicable federal taxes are included and State of Michigan taxes are included in the Bid Sum.

ACCEPTANCE

This offer shall be open to acceptance and is irrevocable for **sixty days (60)** from the bid closing date.

If this bid is accepted by Owner within the time period stated above, we will:

Execute the Agreement within seven days of receipt of Notice of Award.
Furnish the required bonds within seven days of receipt of Notice of Award.
Commence work within seven days after written Notice to Proceed of this bid.

CONTRACT TIME

Complete the Work by date established for Substantial Completion in Section 00 73 00 - Supplementary Conditions.

CHANGES TO THE WORK

Refer to Document 00 73 00 - Supplementary Conditions for net cost plus the percentage fee amount for overhead and profit on additional work and work deleted from the project.

ADDENDA

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

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

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

BID FORM SUPPLEMENTS

Forms and Attachments

1. Statement of Familial Relationship Form is provided with this Bid (Section 00 45 50)
2. Certification of Iran Economic Sanctions Act Form is provided with this Bid (Section 00 45 51)
3. Provide any voluntary alternates as an attachment to this bid form
4. Bid Bond

The following Supplements and names of key Subcontractors, are attached to this Bid Form and listed below, and are considered an integral part of this Bid Form and submitted as part of the bid:

Name of Mechanical Contractor: _____

Name of Electrical Contractor: _____

We agree to submit the following Supplements to Bid Forms within 24 hours after submission of this bid for additional bid information:

Document 00 43 30 - Supplement B – Subcontractors: Include the names of all Subcontractors and the portions of the Work they will perform.

BID FORM SIGNATURE(S)

The Corporate Seal of

_____

(Bidder - print the full name of your firm)
was hereunto affixed in the presence of:

_____

(Authorized signing officer, Title, Seal)

_____

(Authorized signing officer, Title)

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

END OF 00 41 00 – BID FORM

SECTION 00 43 00

SUPPLEMENTS TO BID FORM PARTICULARS

TO: Northwestern Michigan College
Project: NMC Audio-Tech Acoustic Upgrades; Project No. 26.503
Date: _____
Submitted by: (Bidder to insert full name and address)

_____

_____

_____

_____

In accordance with Section 00 21 13 - Instructions to Bidders; and Section 00 41 00 - Bid Form, we include the Supplements to Bid Form listed below. The information provided shall be considered an integral part of the Bid Form.

SUPPLEMENTS TO BID FORM

Supplement B - List of Subcontractors [Document 00 43 30]

SIGNATURE(S)

The Corporate Seal of

_____
(Bidder please print the full name of your Proprietorship, Partnership, or Corporation)
was hereunto affixed in the presence of:

_____
(Authorized signing officer Title)
(Seal)

_____
(Authorized signing officer Title)
(Seal)

END OF 00 43 00 - SUPPLEMENTS TO BID FORM

SECTION 00 43 30

SUPPLEMENT B - LIST OF SUBCONTRACTORS

PARTICULARS

Herewith is the list of Subcontractors referenced in the bid submitted by:

(Bidder) _____

To: Northwestern Michigan college

Dated _____ and which is an integral part of the Bid Form.

The following work will be performed (or provided) by Subcontractors and coordinated by us:

LIST OF SUBCONTRACTORS

SUBJECT OF WORK	SUBCONTRACTOR NAME
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

END OF 00 43 30 - SUPPLEMENT B

SECTION 00 45 50

STATEMENT REGARDING FAMILIAL RELATIONSHIP

I am the _____ of _____, a bidder on a
(Title) *(Company Name)*

construction project for **Northwestern Michigan College.**

❑ I have personal knowledge and/or I have personally verified that the following are all of the familial relationships existing between the owner(s) and employee(s) of the aforementioned contractor.

The following are the familial relationship(s):

	Owner / Employee Name	**Related to:**	**Relationship**
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____

(Attach additional pages if necessary to disclose familial relationships)

I have authority to bind the aforementioned contractor with the representations contained herein, and I am fully aware that the owner will rely on my representations in evaluating bids for the construction project.

❑ There is no familial relationship that exists between the owner(s) and employee(s) of the aforementioned contractor.

BIDDER'S FIRM NAME _____

BY (SIGNATURE) _____

PRINTED NAME AND TITLE _____

Subscribed and sworn before me, this _____ Seal:

day of _____, 2026, a Notary Public

In and for _____ County, _____

_____
Signature

My commission expires _____

END OF SECTION 00 45 50

SECTION 00 45 51

IRAN ECONOMIC SANCTIONS ACT CERTIFICATION

I am the_____ of _____, a bidder on a
(Title) *(Company Name)*

construction / improvement project for **Northwestern Michigan College**.

I have authority to bind the aforementioned contractor with the representations contained herein, and I am fully aware that the school district will rely on my representations in evaluating bids

I have knowledge of the matters described in this Certification, and I am familiar with the Iran Economic Sanctions Act, MCL 129.311, *et seq.* ("Act").

I certify that this Bidder or any subcontractors to this Bidder is not an Iran-linked business, as that term is defined in the Act.

I understand that submission of a false certification may result in contract termination, ineligibility to bid for three (3) years, and a civil penalty of $250,000 or twice the bid amount, whichever is greater, plus related investigation and legal costs.

BIDDER'S FIRM NAME _____

BY (SIGNATURE) _____

PRINTED NAME AND TITLE _____

Subscribed and sworn before me, this _____ Seal:

day of _____, 2026, a Notary Public

In and for _____ County, _____

_____

Signature

My commission expires _____

END OF SECTION 00 45 51

SECTION 00 52 13

AGREEMENT

FORM OF AGREEMENT

A. Type of Contract

1. Project will be constructed under a single prime contract.

2. The Contract form of agreement between the Owner and Contractor shall be: according to **AIA document A104-2017**. (*Standard Abbreviated Form of Agreement Between the Owner and Contractor)*

END OF SECTION 00 52 13

SECTION 00 72 00

GENERAL CONDITIONS

FORM OF GENERAL CONDITIONS

AIA Document A201-2017, General Conditions of the Contract for Construction, 2017 Edition, is the General Conditions between the Owner and Contractor.

Copies of *AIA Document A201-2017* may be purchased and downloaded by interested parties from the following:

American Institute of Architects US https://documentsondemand.aia.org

SUPPLEMENTARY CONDITIONS

Refer to Section 00 73 00 for amendments to these General Conditions.

END OF 00 72 00 - GENERAL CONDITIONS

SECTION 00 73 00

SUPPLEMENTARY CONDITIONS

The following supplements modify the "General Conditions of the Contract for Construction", AIA Document A201, 2017. 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

Add the following Subparagraph 1.2.1.1 to 1.2:
1.2.1.1 In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities.

1. The Agreement.
2. Addenda, with those of later date having precedence over those of earlier date.
3. The Supplementary Conditions.
4. The General Conditions of the Contract for Construction.
5. Drawings and Specifications.

In the case of an inconsistency between Drawings and Specifications or within either Document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation.

ARTICLE 3; CONTRACTOR

3.4 LABOR AND MATERIALS

Add the following Subparagraphs 3.4.4 and 3.4.5 to 3.4:
3.4.4 After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 1 of the Specifications).

3.4.5 By making requests for substitutions based on Subparagraph 3.4.4 above, the Contractor:

1. Represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;
2. Represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;
3. Certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's or Engineer's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and
4. Will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

Add the following subparagraph 3.18.1.1 to 3.18:
3.18.1.1 The foregoing Subparagraph shall, but not by way of limitation, specifically include all claims and judgments which may be made against the Owner, Architect, Architect's consultants, and agents and employees of any of them under the governing laws of the state in which this construction is conducted, and similar laws of other state or governmental body having jurisdiction; and further, against claims and judgments arising from violations of public ordinances and requirements of governing authorities due to the Contractor's or Subcontractor's method of execution of the work.

Delete subparagraph 3.18.2 and substitute the following:

3.18.2 The indemnification which the Contractor and Subcontractors are to provide under Paragraph 3.18 shall include, extend and insure to and be for the benefit of the Owner, Architect , Architect's consultants, their respective agents, and employees of any of them, and shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under Worker's Compensation or Employer's Liability Acts, disability acts, employee benefit acts or other legislation or rule of law, whether legislative, judicial, administrative or common law.

ARTICLE 5; SUBCONTRACTORS

5.3 SUBCONTRACTURAL RELATIONS

Add the following subparagraph 5.3.2 to 5.3:
5.3.2 The Subcontractor agrees, to the fullest extent permitted by law, to indemnify, save harmless and defend the Contractor, Owner, Architect, Architect's consultants, their respective agents, and employees of any of them harmless from any liability for damages to any person or property upon, or at, or about the project, that may arise as a result of or in connection with the work hereunder, provided, however, that the Subcontractor shall not be required to indemnify the Contractor against the Contractor's sole negligence; and the Subcontractor agrees to procure at his own expense, before the commencement of the work comprehensive general liability including contractor's protective liability insurance, completed operations and contractual liability insurance and automobile liability insurance, including the ownership, maintenance, and operation of any automotive equipment owned, hired and non-owned for the benefit of the Contractor and Owner, for damages resulting to persons, and for damages to property arising out of each casualty, and to keep such insurance in force until the construction of the project is fully completed, and to immediately and before commencing work deliver such policy or policies or certificates of such insurance to the Contractor.

ARTICLE 9; PAYMENTS AND COMPLETION

9.3 APPLICATIONS FOR PAYMENT

Add the following subparagraphs 9.3.1.3 and 9.3.1.4 to 9.3:
9.3.1.3 Until final payment, the Owner will pay ninety percent of the amount due the Contractor on account of progress payments.

9.3.1.4 The full Contract retainage may be reinstated if the manner of completion of the Work and its progress do not remain satisfactory to the Architect (or if the Surety withholds its consent), or for other good and sufficient reasons.

Add clause to subparagraph 9.5.1
9.5.1.8 Unsatisfactory cleanup in accordance with subparagraph 3.15.

9.6 PROGRESS PAYMENTS

Add the following subparagraph 9.6.8 to 9.6:
9.6.8 Should the contractor fail to complete his contract work by the completion date as stated in his contract, the Owner will suspend all further payments on the contract, until all work on the contract is substantially completed and has been accepted by the Owner. If no completion date is stated in the contract, then this paragraph shall be omitted entirely.

Add clause to subparagraph 9.10.4
9.10.4.4 Latent defects appearing during or beyond the warranty period.

ARTICLE 11; INSURANCES AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

Delete subparagraph 11.1.2 and substitute the following:
11.1.2 The insurance required by Subparagraph 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents, or required by law, whichever coverage is greater. Coverage, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment. Notwithstanding the above, the insurance required by paragraph 11.1 shall be on an occurrence basis.

Add the following subparagraph:
11.1.2.1 Such insurance shall be carried with companies authorized to do business in the State of Michigan and written to include the following coverage and for not less than the following minimum limits or greater if required by law:

.1 Worker's Compensation, Occupational Disease and Employer's Liability Insurance:

A. State; Michigan - Statutory limits.

B. Applicable Federal (if any) - Statutory limits.

C. Employer's Liability -

Bodily Injury by Accident	-	$1,000,000.00 each accident
Bodily Injury by Disease	-	$1,000,000.00 each employee
Bodily Injury by Disease	-	$1,000,000.00 each policy limit

.2 Commercial General Liability Insurance including as minimum coverage:

- Premises - Operations Liability
- Independent Contractor's Protective Liability
- Products and Completed Operations Liability
- Broad Form Property Damage Endorsement
- Blanket Contractual
- Personal Injury

A. Special Requirements:

1. Property Damage Liability Insurance will provide "X, C, and U" (Explosion, collapse and underground hazard) coverage as applicable.
2. Products and Completed Operations to be maintained for one (1) year after final payment.
3. The Owner, Architect, their consultants, agents and employees shall be named as "additional insured" on the commercial general liability policy of the general contractor and/or subcontractor of any tier.

B. Limits of Liability:

$1,000,000.00 Each occurrence as respects Bodily Injury Liability or Property

	Damage Liability, or both combined.
$2,000,000.00	General Aggregate
$1,000,000.00	Products/Completed Operations Aggregate
$1,000,000.00	Personal and Advertising Injury

.3 Automobile Liability Insurance:

A. The State of Michigan has a no-fault automobile insurance requirement. Contractors shall be certain coverage is provided which conforms to any specific stipulation in the law.

B. Special Requirements:

1. All owned, hired, and non-owned vehicles including the loading or unloading thereof.

B. Limits of Liability:

$1,000,000.00	Each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

.4 Umbrella/Excess Liability Insurance:

A. Limits of Liability

$5,000,000.00	Each Occurrence
$5,000,000.00	Aggregate

Delete subparagraph 11.1.3 and substitute the following:
11.1.3 Certificates of Insurance for the above coverage shall be submitted to the Architect for transmittal to the Owner for his approval prior to the start of construction. The Contractor shall certify to the Owner that he has obtained or will obtain similar certificates of insurance from each of his Subcontractors before their work commences. Each Subcontractor must be covered by insurance of the same character and in the same amounts as the Contractor unless the Contractor and Owner agree that a reduced coverage is adequate. Each Subcontractor's insurance shall cover the Owner, Project Manager, Engineer, Engineer’s consultants, their agents and employees. The Contractor shall submit a statement with each monthly affidavit stating that he has obtained certificates of insurance, or other satisfactory evidence, that all required insurance is in force for each of the Subcontractors listed on his affidavit. If the "additional insured" have other insurance which is applicable to the loss, it shall be on an excess or contingent basis. The amount of the company's liability under this policy shall not be reduced by the existence of such other insurance. Contractors certificates shall be in duplicate on standard Accord forms.

Add the following Subparagraphs:
11.1.3.1 Certificate of Insurance shall contain a statement therein or a rider attached thereto incorporating the indemnity clause stated in Paragraph 3.18 (Indemnification) and Subparagraphs 3.18.1, 3.18.1.1 and 3.18.2 of the General Conditions, and including the changes and additions made in those subparagraphs within these Supplemental General Conditions.

11.1.3.2 These Certificates and the insurance policies required by this Paragraph 11.1 shall contain a provision that coverage afforded under the policies will not be canceled or allowed to expire until at least thirty (30) days' prior written notice has been given to the Owner, Architect and Engineers. If any of the foregoing insurance coverage are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the

final Application for Payment as required by Subparagraph 9.10.2. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

11.1.3.3 The obligations of the Contractor under the provisions of this article shall not extend to the liability of the Engineer, his agents or employees arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs, or specifications, or (2) the giving of or the failure to give directions or instructions by the Engineer, his agents or employees to the extent that such giving or failure to give is the cause of the injury or damage.

11.4 PROPERTY INSURANCE

Delete subparagraph 11.4.1 and substitute the following:

11.4.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance in the amount of the initial Contract Sum as well as subsequent modifications thereto for the entire Work at the site on a replacement cost basis without voluntary deductibles.

Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Paragraph 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Paragraph 11.3 to the covered, whichever is earlier. This insurance shall include interests of the Owner, Architect, the Contractor, Subcontractors and Sub-subcontractors in the Work.

Delete subparagraph 11.4.1.1 and substitute the following:

11.4.1.1 Property insurance shall be on all-risk policy form and shall insure against the perils of fire and extended coverage and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, false-work, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Owner’s services and expenses required as a result of such insured loss. Coverage for other perils shall not be required unless otherwise provided in the Contract Documents.

Property Insurance provided by Owners shall not cover any tools, apparatus, machinery, scaffolding, hoists, forms, staging, shoring and other similar items commonly referred to as construction equipment, which may be on the site and the capital value of which is not included in the Work. The Contractor shall make his own arrangements for any insurance he may require on such construction equipment.

Delete subparagraph 11.4.1.3 and substitute the following:

11.4.1.3 If the property insurance required minimum deductibles and such deductibles are identified in the Contract Documents, the Contractor shall pay costs not covered because of such deductibles. If the Owner or insurer increases the required minimum deductibles above the amounts identified or if the Owner elects to purchase this insurance with voluntary deductible amounts, the Owner shall be responsible for payment of the additional costs not covered because of such increased or voluntary deductibles. If deductibles are not identified in the Contract Documents, the Owner shall pay costs not covered cause of deductibles.

Delete subparagraph 11.4.7 and substitute the following:

11.4.7 Waivers of Subrogation. If permitted by the Owner's and Contractor's insurance companies, without penalties, the Owner and Contractor waive all rights against (1) each other and any of their Subcontractors, Sub-subcontractors, agents and employees, each of the other, (2) the Architect, his employees and agents, and (3) the engineers, the engineer’s consultants, separate contractors described

in Article 6, if any, and any of their Subcontractors, Sub-subcontractors, agents and employees, for damages caused by fire or other perils to the extent covered by property insurance obtained pursuant to this Paragraph 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the Subcontractors Sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

Add subparagraph 11.4.11:
Provisions of this paragraph, 11.4 shall not operate to relieve the Contractor of responsibility for loss or damage to Contractor's 'Property' of any kind or nature, whatsoever including but not limited to tools, equipment, forms, scaffolding and temporary structures, be said property owned by Contractor or Contractor's employees or agents, or rented by Contractor and owned by others. Property, as used herein shall include materials and/or equipment purchased by Contractor as part of Contractors work and slated for installation until said materials or equipment, or both are installed or become part of the completed work of Contractor. The Owner shall in no event be liable for loss or damage to the aforementioned items or any other property of the Contractor which is not included in the permanent construction.

11.5 PERFORMANCE BOND AND PAYMENT BOND

Add subparagraph 11.5.3 to 11.5:
11.5.3 The Contractor, before commencing the Work, is required to furnish a Performance Bond and a Labor and Material Payment Bond.

The Performance Bond shall be in an amount equal to 100 percent of the full amount of the Contract Sum as security for the faithful performance of the obligations of the Contract Documents, and the Labor and Material Payment Bond shall be in an amount equal to 100 percent of the full amount of the Contract Sum as Security for the payment of all persons performing labor and furnishing materials in connection with the Contract Documents. Such bond shall be on A.I.A. Document A-311, issued by the American Institute of Architects, shall be issued by a surety satisfactory to the Owner and shall name the Owner as primary co-obligee. Labor and Material Bonds shall comply with Public Act 213 of 1963. Performance Bonds shall comply with Public Act 32 of 1956 and all amendments. Bonds containing Stature of Limitations or time limitation will **NOT** be acceptable. All bonds shall be underwritten by companies authorized to do business in the State of Michigan.

Add the following paragraph 11.6 to Article 11:

11.6 MISCELLANEOUS REQUIREMENTS

11.6.1 All insurance coverage shall be provided by insurance companies having policy holder ratings no lower than "A" and financial ratings not lower than "XII" in the Best's Insurance Guide, latest edition in effect as of the date of the Contract.

11.6.2 The Contractor is responsible for determining that Subcontractors are adequately insured against claims arising out of or relating to the Work. The premium cost and charges for such insurance shall be paid by each Subcontractor.

11.6.3 The limits of liability as stated, may be arrived at using a Split-Limit or a Combined Single Limit basis. However, the total limit of liability shall not be less than that stated in the requirements.

END OF SECTION 007300

SECTION 01 11 00

SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: NMC Audio Tech Acoustic Upgrades

B. Owner's Name: Northwestern Michigan College

C. Architect's Name: Cornerstone Architects

D. The project is:

Interior renovation of existing classroom spaces including a new audio-tech control room, a new sound vestibule, and acoustic enhancements to existing walls,

The Project Scope include but is not limited to:

- Interior renovation in existing space including selective demolition of existing, modification to existing, and new construction work.
- Fire Alarm & Fire Suppression modification: design and installation.
- Electrical work: Demolition of existing lighting/power, new lighting/power, new emergency lighting
- Mechanical work: Demolition/modification of existing mechanical system/components and installation of new mechanical components

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Sum Price as described in Section 00 52 13 - Agreement.

1.03 DESCRIPTION OF WORK

A. General Construction: demolition, new construction, & interior renovation.

B. Plumbing: demolition and renovation to existing

C. HVAC: demolition and renovation to existing.

D. Electrical Power and Lighting: demolition and renovation to existing.

G. Fire Safety: Fire Alarm & Fire Suppression design and installation.

1.04 OWNER SCHEDULE

A. Construction Start: December 11th (If Board Approval is required, the start date will be December 15th)

B. Tentative Substantial Completion: January 11th

1.05 OWNER OCCUPANCY

A. Owner intends to occupy the building where the project is location throughout construction.

B. Contractor to closely coordinate any loud/disruptive work with the Owner to work around the classroom’s class schedule.

C. Schedule the Work to accommodate Owner occupancy.

1.06 CONTRACTOR USE OF SITE AND PREMISES

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

B. No Smoking on the premises of the property is allowed for the full duration of the project.

C. Provide access to and from site as required by law and by Owner:
   1. Do not obstruct roadways, sidewalks, or other public ways without permit.

D. Time Restrictions:
   1. Limit conduct of especially noisy exterior work to the hours of 9:00 am to 5:00 pm.

E. Temporary Utilities
   1. General Contractor is responsible for provision and payment for temporary utilities during construction.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 01 11 00

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Change procedures.

D. Correlation of Contractor submittals based on changes.

E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED SECTIONS

A. Document 00 72 00 - General Conditions: Additional requirements for progress payments, final payment, changes in the Work.

B. Document 00 73 00 - Supplementary Conditions: Percentage allowances for Contractor's overhead and profit.

1.03 SCHEDULE OF VALUES

A. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet.

B. Submit Schedule of Values in duplicate within 7 days after date of Owner-Contractor Agreement.

C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization and bonds and insurance. Also identify administrative and procedural requirements, temporary facilities and controls, final cleaning, operation data, and list of Alternates.

D. Include within each line item, a direct proportional amount of Contractor's overhead and profit.

E. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Present required information in typewritten form.

C. Form: AIA G702 Application and Certificate for Payment and AIA G703 - Continuation Sheet including continuation sheets when required.

D. Execute certification by signature of authorized officer.

E. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.

F. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.

G. Submit a digital copy of Application for Payment.

H. Include the following with the application:
   1. Transmittal letter as specified for Submittals in Section 01 30 00.
   2. Construction progress schedule, revised and current as specified in Section 01 30 00.
   3. Partial release of liens from major Subcontractors and vendors.
   4. Affidavits attesting to off-site stored products.
   5. Contractor’s Reuse, Recycling, and Disposal Report in Section 01 74 19.

I. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 MODIFICATION PROCEDURES

A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.

B. Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Conditions of the Contract by issuing supplemental instructions on AIA Form G710.

C. Construction Change Directive: Architect may issue a document, signed by Owner, instructing Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
   1. The document will describe changes in the Work, and will designate method of determining any change in Contract Sum or Contract Time.
   2. Promptly execute the change in Work.

D. Proposal Request: Architect may issue a document which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 7 days.

E. Contractor may propose a change by submitting a Request for Change to Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 60 00.

F. Computation of Change in Contract Amount:
   1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
   2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect.

3. For pre-determined unit prices and quantities, the amount is based on the fixed unit prices.
4. For change ordered by Architect without a quotation from Contractor, the amount will be determined by Architect based on the Contractor's substantiation of costs as specified for Time and Material work.

G. Substantiation of Costs: Provide full information required for evaluation.
1. Provide following data:
   a. Quantities of products, labor, and equipment.
   b. Taxes, insurance, and bonds.
   c. Overhead and profit.
   d. Justification for any change in Contract Time.
   e. Credit for deletions from Contract, similarly documented.
2. Support each claim for additional costs with additional information:
   a. Origin and date of claim.
   b. Dates and times work was performed, and by whom.
   c. Time records and wage rates paid.
   d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

H. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract on AIA G701.

I. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

J. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

K. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
1. Closeout procedures specified in Section 01 78 00.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 01 20 00

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Pre-Construction meeting.

B. Site mobilization meeting.

C. Progress meetings.

D. Construction progress schedule.

E. Progress photographs.

F. Coordination drawings.

G. Submittals for review, information, and project closeout.

H. Number of copies of submittals.

I. Submittal procedures.

1.02 RELATED SECTIONS

A. Section 01 70 00 - Execution Requirements: Additional coordination requirements.

B. Section 01 78 00 - Closeout Submittals: Project record documents.

1.03 PROJECT COORDINATION

A. Project Coordinator: General Contractor.

B. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for vehicular access, traffic, and parking facilities.

C. During construction, coordinate use of site and facilities through the Project Coordinator.

D. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

E. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.

F. Coordinate field engineering and layout work under instructions of the Project Coordinator.

G. Make the following types of submittals to Architect through the Project Coordinator:
   1. Requests for interpretation.
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Manufacturer's instructions and field reports.
   6. Applications for payment and change order requests.
   7. Progress schedules.
   8. Coordination drawings.
   9. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

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

B. Attendance Required:
   1. Owner.
   2. Architect.
   3. Contractor.
   4. Mechanical Sub-Contractor.
   5. Electrical Sub-Contractor.

C. Agenda:
   1. Execution of Owner-Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.
   3. Distribution of Contract Documents.
   4. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
   5. Designation of personnel representing the parties to Contract, Contractor and Architect.
   6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract Closeout procedures.
   7. Scheduling.

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

3.02 SITE MOBILIZATION MEETING

A. Architect will schedule a meeting at the Project site prior to Contractor occupancy.

B. Attendance Required:
   1. Contractor.
   2. Owner.
   3. Architect.
   4. Contractor's Superintendent.
   5. Major Subcontractors.

C. Agenda:
   1. Use of premises by Owner and Contractor.
   2. Owner's requirements and partial occupancy prior to completion.
   3. Construction facilities and controls provided by Owner.
   4. Temporary utilities should be included in contract.
   5. Survey and building layout.
   6. Security and housekeeping procedures.
   7. Schedules.
   8. Application for payment procedures.
   9. Procedures for testing.
   10. Procedures for maintaining record documents.
   11. Requirements for start-up of equipment.
   12. Inspection and acceptance of equipment put into service during construction period.

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

3.03 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at maximum two week intervals.

B. Make arrangements for meetings; prepare agenda with copies for participants; preside at meetings.

C. Attendance required, as appropriate to agenda topics for each meeting:
   1. Job superintendent
   2. Major Subcontractors and suppliers
   3. Owner
   4. Architect

D. Agenda:
   1. Review minutes of previous meetings.
   2. Review of Work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems which impede planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Review of off-site fabrication and delivery schedules.
   7. Maintenance of progress schedule.
   8. Corrective measures to regain projected schedules.
   9. Planned progress during succeeding work period.
   10. Coordination of projected progress.
   11. Maintenance of quality and work standards.
   12. Effect of proposed changes on progress schedule and coordination.
   13. Other business relating to Work.

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

3.05 CONSTRUCTION PROGRESS SCHEDULE

A. Within 7 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.

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

C. Within 14 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
   1. Include written certification that major contractors have reviewed and accepted proposed schedule.

D. Within 10 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment.

3.06 COORDINATION DRAWINGS

A. Provide information required by Project Coordinator for preparation of coordination drawings.

B. Review drawings prior to submission to Architect.

3.08 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
      a. When product data submittals are prepared specifically for this project (in the absence of standard printed information) submit such information as shop drawings and not as product data submittals.
      b. Content:
         1) Submit manufacturer's standard printed data sheets.
         2) Identify the particular product being submitted; submit only pertinent pages.
         3) Identify which options and accessories are applicable.
         4) Show compliance with the specific standards referenced.
         5) Show compliance with specified testing agency listings; show the limitations of the labels or seals, if any.
         6) Identify dimensions which have been verified by field measurement.
         7) Each copy of each such item shall be provided with clear space for application of Architect's/Engineer's acceptance/rejection stamp.
   2. Shop drawings.
      a. Content: Include the following information:
         1) Clearly mark drawing with name of Architect/Engineer, project name and number, name of contractor and of supplier if same is not manufacturer of material.
         2) All field measurements that have been taken, at accurate scale.
         3) Names of specific products and materials used.
         4) Identify specification section where item/product is specified by Architect/Engineer.
         5) Details, identified by contract document sheet and detail numbers.
         6) Coordination requirements; show relationship to adjacent or critical work.
      b. Preparation:
         1) Reproductions of contract documents are not acceptable as shop drawings.
         2) Space for architect's action marking shall be adjacent to the title block.

   3. Samples for selection.
      a. Samples:
         1) Provide samples that are the same as proposed product.
         2) If, due to manufacturing tolerances, a quantity of a particular item is required to properly illustrate full range of color, texture or other variation that may be expected in finished work, such quantity shall be provided in duplicate
            (a) Preparation:
               (1) Samples shall be submitted for all items as requested by various specification sections. In addition, Architect/Engineer reserves the right to require samples of materials of workmanship when deemed necessary for review, even though samples may not have been required of material specified.
               (2) Samples shall be submitted in duplicate, unless otherwise specified for a particular item under individual specification section.
               (3) Each sample shall be clearly identified on tag attached, showing name o Architect/Engineer, project number and title, names of contractor, manufacturer (an supplier if same is not manufacturer), brand name or number identification, pattern color or finish designation and location in work.

   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 78 00 - Closeout Submittals.

3.08 SUBMITTALS FOR INFORMATION

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

B. Submit for Architect's knowledge as contract administrator or for Owner. No action will be taken.

3.09 SUBMITTALS FOR PROJECT CLOSEOUT

A. When the following are specified in individual sections, submit them at project closeout:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

B. Submit for Owner's benefit during and after project completion.

3.10 NUMBER OF COPIES OF SUBMITTALS

A. Documents for Review:
   1. Please submit via email or construction management software in PDF format to Architect for review

   2. Samples:
      a. 2 sets or items of each.
      b. 1 set or item will be returned.
      c. If additional sets are needed by other entities involved in work represented by the samples, submit with original submittal.
      d. Copies in excess of the number requested, will not be returned.

B. Documents for Information: Submit two copies.

C. Documents for Project Closeout: Make one reproduction of submittal originally reviewed. Submit one extra of submittals for information.

D. 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.

3.11 COORDINATION OF SUBMITTALS

A. Submittals for activities that must be performed in sequence, coordinate submittals so that the architect has all the required information to properly review the submittals.

3.12 SUBMITTAL PROCEDURES

A. Transmit each submittal with approved form.
B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

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

D. 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.

E. Deliver submittals to Architect at business address.

F. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.

G. Identify variations from Contract Documents and Product or system limitations which 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 copies of 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.

L. Submittals will be reviewed, marked with appropriate action, and returned.
    1. Stamped "action" markings:
        a. "Reviewed" action: Submittal has been reviewed for compliance with construction documents, no additional action necessary.
        b. "Reviewed as Noted" action: Submittal - according to Architect's review markings - has been reviewed and "marked up" for compliance with construction documents.
        c. "Revise and Resubmit" action: Revise the submittal or prepare a new submittal complying with the comments made. Do not proceed with work items as shown on the submittal until a "revised and resubmitted" submittal has been reviewed for compliance with construction documents by the Architect.

END OF SECTION 01 30 00

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Quality assurance submittals.

B. Independent Testing.

C. Special Inspections.

D. Mock-ups.

E. Control of installation.

F. Tolerances.

G. Testing and inspection services.

H. Manufacturers' field services.

I. Defect assessment.

1.02 RELATED SECTIONS

A. Section 00 72 00 - General Conditions: Inspections and approvals required by public authorities.

B. Section 01 30 00 - Administrative Requirements: Submittal procedures.

C. Section 01 42 19 - Reference Standards.

D. Section 01 60 00 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCES

A. ASTM C 1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2001.

B. ASTM C 1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2005.

C. ASTM C 1093 - Standard Practice for Accreditation of Testing Agencies for Unit Masonry; 1995 (Reapproved 2001).

D. ASTM D 3740 - 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; 2004a.

E. ASTM E 329 - Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction; 2005.

F. ASTM E 543 - Standard Practice for Agencies Performing Nondestructive Testing; 2004.

1.04 QUALITY ASSURANCE SUBMITTALS

A. Testing Agency Qualifications:
   1. Prior to start of Work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
   2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.

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

C. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of test/inspection.
      h. Date of test/inspection.
      i. Results of test/inspection.
      j. Conformance with Contract Documents.
      k. When requested by Architect, provide interpretation of results.

   2. Test reports are submitted for Architect's knowledge as contract administrator or for the Owner, for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

D. 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.

E. 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.

F. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
   1. Submit report in duplicate within 30 days of observation to Architect for information.
   2. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

G. Erection Drawings: Submit drawings 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.
   2. Data indicating inappropriate or unacceptable Work may be subject to action by Architect or Owner.

H. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either the National Bureau of Standards (NBS) standards or to accepted values of natural physical constants.

1.05 TESTING AND INSPECTION SERVICES

A. Owner will employ and pay for services of an independent testing agency to perform specified testing and inspection.

B. As indicated in individual specification sections, Owner or Contractor shall employ and pay for services of an independent testing agency to perform other specified testing.

C. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

D. Contractor Employed Agency:
1. Testing agency: Comply with requirements of ASTM E 329, ASTM E 543, ASTM C 1021, ASTM C 1077, and ASTM C 1093.
2. Inspection agency: Comply with requirements of ASTM D3740 and ASTM E329.
3. Laboratory: Authorized to operate in the State in which the Project is located.
4. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.
5. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.

1.06 INDEPENDENT TESTING

A. Independent testing agencies, whether employed by the Owner or the Contractor, may not change the requirements of the contract documents and may not approve any portion of the work.
1. Soils engineer will have authority to approve or disapprove of all soil materials to be used, compactions reached, etc. on this project.

B. Employment of testing agencies, by the Contractor or the Owner, shall not relieve the Contractor of his obligation to perform the work in accordance with the contract documents.

1.07 SPECIAL INSPECTIONS

A. Special inspections as required by Michigan Building Code, 2015 edition, section 1704 will be paid for by the Owner. The contractor will be required to coordinate the testing schedule, timing, etc.
a. Structural Steel
b. Cast-in-Place Concrete
c. Cold-Formed Metal Framing
d. Soilds
e. Fire Protection

PART 2 PRODUCTS

2.01 GENERAL

A. Asbestos: No asbestos containing materials have been specified for this project. No asbestos containing building materials or other materials shall be used or installed in the completion of this project. Contractors shall be responsible to provide, as requested, material safety data sheets for all materials used.

PART 3 EXECUTION

3.01 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.

3.02 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.

3.03 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 TESTING AND INSPECTION SERVICES

A. See individual specification sections for testing and inspection required.

B. Testing Agency Duties:
   1. Test samples of mixes submitted by Contractor.
   2. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.

3. Perform specified sampling and testing of products in accordance with specified standards.
4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
5. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or products.
6. Perform additional tests and inspections required by Architect.
7. Submit reports of all tests/inspections specified.

C. Limits on Testing and 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.

D. Contractor Responsibilities:
1. Deliver to agency at designated location, adequate samples of materials proposed to be used which 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.
1. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
2. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
3. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect. Payment for retesting will be charged to the Contractor by deducting testing charges from the Contract Price.

3.05 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. Submit qualifications of observer to Architect 30 days in advance of required observations.

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

3.06 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 01 40 00

SECTION 01 42 19

REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements relating to referenced standards.

1.02 DEFINITIONS

A. Basic contract definitions are included in the Conditions of the Contract.

B. Approved: When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. Directed: A command or instruction by the Architect. Other terms including requested, authorized, selected, approved, required, and permitted have the same meaning as directed.

D. Indicated: Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including shown, noted, scheduled, and specified have the same meaning as indicated.

E. Regulations: Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. Furnish: Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. Install: Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. Provide: Furnish and install, complete and ready for the intended use.

I. Project Site: Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land the Project is being built on.

1.03 QUALITY ASSURANCE

A. For products or 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. Such standards are made part of the Contract Documents by reference.

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 when required by the Contract Documents or required to perform a construction activity.

D. Each entity engaged in construction on the Project should be familiar with industry standards applicable to its construction activity.

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

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

G. Where abbreviations and acronyms are used in Specifications or other Contract documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 42 19

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Re-use of existing products.

C. Transportation, handling, storage and protection.

D. Product option requirements.

E. Substitution limitations and procedures.

F. Spare parts and maintenance materials.

G. "Substitution Request Form" at end of Section.

1.02 RELATED SECTIONS

A. Document 00 21 13 - Instructions to Bidders: Product options and substitution procedures prior to bid date.

B. Section 01 11 00 - Summary:

C. Section 01 40 00 - Quality Requirements: Product quality monitoring.

1.03 REFERENCES

A. NFPA 70 - National Electrical Code; National Fire Protection Association; 2005.

1.04 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.

D. Indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. The re-use of certain materials and equipment already existing on the project site is prohibited.
   1. Do not use other materials or equipment removed from existing premises unless specifically required or permitted by the Contract Documents.

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

2.02 NEW PRODUCTS

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

B. Provide interchangeable components of the same manufacture for components being replaced.

C. Motors: Specific motor type is specified in individual specification sections.

D. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Size terminal lugs to NFPA 70, include lugs for terminal box.

E. Cord and Plug: Provide minimum 6 foot cord and plug including grounding connector for connection to electric wiring system. Cord of longer length is specified in individual specification sections.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. 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.

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

2.04 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Provide spare parts, maintenance, and extra products of types and in quantities specified in individual specification sections.

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

PART 3 EXECUTION

3.01 MATERIALS AND EQUIPMENT

A. Compatibility: Be responsible for coordinating and interrelating all sub-contracts, purchase orders, etc. Ensure compatibility of materials and procedures and validity of all guarantee and warranties required by specifications.

B. Compliance with Manufacturer's Specifications and Recommendations.
   1. All materials, equipment, devices, services, procedures, etc., named or described in specifications and/or indicated on drawings, and all others furnished as equal thereto shall be furnished, used (installed, employed, etc.) and protected in strict compliance with specifications, recommendations and instructions of manufacturer and/or supplier.
   2. This requirement does not relieve the Contractor's responsibility for providing material and/or services beyond those required by manufacturer's specifications, etc., where such additional materials and/or services are otherwise required by Contract Documents.
   3. Should any material, item of equipment, device or procedure furnished as equal to that specified require accessories, supplemental materials, installation procedures, etc., different from and/or in addition to those required by that which is specified, the Contractor shall provide all such items at no increase in contract sum.

C. Quality:
   1. All materials and equipment provided shall be new and of quality equal to or higher than that required by Contract Documents.
   2. In every case, requirements established by Contract Documents shall be considered a minimum, which will be accepted. Where strength of material(s) is a factor, all items furnished must have at least strength, carrying capacity and durability of item specified.
   3. All workmanship must be first class in every respect and representative of best obtainable for each trade.

D. Acceptance by Architect: All materials and equipment are subject to approval by Architect:
   1. Shop drawings and/or samples.
   2. Actual items as installed on site.
   3. Materials or equipment furnished and/or installed will not be accepted if such are found to be at variance with requirements of Contract Documents.

E. Where terms "or equal," "or approved equal," "as approved," etc., appear in specifications or on drawings:
   1. Provide equivalent materials, products or procedures as named in the specifications.
   2. Materials other than those specifically named may be used, provided the equivalent substitution is accomplished by means allowed in Contract Documents.

3.02 SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.

B. Substitutions may be considered 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 which may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension which 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. Substitution Submittal Procedure:
   1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
   2. Submit Substitution Request Form contained herein at the end of this section, provide supporting information requested to support your request for product substitution.
   3. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   4. The Architect will notify Contractor in writing of decision to accept or reject request.

3.03 SUBSTITUTIONS BEFORE AWARD OF CONTRACT ***(DURING BIDDING)***

A. Bidder and suppliers may submit a request for substitution to the Architect/Engineer for approval prior to four (4) days before bid submission. Provide adequate information with the request to verify that proposed substitution meets the requirements of the specification. Approval or rejection of each proposed substitution or other change shall be at the discretion of Architect/Engineer. If proposed change is approved, Architect will issue written statement in the form of an Addendum certifying same.
   1. Use "Substitution Request Form" provided at the end of this section.
   2. If proposed product is accepted, an addendum will be issued to Bidders a minimum two (2) days before receipt of bids and will become part of the Contract Documents.

B. Request for Change at time of Bid Submission by Voluntary Alternate:
   1. Bidder may submit Voluntary Alternates for materials, products or procedures for which he also submits bona fide base bid proposals. Voluntary Alternates shall be submitted in list form, naming each proposed substitute and difference, if any, which will be made in contract price for each substitution, should it be accepted. Owner may accept or reject each individual voluntary alternate.

3.04 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.

3.05 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. For exterior storage of fabricated products, place on sloped supports above ground.

F. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

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

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

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

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

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

END OF SECTION 01 60 00

~ Substitution Request Form follows ~

Substitution Request Form

(for use during the Bidding Period)

Substitution Requested by:

Contact Name: _____ Date: _____

Firm Name: _____

Firm Address: _____

Phone #: _____ Fax #: _____

Product Information:

Specification Section Title: _____ Description: _____

Specification Section No.: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Product Trade Name: _____

Manufacturer: _____ Model No.: _____

Phone: _____ ~ or ~ Website: _____

Attach appropriate Product Data to support the substitution requested:

- Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.
- Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation. (Check all that applies, below)

The Undersigned certifies: *(check all appropriate boxes)*

- ❑ Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- ❑ Same warranty will be furnished for proposed substitution as for specified product.
- ❑ Same maintenance service and source of replacement parts, as applicable, is available.
- ❑ Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- ❑ Proposed substitution does not affect dimensions and functional clearances.
- ❑ Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by (please print): _____

Signed: _____

A/E's REVIEW AND ACTION

- ❑ ***Substitution approved*** –
  - Make submittals in accordance with Section 016000 - Substitution Procedures.
- ❑ ***Substitution approved as noted*** _____
  - Make submittals in accordance with Section 016000 - Substitution Procedures.
- ❑ ***Substitution rejected – Use specified materials.***
- ❑ ***Substitution Request received too late*** – Use specified materials.

Signature: _____ Date: _____

Supporting Data Attached:
Drawings ____ Product Data ____ Samples ____ Tests ____ Reports ____ Other ____

END OF SUBSTITUTION REQUEST FORM

SECTION 01 70 00

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.

C. Pre-installation meetings.

D. Cutting and patching.

E. Surveying for laying out the work.

F. Cleaning and protection.

G. Starting of systems and equipment.

H. Demonstration and instruction of Owner personnel.

I. Closeout procedures, except payment procedures.

1.02 RELATED SECTIONS

A. Section 01 10 00 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 01 30 00 - Administrative Requirements: Submittals procedures.

C. Section 01 40 00 - Quality Requirements: Testing and inspection procedures.

D. Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

E. Individual Product Specification Sections:
   1. Advance notification to other sections of openings required in work of those sections.
   2. Limitations on cutting structural members.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
   1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
   2. Identify demolition firm and submit qualifications.
   3. Include a summary of safety procedures.

D. Cutting and Patching: Submit written request in advance of cutting or alteration which 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.
6. Include in request:
    a. Identification of Project.
    b. Location and description of affected work.
    c. Necessity for cutting or alteration.
    d. Description of proposed work and products to be used.
    e. Effect on work of Owner or separate Contractor.
    f. Written permission of affected separate Contractor.
    g. Date and time work will be executed.

E. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.04 QUALIFICATIONS

A. For demolition work, employ a firm specializing in the type of work required.
    1. Minimum of five years of documented experience.

1.05 PROJECT CONDITIONS

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

B. 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.

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

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

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

F. 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.

1.06 COORDINATION

A. See Section 01100 for occupancy-related requirements.

B. 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.

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

D. 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.

E. Coordinate space requirements, supports, and installation of mechanical and electrical work which 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.

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

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

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; 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 01 60 00 – Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

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

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

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

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

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

F. 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/patching means acceptance of existing conditions.

3.02 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.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a pre-installation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect four days in advance of meeting date.

D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.

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

3.04 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Contractor shall locate and protect survey control and reference points.

D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

E. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

G. Utilize recognized engineering survey practices.

H. Establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.

I. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.
   3. Building foundation, column locations, ground floor elevations.

J. Periodically verify layouts by same means.

K. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, 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.

3.06 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 alterations work constitutes acceptance of existing conditions.

B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
   1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
   2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

C. 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.
   3. Relocate items indicated on drawings.
   4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
   5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

D. Services (Including but not limited to HVAC, Plumbing, Electrical, and telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
   2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
   3. 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.
      a. Disable existing systems only to make switchovers and connections; minimize duration of outages.

b. Provide temporary connections as required to maintain existing systems in service.

4. Verify that abandoned services serve only abandoned facilities.
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; patch holes left by removal using materials specified for new construction.

E. 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.

F. Adapt existing work to fit new work:
1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
3. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.
4. Trim existing wood doors as necessary to clear new floor finish. Refinish trim as required.

G. Refinish existing surfaces as indicated:
1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
3. Patch as specified for patching new work.

H. Clean existing systems and equipment.
I. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.
J. Do not begin new construction in alterations areas before demolition is complete.
K. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

A. Execute cutting and patching including excavation and fill 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.

B. Execute work by methods to avoid damage to other work, and which will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

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

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

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

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

G. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07840, to full thickness of the penetrated element.

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

I. 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.

J. Patch or replace surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. Repair substrate prior to patching finish. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.08 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

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

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

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

3.09 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. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Prohibit traffic from landscaped areas.

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

3.10 STARTING SYSTEMS

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

B. Notify Architect and owner seven days prior to start-up of each item.

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

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

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

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

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

3.11 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. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

3.12 ADJUSTING

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

B. Testing, adjusting, and balancing HVAC systems: See Section 15950 and 01400.

3.13 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.
1. Clean areas to be occupied by Owner prior to final completion before Owner occupancy.

B. Use cleaning materials that are nonhazardous.

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

E. Replace filters of operating equipment.

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

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

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

3.14 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.
   1. Provide copies to Owner.

B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in Contractor's Notice of Substantial Completion.

C. Notify Architect when work is considered ready for Substantial Completion.

D. 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.

E. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.

F. Accompany Project Coordinator on preliminary final inspection.

G. Notify Architect when work is considered finally complete.

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

3.15 MAINTENANCE SERVICE

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

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

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

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

END OF SECTION 01 70 0

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.1 SUMMARY

A. Section includes: Requirements and procedures for ensuring optimal diversion of construction waste materials generated by the Work from landfill disposal within the limits of the Construction Schedule and Contract Sum.

1.2 DEFINITIONS

A. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial, and industrial waste, resulting from construction, remodeling, repair, and demolition operations.

B. Construction and Demolition Debris: Building materials and solid waste resulting from construction, remodeling, repair, cleanup, or demolition operations that are not hazardous as defined in Federal Standards. This term includes, but is not limited to, asphalt concrete, Portland cement concrete, brick, lumber, gypsum wallboard, cardboard and other associated packaging, roofing material, ceramic tile, carpeting, plastic pipe, and steel.

C. C&D Recycling Center. A facility that receives only C&D material that has been separated for reuse prior to receipt, in which the residual (disposed) amount of waste in the material is less than 10% of the amount separated for reuse by weight.

D. Disposal. Final deposition of construction and demolition or inert debris into land, including stockpiling onto land of construction and demolition debris that has not been sorted for further processing or resale, if such stockpiling is for a period of time greater than 30 days; and construction and demolition debris that has been sorted for further processing or resale, if such stockpiling is for a period of time greater than one year, or stockpiling onto land of inert debris that is for a period of time greater than one year.

E. Inert Disposal Facility or Inert Waste Landfill: A disposal facility that accepts only inert waste such as soil and rock, fully cured asphalt paving, uncontaminated concrete (including fiberglass or steel reinforcing rods embedded in the concrete), brick, glass, and ceramics, for land disposal.

F. Mixed Debris: Loads that include commingled recyclable and non-recyclable materials generated at the construction site.

G. Mixed Debris Recycling Facility: A processing facility that accepts loads of commingled construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing the non-recyclable residual materials.

H. Recycling: The process of sorting, cleansing, treating and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.

I. Reuse. The use, in the same or similar form as it was produced, of a material which might otherwise be discarded.

J. Solid Waste: All putrescible and non-putrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, dewatered, treated, or chemically fixed sewage sludge which is not hazardous waste, manure, vegetable or animal solid and semisolid wastes, and other discarded solid and semisolid

wastes. "Solid waste" does not include hazardous waste, radioactive waste, or medical waste as defined or regulated by State law.

K. Source-Separated: Materials, including commingled recyclables, that have been separated or kept separate from the solid waste stream at the point of generation, for the purpose of additional sorting or processing of those materials for reuse or recycling in order to return them to the economic mainstream in the form of raw materials for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace.

L. Waste Hauler: A company that possesses a valid permit to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal.

1.3 SUBMITTALS

A. Contractor’s Construction Waste and Recycling Plan

1. Review Contract Documents and estimate the types and quantities of materials under the Work that are anticipated to be feasible for on-site processing, source separation for re-use or recycling. Indicate the procedures that will be implemented in this program to effect jobsite source separation, such as, identifying a convenient location where dumpsters would be located, putting signage to identify materials to be placed in dumpsters, etc.

2. Prior to commencing the Work, submit Contractor’s Construction Waste and Recycling Plan.

3. Contractor’s Construction Waste and Recycling Plan will not otherwise relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION

3.1 SALVAGE, RE-USE, RECYCLING AND PROCEDURES

A. Identify re-use, salvage, and recycling facilities.

B. Develop and implement procedures to re-use, salvage, and recycle new construction and excavation materials, based on the Contract Documents, the Contractor’s Construction Waste and Recycling Plan, estimated quantities of available materials, and availability of recycling facilities. Procedures may include on-site recycling, source separated recycling, and/or mixed debris recycling efforts.

1. Identify materials that are feasible for salvage, determine requirements for site storage, and transportation of materials to a salvage facility.

2. Source separate new construction, excavation and demolition materials including, but not limited to the following types:

a. Asphalt.
b. Concrete, concrete block, slump stone (decorative concrete block), and rocks.
c. Drywall.
d. Green materials (i.e. tree trimmings and land clearing debris).
e. Metal (ferrous and non-ferrous).
f. Miscellaneous Construction Debris.
g. Paper or cardboard.
h. Red Clay Brick.
i. Reuse or Salvage Materials
j. Soils.

k. Wire and Cable.
l. Wood.

3. Miscellaneous Construction Debris: Develop and implement a program to transport loads of mixed (commingled) new construction materials that cannot be feasibly source separated to a mixed materials recycling facility.

3.2 DISPOSAL OPERATIONS AND WASTE HAULING

A. Legally transport and dispose of materials that cannot be delivered to a source separated or mixed recycling facility to a transfer station or disposal facility that can legally accept the materials for the purpose of disposal.

B. Use a permitted waste hauler or Contractor’s trucking services and personnel.

C. Become familiar with the conditions for acceptance of new construction, excavation and demolition materials at recycling facilities prior to delivering materials.

D. Deliver to facilities that can legally accept new construction, excavation and demolition materials for purpose of re-use, recycling, composting, or disposal.

E. Do not burn, bury or otherwise dispose of solid waste on the project job-site.

3.3 RE-USE AND DONATION OPTIONS

A. Implement a re-use program to the greatest extent feasible. Options may include:

1. Habitat for Humanity
2. Local resources for the recycling and reuse of building materials.

3.4 REVENUE

A. Revenues or other savings obtained from recycled, re-used, or salvaged materials shall accrue to Contractor unless otherwise noted in the Contract Documents.

END OF SECTION 01 74 19

SECTION 01 78 00

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.02 RELATED SECTIONS

A. Section 00 73 00 - Supplementary Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.

B. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 70 00 - Execution Requirements: Contract closeout procedures.

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

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

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:
1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
3. Submit 1 copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
4. Submit two sets of revised final documents in final form within 10 days after final inspection.

C. Warranties and Bonds:
1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
2. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   2. Field changes of dimension and detail.
   3. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

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

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

C. 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.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
   1. Product data, with catalog number, size, composition, and color and texture designations.
   2. Information for re-ordering custom manufactured products.

B. 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.

C. 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.

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

E. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
   1. Description of unit or system, and component parts.
   2. Identify function, normal operating characteristics, and limiting conditions.
   3. Include performance curves, with engineering data and tests.
   4. Complete nomenclature and model number of replaceable parts.

B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

C. Include color coded wiring diagrams as installed.

D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

E. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

F. Provide servicing and lubrication schedule, and list of lubricants required.

G. Include manufacturer's printed operation and maintenance instructions.

H. Include sequence of operation by controls manufacturer.

I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

J. Provide control diagrams by controls manufacturer as installed.

K. Provide Contractor's coordination drawings, with color coded piping diagrams as installed.

L. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

N. Include test and balancing reports.

O. Additional Requirements: As specified in individual product specification sections.

3.05 OPERATION AND MAINTENANCE MANUALS

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

B. Prepare data in the form of an instructional manual.

C. Binders: Commercial quality, 8-1/2 x 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.

F. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.

G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

H. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.

I. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
   1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.
   2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
      a. Significant design criteria.
      b. List of equipment.
      c. Parts list for each component.
      d. Operating instructions.
      e. Maintenance instructions for equipment and systems.
      f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
   3. Part 3: Project documents and certificates, including the following:
      a. Shop drawings and product data.
      b. Air and water balance reports.
      c. Certificates.

J. Provide a listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.

K. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect, Consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten 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.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

E. Manual: Bind in commercial quality 8-1/2 x 11 inch three D side ring binders with durable plastic covers.

F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.

H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION 01 78 00

SECTION 61 10 00
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preservative treatment of wood.

B. Fire retardant treatment of wood.

C. Wood nailers and curbs for roofing and items installed on roof.

D. Concealed wood blocking for support of toilet and bath accessories, wall cabinets, and wood trim.

E. Miscellaneous wood nailers and furring strips.

1.02 RELATED SECTIONS

A. Section 08 11 13 – Hollow Metal Doors & Frames

1.03 REFERENCES

A. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2004.

B. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2005.

C. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.

D. AWPA C9 - Plywood -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association; 2003.

E. AWPA C20 - Structural Lumber -- Fire Retardant Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.

F. AWPA C27 - Plywood -- Fire-Retardant Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.

G. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood-Preservers' Association; 2005.

H. PS 1 - Construction and Industrial Plywood; National Institute of Standards and Technology (Department of Commerce); 1995.

I. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.

J. SPIB (GR) - Grading Rules; Southern Pine Inspection Bureau, Inc.; 2002.

1.04 QUALITY ASSURANCE

A. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.

B. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.

C. 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.

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. Lumber fabricated from old growth timber is not permitted.

B. Composite wood and agrifiber products shall meet standards for low-emitting materials containing no urea-formaldehyde.

2.02 DIMENSION LUMBER

A. Grading Agency: Southern Pine Inspection Bureau, Inc. (SPIB).

B. Sizes: Nominal sizes as indicated on drawings, S4S.

C. Moisture Content: S-dry or MC19.

D. Miscellaneous Blocking, Furring, and Nailers:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 CONSTRUCTION PANELS

A. Wall Sheathing: Plywood, PS 1, Grade FRT - Fire-Retardant-Treated plywood.
   1. Class A rated; ASTM E 84.
   2. Flame spread Rating: 25, maximum.
   3. Smoke development Rating: 80, maximum.

B. Other Applications:
   1. Concealed Plywood: PS 1, C-C Plugged, exterior grade.
   2. Exposed Plywood: PS 1, A-D, interior grade.
   3. Electrical Component Mounting: APA rated sheathing, fire retardant treated.

2.04 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. Anchors: Toggle bolt type for anchorage to hollow masonry.

B. Die-Stamped Connectors: Hot dipped galvanized steel, sized to suit framing conditions.

2.05 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.

B. Fire Retardant Treatment:
1. Manufacturers:
a. Arch Wood Protection, Inc: www.wolmanizedwood.com.
b. Hoover Treated Wood Products, Inc: www.frtw.com.
c. Osmose, Inc: www.osmose.com.
d. Substitutions: See Section 01600 - Product Requirements.
2. Interior Type A: AWPA Use Category UCFA, Commodity Specification H (Treatment C20 for lumber and C27 for plywood), low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread rating of 25 when tested in accordance with ASTM E 84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
b. Treat rough carpentry items as indicated.
c. Do not use treated wood in applications exposed to weather or where the wood may become wet.

C. Preservative Treatment:
1. Manufacturers:
a. Arch Wood Protection, Inc: www.wolmanizedwood.com.
b. Chemical Specialties, Inc: www.treatedwood.com.
c. Osmose, Inc: www.osmose.com.
d. Substitutions: See Section 01600 - Product Requirements.

D. Preservative Pressure Treatment of Lumber Above Grade: AWPA Use Category UC3B, Commodity Specification A (Treatment C2) using waterborne preservative to 0.25 lb/cu ft retention.
1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
2. Treat lumber in contact with flashing.
3. Treat lumber in contact with masonry or concrete.
4. Treat lumber less than 18 inches above grade.
a. Treat lumber in other locations as indicated.
5. Preservative Pressure Treatment of Plywood Above Grade: AWPA Use Category UC2 and UC3B, Commodity Specification F (Treatment C9) 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.
e. Treat plywood in other locations as indicated.

PART 3 EXECUTION

3.01 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength.

B. Install structural members full length without splices.

C. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes.

D. Frame openings with two or more studs at each jamb; support headers on cripple studs.

E. Provide miscellaneous members as indicated or as required to support finishes, fixtures, specialty items, and trim.

3.02 INSTALLATION OF ACCESSORIES AND MISCELLANEOUS WOOD

A. Curb roof openings except where prefabricated curbs are provided. Form corners by alternating lapping side members.

3.03 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.

B. Allow preservative to dry prior to erecting members.

3.04 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

END OF SECTION 06 10 00

SECTION 07 21 16

BATT & BLANKET INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Batt Insulation

B. Acoustic Batt Insulation

1.02 RELATED SECTIONS

A. Section 06 10 00 – Rough Carpentry

B. Section 07 84 00 - Firestopping.

C. Section 09 21 16 - Gypsum Board Assemblies.

1.03 REFERENCES

A. ASTM C 578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2004a.

B. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2001.

C. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2005.

D. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2004.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on product characteristics.

C. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.

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

1.05 ENVIRONMENTAL REQUIREMENTS

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

1.06 SEQUENCING

A. Sequence work to ensure fireproofing and firestop materials are in place before beginning work of this section.

PART 2 PRODUCTS

2.01 BATT INSULATION MATERIALS

A. Batt Insulation: ASTM C 665; preformed glass fiber batt; friction fit, conforming to the following:
   1. Surface Burning Characteristics: Flame spread index of 25 or less; smoke developed index of 450 or less, when tested in accordance with ASTM E 84.
   2. Combustibility: Non-combustible when tested in accordance with ASTM E 136, except for

facing, if any.
3. Provide insulation made without formaldehyde.
4. Thickness: As indicated on the drawings.

B. Sound Attenuation Blankets: ASTM C 665, Type I. Lightweight, unfaced fiber glass, conforming to the following:
1. Surface Burning Characteristics: Fire Hazard Classification (FHC) of 25/50 when tested in accordance with ASTM E-84.
2. Combustibility: Non-combustible.
3. Provide insulation made without formaldehyde.
4. Thickness: As indicated on the drawings.

C. Flame-Resistant Faced Batt Insulation (if required)
1. FSK-25 by Johns Manville Corporation: www.jm.com
2. FSK facing with fire hazard classification of 25/50 or less per ASTM E84
3. Flame spread: <25
4. Smoke Developed: <50
5. Thickness: As indicated on the drawings

D. Manufacturers:
1. CertainTeed Corporation: www.certainteed.com
2. Johns Manville Corporation: www.jm.com
3. Owens Corning Corp: www.owenscorning.com

E. Substitutions: See Division 1 for Substitution Requests.

2.02 ACCESSORIES

A. Sheet Vapor Retarder: Clear polyethylene film, 4 mil thick.
B. Tape: Polyester self-adhering type, mesh reinforced, 2 inch wide.
C. Insulation Fasteners:
1. Thermafiber Impasse Vertical/Horizontal Hangers securely fasted to frame where occurs at aluminum curtainwall and/or storefront system. Impasse GS Hangers are available for locations where face of frame is inaccessible.
2. Impaling clip of unfinished steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.
D. Wire Mesh: Galvanized steel, knitted wire mesh.
E. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 BATT INSTALLATION

A. Install insulation and vapor retarder in accordance with manufacturer's instructions.

B. Install in exterior wall spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

E. Retain insulation batts in place with wire mesh secured to framing members.

F. Tape seal butt ends, lapped flanges, and tears or cuts in membrane.

G. At metal framing, place vapor retarder on warm side of insulation; lap and seal sheet retarder joints over member face.

H. Tape seal tears or cuts in vapor retarder.

I. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane. Tape seal in place.

J. Coordinate work of this section with construction of air and moisture barrier specified in Section 07 25 00.

3.03 PROTECTION OF FINISHED WORK

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

END OF SECTION 07 21 00

SECTION 07 84 00

FIRESTOPPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Firestopping materials.

B. Firestopping of all penetrations and interruptions to fire rated assemblies, whether indicated on drawings or not, and other openings indicated.

1.02 RELATED SECTIONS

A. Section 01 70 00 - Execution Requirements: Cutting and patching.

B. Section 09 21 16 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.

C. Division 23 Sections: Firestopping of Mechanical Work.

D. Division 26 Sections: Firestopping of Electrical Work.

1.03 REFERENCES

A. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2000a.

B. ASTM E 814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops; 2002.

C. ITS (DIR) - Directory of Listed Products; Intertek Testing Services NA, Inc.; current edition.

D. FM P7825 - Approval Guide; Factory Mutual Research Corporation; current edition.

E. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Schedule of Firestopping: List each type of penetration.

C. Product Data: Provide data on product characteristics, performance ratings, and limitations.

D. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.

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

F. Certificate from authority having jurisdiction indicating approval of materials used.

1.05 QUALITY ASSURANCE

A. Fire Testing: Provide firestopping assemblies of designs which provide the specified fire ratings when tested in accordance with methods indicated, ASTM E 814, and ASTM E 119.
   1. Listing in the current-year classification or certification books of UL, FM, or ITS (Warnock Hersey) will be considered as constituting an acceptable test report.
   2. Current evaluation reports published by CABO, ICBO, or BOCA will be considered as constituting an acceptable test report.
   3. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.

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

C. Installer Qualifications: Company specializing in performing the work of this section and:
   1. Approved by Factory Mutual Research under FM Standard 4991, Approval of Firestop Contractors, or meeting any two of the following requirements:.
   2. With minimum 3 years documented experience installing work of this type.
   3. Able to show at least 5 satisfactorily completed projects of comparable size and type.
   4. Licensed by authority having jurisdiction.
   5. Approved by firestopping manufacturer.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation. Maintain minimum temperature before, during, and for 3 days after installation of materials.

B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 PRODUCTS

2.01 FIRESTOPPING ASSEMBLIES

A. Firestopping: Manufactured device.
   1. Fire Ratings: Use any system listed by UL or tested in accordance with ASTM E 814 that has F Rating equal to fire rating of penetrated assembly and minimum T Rating Equal to F Rating and that meets all other specified requirements.

2.02 MATERIALS

A. Elastomeric Silicone Firestopping: Single component silicone elastomeric compound and compatible silicone sealant; conforming to the following:
   1. Durability and Longevity: Permanent.
   2. Manufacturers:
      a. A/D Fire Protection Systems Inc: www.adfire.com.
      b. 3M Fire Protection Products: www.3m.com/firestop.
      c. Specified Technologies, Inc: www.stifirestop.com.

B. Foam Firestoppping: Single component foam compound; conforming to the following:
   1. Durability and Longevity: Permanent.
   2. Manufacturers:
      a. 3M Fire Protection Products: www.3m.com/firestop.
      b. Specified Technologies, Inc: www.stifirestop.com.

C. Fibered Compound Firestopping: Formulated compound mixed with incombustible non-asbestos fibers; conforming to the following:
   1. Durability and Longevity: Permanent.
   2. Manufacturers:
      a. A/D Fire Protection Systems Inc: www.adfire.com.
      b. USG: www.usg.com.

D. Fiber Firestopping: Mineral fiber insulation used in conjunction with elastomeric surface sealer forming airtight bond to opening; conforming to the following:
   1. Durability and Longevity: Permanent.
   2. Manufacturers:
      a. A/D Fire Protection Systems Inc: www.adfire.com.
      b. Pecora Corporation: www.pecora.com.
      c. USG: www.usg.com.

E. Firestop Devices - Wrap Type: Mechanical device with incombustible filler and sheet stainless steel jacket, collar, and flanged stops, intended to be installed after penetrating item has been installed; conforming to the following:
   1. Durability and Longevity: Permanent.
   2. Manufacturers:
      a. Grace Construction Products: www.na.graceconstruction.com.
      b. 3M Fire Protection Products: www.3m.com/firestop.
      c. Specified Technologies, Inc: www.stifirestop.com.

F. Intumescent Putty: Compound which expands on exposure to surface heat gain; conforming to the following:
   1. Durability and Longevity: Permanent.
   2. Manufacturers:
      a. Grace Construction Products: www.na.graceconstruction.com.
      b. 3M Fire Protection Products: www.3m.com/firestop.
      c. Specified Technologies, Inc: www.stifirestop.com.

G. Reusable Firestopping: Removable intumescent compressible shapes, pillows, or blocks specifically tested in removable configuration; conforming to the following:
   Durability and Longevity: Permanent.
   1. Manufacturers:
      a. Grace Construction Products: www.na.graceconstruction.com.
      b. Nelson Firestop Products: www.nelsonfirestop.com.
      c. Specified Technologies, Inc: www.stifirestop.com.

H. Substitutions: See Section 01 60 00 - Product Requirements.

I. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify openings are ready to receive the work of this section.

3.02 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter which may affect bond of firestopping material.
B. Remove incompatible materials which may affect bond.
C. Install backing materials to arrest liquid material leakage.

3.03 INSTALLATION

A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

B. Do not cover installed firestopping until inspected by authority having jurisdiction.

C. Install labelling required by code.

3.04 CLEANING AND PROTECTION

A. Clean adjacent surfaces of firestopping materials.

B. Protect adjacent surfaces from damage by material installation.

END OF SECTION 07 84 00

SECTION 07 90 00

JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sealants and joint backing.

B. Precompressed foam sealers.

C. Hollow gaskets.

1.02 RELATED SECTIONS

A. Section 07 84 00 - Firestopping: Firestopping sealants.

B. Section 08 80 00 - Glazing: Glazing sealants and accessories.

C. Section 09 21 16 - Gypsum Board Assemblies: Acoustic sealant.

1.03 REFERENCES

A. ASTM C 834 - Standard Specification for Latex Sealants; 2000.

B. ASTM C 919 - Standard Practice for Use of Sealants in Acoustical Applications; 2002.

C. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 2002.

D. ASTM C 1193 - Standard Guide for Use of Joint Sealants; 2005.

E. ASTM D 1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber; 2000.

F. ASTM C 1247 - Standard Test Method for Durability of Sealants Exposed to Continuous Immersion in Liquids; 2004.

G. ASTM C 1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2004.

H. BAAQMD 8-51 - Bay Area Air Quality Management District Regulation 8, Rule 51, Adhesive and Sealant Products; www.baaqmd.gov; current edition.

I. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

J. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2004.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating sealant chemical characteristics.

C. Samples: Submit two samples, 6 x 6 inch in size illustrating sealant colors for selection.

D. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, and perimeter conditions requiring special attention.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum 3 years documented experience.

B. Applicator Qualifications: Company specializing in performing the work of this section with minimum 3 years experience.

1.06 ENVIRONMENTAL REQUIREMENTS

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

1.07 COORDINATION

A. Coordinate the work with all sections referencing this section.

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a 1 year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal and watertight seal, exhibit loss of adhesion or cohesion, or do not cure.
   1. Period: Two years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 MATERIALS

A. Compatibility: Comply with ASTM C 1193; Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application.

B. Colors of exposed joint materials: As selected by Architect from manufacturer's full range.

C. Comply with ASTM C 920 for each sealant specified, including classifications for type, grade, class, and uses related to exposure and joint substrates.

D. Stain-Test-Response Characteristics: Comply with ASTM C 1248 for nonstaining sealants required for porous substrates.

E. Suitability for Immersion in Liquids: Comply with ASTM C 1247 for sealants required for continuous liquid emersion, length of exposure as referenced in ASTM C 920, Class 1 or 2.

F. Suitability for Contact with Food: Comply with 21 CFR 177.2600 for sealants that will come in repeated contact with food.

G. Acoustical: Comply with ASTM C 834 to reduce airborne sound transmission through perimeter joints and openings as demonstrated by testing representative assemblies according to ASTM E 90.

H. Preformed Joint Sealants: Manufacturer's standard system consisting of precured low-modulus silicone extrusion, in sizes to fit joint widths indicated, combined with a neutral-curing silicone sealant for bonding extrusions to substrates.

I. Preformed Compressible Foam Sealers: Manufacturer's standard mildew-resistant, nonmigratory, nonstaining, preformed, precompressed, open-cell foam sealant;

manufactured from high-density urethane foam impregnated with a nondrying, water-repellent agent.

2.02 MANUFACTURERS

A. Silicone Sealants:
   1. GE Silicones: www.gesilicones.com.
   2. Dow Corning Corporation; www.dowcorning.com.
   3. Sonneborn, Division of ChemRex Inc.; www.chemrex.com.
   4. Tremco; www.tremcosealants.com.
   5. Polymeric Systems Inc.; www.polymericsystems.com.
   6. Schnee-Moorehead Inc.; www.trustsm.com.
   7. Pecora Corporation: www.pecora.com.

B. Polyurethane Sealants:
   1. Sonneborn, Division of ChemRex Inc.; www.chemrex.com.
   2. Tremco; www.tremcosealants.com.
   3. Sika Corporation, Inc.; www.sikaconstruction.com

C. Polysulfide Sealants:
   1. Meadow, W. R., Inc.; www.wrmeadows.com.
   2. Pacific Polymers, Inc.; www.pacpoly.com.

D. Acoustical Sealants:
   1. United States Gypsum Co.; www.usg.com
   2. Pecora CorporationNone; www.pecora.com.

E. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 SEALANTS

A. Sealants and Primers - General: 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.

B. Acrylic Emulsion Latex Sealants: Comply with ASTM C 834, Type O P, Grade NF.
   1. Pecora Corporation; Product AC-20+: www.pecora.com.
   2. Sonneborn, Division of ChemRex Inc.; Product Sonolac: www.chemrex.com.
   3. Tremco; Product Tremflex 834: www.tremcosealants.com.

C. Preformed Joint Sealants and Products:
   1. Tremco; Product Spectrem Ez Seal: www.tremcosealants.com.
   2. Pecora Corporation; Product Sil-Span: www.pecora.com.
   3. GE Silicones; Product UltraSpan US1100: www.gesilicones.com.
   4. Dow Corning Corporation; Product 123 Silicone Seal: www.dowcorning.com.

D. Preformed Compressible Foam Sealers:
   1. Emseal Joint Systems, Ltd; Product Emseal 25V: www.emseal.com.
   2. Sandell Manufacturing Company, Inc; Product Polyseal: www.sandellmfg.com.
   3. illbruck Sealant Systems, Inc.; Product Universal Foam Sealant: www.illbruck.com
   4. Polytite Manufacturing Corporation; Products Polytite B, Polytite Standard: www.polytite.com

E. Acoustical Sealant: Butyl or acrylic sealant; ASTM C 834, Grade NS, Class 12-1/2, Uses M and A; single component, solvent release curing, non-skinning.
   1. Product: AC-20 FTR Acoustical and Insulation Sealant manufactured by Pecora.
   2. Product: Sheetrock Acoustical Sealant manufactured by United States Gypsum.
   3. Applications: Use for concealed locations only:

a. Sealant bead between top stud runner and structure and between bottom stud track and floor.

F. Acrylic Emulsion Latex: ASTM C 834, single component, non-staining, non-bleeding, non-sagging.
1. Color: Colors as selected, Type OP (opaque).
2. Product: AC-20+ manufactured by Pecora Corporation.
3. Product: Sonolac manufactured by Sonneborn, Division of ChemRex Inc.
4. Product: Tremflex 834 manufacturered by Tremco.

G. Self-Leveling Polysulfide Sealant: ASTM C 920, Grade P, Class 25, Uses T, I, M, A, O; two component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, self-leveling type.
1. Product: Deck-O-Seal manufactured by W. R. Meadows, Inc..
2. Product: Elastoseal 227, Type 1 manufactured by Pacific Polymers, Inc..
3. Movement Capability: Plus and minus 25 percent.

H. Nonsag Polyurethane Sealant: ASTM C 920, Grade NS, Class 25, Uses T, NT, M, A, O; single component, chemical curing, non-staining, non bleeding, non-sagging type.
1. Product: Sikaflex - 1a manufactured by Sika corporation, Inc..
2. Product: Ultra manufactured by Sonneborn, Division of ChemRex Inc..
3. Product: NP 1 manufactured by Sonneborn, Division of ChemRex Inc..
4. Product: Vulkem 116 manufactured by Tremco.

I. Nonsag Polyurethane Sealant: ASTM C 920, Grade NS, Class 100/50, Uses NT, M, A, O; single component, chemical curing, non-staining, non bleeding, non-sagging type.
1. Product: Sikaflex-15 LM manufactured by Sika corporation, Inc..
2. Product: Vulkem 921 manufactured by Tremco.

J. Self-Leveling Polyurethane Sealant: ASTM C 920, Grade P, Class 25, Uses T, NT, M, A, O; single component, chemical curing, non staining, non bleeding, self-leveling type.
1. Product: Sikaflex-1C SL manufactured by Sika Corporation, Inc..
2. Product: Sonolastic SL 1 manufactured by Sonneborn, Division of ChemRex Inc..

K. Silicone Sealant: ASTM C 920, Grade NS, Class 50, Uses NT, A, M, G, O; single component, neutral curing, and non-staining to porous substrates per ASTM C 1248.
1. Product: SilPruf LM SCS2700 manufactured by GE Silicones.
2. Product: Omniseal manufactured by Sonneborn, Division of ChemRex Inc..
3. Product: Spectrem 1 manufactured by Tremco.
4. Product: 790 manufactured by Dow Corning.
5. Product: 791 manufactured by Dow Corning.
6. Product: 795 manufactured by Dow Corning.

L. Silicone Sealant: ASTM C 920, Grade NS, Class 25, Uses NT, A, G; single component, neutral curing, and non-sagging.
1. Product: 799 manufactured by Dow Corning.
2. Product: UltraGlaze SSG 4000 manufactured by GE Silicones.
3. Product: UltraGlaze SSG 4000AC manufactured by GE Silicones.
4. Product: PSI-631 manufactured by Polymeric Systems Inc..
5. Product: SM 5731 Poly-Glaze Plus manufactured by Schnee-Morehead, Inc..
6. Product: Proglaze SG manufactured by Tremco.
7. Product: Tremsil 600 manufactured by Tremco.

M. Silicone Sealant: ASTM C 920, Grade NS, Class 25, Uses NT, A, G, O; single component, neutral curing, and mildew and fungus resistant,.
1. Product: 898 manufactured by Pecora Corporation.
2. Product: Tremsil 600 White manufactured by Tremco.

2.04 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant and non-staining; ASTM D 1056, sponge or expanded rubber; oversized 30 to 50 percent larger than joint width.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

E. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 EXECUTION

3.01 EXAMINATION

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

B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

A. Ensure proper joint design practices are followed allowing for a 2:1 width to depth ratio.

B. Joint dimensions should allow for ¼” (6.35 mm) minimum and ½” (12.7 mm) maximum thickness for sealant.

C. Remove loose materials, foreign matter, incompressibles, and free water which might impair adhesion of sealant. Concrete joints must be clean and dry.

D. Clean and prime joints in accordance with manufacturer's instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

E. Install backer rod or joint filler to control depth of joint sealant per depth ratio requirements.

F. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.

G. Protect elements surrounding the work of this section from damage or disfigurement.

H. Masking Tape: Use masking tape to prevent contact of sealant with adjoining surfaces that would be permanently stained or damaged by contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C 1193.

C. Perform acoustical sealant application work in accordance with ASTM C 919.

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 to match existing or concave per Figure 5A in ASTM C 1193.

H. Precompressed Foam Sealant: Do not stretch; avoid joints except at corners, ends, and intersections; install with face 1/8 to 1/4 inch below adjoining surface. xxxx

I. Compression Gaskets: Avoid joints except at ends, corners, and intersections; seal all joints with adhesive; install with face 1/8 to 1/4 inch below adjoining surface.

3.04 CLEANING

A. Clean adjacent soiled surfaces as the work progresses in compliance with the sealant manufacturers written instructions.

3.05 PROTECTION OF FINISHED WORK

A. Protect sealants until cured.

3.06 SEALANT APPLICATION SCHEDULE

A. Exterior vertical and horizontal nontraffic construction joints in cast-in-place concrete.
1. Joint Sealant: Single-component nonsag polyurethane sealant.

B. Exterior horizontal isolation and contraction and where indicated at joints in cast-in-place concrete slabs.
1. Joint Sealant: Single-component pourable polyurethane sealant.

C. Exterior vertical control and expansion joints in unit masonry.
1. Joint Sealant: Single-component nonsag polyurethane sealant.

D. Exterior butt joints between metal panels.
1. Joint Sealant: Single-component nonsag polyurethane sealant.

E. Exterior perimeter joints between masonry and frames of doors windows and louvers and other metal frames.
1. Joint Sealant: Single-component nonsag polyurethane sealant.

F. Exterior control and expansion joints in ceilings and other overhead surfaces.
1. Joint Sealant: Single-component nonsag polyurethane sealant.

G. Vertical control and expansion joints on exposed interior surfaces of exterior walls.
1. Joint Sealant: Latex sealant.

H. Interior perimeter joints of exterior openings.
1. Joint Sealant: Latex sealant.

I. Interior joints between plumbing fixtures and adjoining walls, floors, and counters.
1. Joint Sealant: Single-component mildew-resistant neutral-curing silicone sealant.

J. Vertical joints on exposed surfaces of interior unit masonry walls.
1. Joint Sealant: Single-component nonsag polyurethane sealant

K. Vertical joints on exposed surfaces of interior unit masonry walls.
1. Joint Sealant: Single-component nonsag polyurethane sealant

L. Perimeter joints between interior wall surfaces and frames of interior doors windows.
   1. Joint Sealant: Latex sealant.

M. Perimeter joints between interior unit masonry walls and concrete slab.
   1. Joint Sealant: Single-component Low VOC nonsag polyurethane sealant, approved for interior use

END OF SECTION 07 90 00

SECTION 08 11 13

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Standard and custom hollow metal doors and frames.
2. Steel sidelight, borrowed lite and transom frames.
3. Louvers installed in hollow metal doors.
4. Light frames and glazing installed in hollow metal doors.

B. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI/SDI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
2. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frames Anchors and Hardware Reinforcing.
3. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
4. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
5. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames.
6. ASTM A1008 - Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
7. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
8. ASTM A924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
9. ASTM C 1363 - Standard Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.
10. ANSI/BHMA A156.115 - Hardware Preparation in Steel Doors and Frames.
11. ANSI/SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
12. ANSI/NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.
13. ANSI/NFPA 105: Standard for the Installation of Smoke Door Assemblies.
14. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
15. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
16. UL 1784 - Standard for Air Leakage Tests of Door Assemblies.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, hardware reinforcements, profiles, anchors, fire-resistance rating, and finishes.

B. Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the steel door and frame supplier in order to prepare the doors and frames to receive the finish hardware items.

C. Shop Drawings: Include the following:

1. Elevations of each door design.
2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of anchorages, joints, field splices, and connections.
6. Details of accessories.
7. Details of moldings, removable stops, and glazing.
8. Details of conduit and preparations for power, signal, and control systems.

D. Samples for Verification:

1. Samples are only required by request of the architect and for manufacturers that are not current members of the Steel Door Institute.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain hollow metal doors and frames through one source from a single manufacturer wherever possible.

B. Quality Standard: In addition to requirements specified, furnish SDI-Certified manufacturer products that comply with ANSI/SDI A250.8, latest edition, "Recommended Specifications for Standard Steel Doors and Frames".

C. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to UL10C (neutral pressure at 40” above sill) or UL 10C.

1. Oversize Fire-Rated Door Assemblies Construction: For units exceeding sizes of tested assemblies, attach construction label certifying doors are built to standard construction requirements for tested and labeled fire rated door assemblies except for size.
2. Temperature-Rise Limit: Where indicated and at vertical exit enclosures (stairwell openings) and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.
3. Smoke Control Door Assemblies: Comply with NFPA 105.

a. Smoke "S" Label: Doors to bear “S” label, and include smoke and draft control gasketing applied to frame and on meeting stiles of pair doors.

D. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257. Provide labeled glazing material.

E. Pre-Submittal Conference: Conduct conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for installing hollow metal doors and frames and to verify installation of electrical knockout boxes and conduit at frames with electrified or access control hardware.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity.

1. Provide minimum 1/4-inch space between each stacked door to permit air circulation. Door and frames to be stacked in a vertical upright position.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.7 COORDINATION

A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

B. Building Information Modeling (BIM) Support: Utilize designated BIM software tools and obtain training needed to successfully participate in the Project BIM processes. All technical disciplines are responsible for the product data integration and data reliability of their Work into the coordinated BIM applications.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

B. Warranty includes installation and finishing that may be required due to repair or replacement of defective doors.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide steel doors and frames from a SDI Certified manufacturer:

1. CECO Door Products (C).
2. Curries Company (CU).

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

C. Frame Anchors: ASTM A 653/A 653M, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

2.3 HOLLOW METAL DOORS

A. General: Provide 1-3/4 inch doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8 and ANSI/NAAMM HMMA 867.

B. Exterior Doors (Energy Efficient): Face sheets fabricated of commercial quality hot-dipped zinc coated steel that complies with ASTM A924 A60. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model, ANSI/SDI A250.4 for physical performance level, and HMMA 867 for door construction.

1. Design: Flush panel.
2. Core Construction: Foamed in place polyurethane and steel stiffened laminated core with no stiffener face welds, in compliance with HMMA 867 “Laminated Core”.

    a. Provide 22 gauge steel stiffeners at 6 inches on-center internally welded at 5" on-center to integral core assembly, foamed in place polyurethane core chemically bonded to all interior surfaces. No stiffener face welding is permitted.
    b. Thermal properties to rate at a fully operable minimum U-Factor 0.37 and R-Value 2.7, including insulated door, thermal-break frame and threshold.
    c. Kerf Type Frames: Thermal properties to rate at a fully operable minimum U-Factor 0.38 and R-Value 2.6, including insulated door, kerf type frame, and threshold.

3. Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), Minimum 16 gauge (0.053 inch - 1.3-mm) thick steel, Model 2.
4. Vertical Edges: Vertical edges to be mechanically interlocked with hairline seam. Beveled Lock Edge, 1/8 inch in 2 inches (3 mm in 50 mm).
5. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.
6. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9".
7. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

C. Interior Doors: Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A 1008/A 1008M. Provide doors complying with requirements indicated below by

referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

1. Design: Flush panel.

    a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.

2. Level/Model: Level 2 and Physical Performance Level B (Heavy Duty), Minimum 18 gauge (0.042-inch - 1.0-mm) thick steel, Model 2.
3. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet.
4. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
5. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

D. Manufacturers Basis of Design:

1. Curries Company (CU) - Polystyrene Core - 707 Series.
2. Curries Company (CU) - Energy Efficient - 777 Trio-E Series.

2.4 HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.

B. Thermal Break Frames: Subject to the same compliance standards and requirements as standard hollow metal frames. Tested for thermal performance in accordance with NFRC 102, and resistance to air infiltration in accordance with NFRC 400. Where indicated provide thermally broken frame profiles available for use in both masonry and drywall construction. Fabricate with 1/16” positive thermal break and integral vinyl weatherstripping.

C. Exterior Frames: Fabricated of hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60.

1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
2. Frames: Minimum 14 gauge (0.067-inch -1.7-mm) thick steel sheet.
3. Manufacturers Basis of Design:

    a. Curries Company (CU) – Thermal Break TQ Series.

D. Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/A 1008M.

1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
2. Frames: Minimum 16 gauge (0.053-inch -1.3-mm) thick steel sheet.
3. Manufacturers Basis of Design:

    a. Curries Company (CU) - CM Series.
    b. Curries Company (CU) - M Series.

E. Fire rated frames: Fabricate frames in accordance with NFPA 80, listed and labeled by a qualified testing agency, for fire-protection ratings indicated.

F. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, formed from A60 metallic coated material, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
2. Stud Wall Type: Designed to engage stud and not less than 0.042 inch thick.

B. Floor Anchors: Floor anchors to be provided at each jamb, formed from A60 metallic coated material, not less than 0.042 inches thick.

C. Mortar Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.6 LIGHT OPENINGS AND GLAZING

A. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints at fabricator’s shop. Fixed and removable stops to allow multiple glazed lites each to be removed independently. Coordinate frame rabbet widths between fixed and removable stops with the type of glazing and installation indicated.

B. Moldings for Glazed Lites in Doors and Loose Stops for Glazed Lites in Frames: Minimum 20 gauge thick, fabricated from same material as door face sheet in which they are installed.

C. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated. Provide fixed frame moldings and stops on outside of exterior and on secure side of interior doors and frames.

D. Preformed Metal Frames for Light Openings: Manufacturer's standard frame formed of 0.048-inch-thick, cold rolled steel sheet; with baked enamel or powder coated finish; and approved for use in doors of fire protection rating indicated. Match pre-finished door paint color where applicable.

2.7 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.8 FABRICATION

A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. When shipping limitations so dictate, frames for large openings are to be fabricated in sections for splicing or splining in the field by others.

B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.

C. Hollow Metal Doors:

1. Exterior Doors: Provide optional weep-hole openings in bottom of exterior doors to permit moisture to escape where specified.
2. Glazed Lites: Factory cut openings in doors with applied trim or kits to fit. Factory install glazing where indicated.
3. Astragals: Provide overlapping astragals as noted in door hardware sets in Division 08 Section "Door Hardware" on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted.
4. Continuous Hinge Reinforcement: Provide welded continuous 12 gauge strap for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".

D. Hollow Metal Frames:

1. Shipping Limitations: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
2. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

    a. Welded frames are to be provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and are not to be used to size the frame opening.

3. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
4. High Frequency Hinge Reinforcement: Provide high frequency hinge reinforcements at door openings 48-inches and wider with mortise butt type hinges at top hinge locations.
5. Continuous Hinge Reinforcement: Provide welded continuous 12 gauge straps for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".
6. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated for removable stops, provide security screws at exterior locations.
7. Mortar Guards: Provide guard boxes at back of hardware mortises in frames at all hinges and strike preps regardless of grouting requirements.
8. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
9. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

        1) Two anchors per jamb up to 60 inches high.
        2) Three anchors per jamb from 60 to 90 inches high.
        3) Four anchors per jamb from 90 to 120 inches high.
        4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.

    b. Stud Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

        1) Three anchors per jamb up to 60 inches high.

2) Four anchors per jamb from 60 to 90 inches high.
3) Five anchors per jamb from 90 to 96 inches high.
4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
5) Two anchors per head for frames above 42 inches wide and mounted in metal stud partitions.

10. Door Silencers: Except on weatherstripped or gasketed doors, drill stops to receive door silencers. Silencers to be supplied by frame manufacturer regardless if specified in Division 08 Section "Door Hardware".
11. Bituminous Coating: Where frames are fully grouted with an approved Portland Cement based grout or mortar, coat inside of frame throat with a water based bituminous or asphaltic emulsion coating to a minimum thickness of 3 mils DFT, tested in accordance with UL 10C and applied to the frame under a 3rd party independent follow-up service procedure.

E. Hardware Preparation: Factory prepare hollow metal work to receive template mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
2. Reinforce doors and frames to receive non-template, mortised and surface mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.

2.9 STEEL FINISHES

A. Prime Finishes: Doors and frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces of the door and frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; and compatible with substrate and field-applied coatings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. General Contractor to verify the accuracy of dimensions given to the steel door and frame manufacturer for existing openings or existing frames (strike height, hinge spacing, hinge back set, etc.).

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove welded in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Prior to installation, adjust and securely brace welded hollow metal frames for square, level, twist, and plumb condition.

C. Tolerances shall comply with SDI-117 "Manufacturing Tolerances Standard Steel Doors and Frames."

D. Drill and tap doors and frames to receive non-template, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11 and NFPA 80 at fire rated openings.

1. Set frames accurately in position, plumbed, leveled, aligned, and braced securely until permanent anchors are set. After wall construction is complete and frames properly set and secured, remove temporary braces, leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.
3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar.
4. Grout Requirements: Do not grout head of frames unless reinforcing has been installed in head of frame. Do not grout vertical or horizontal closed mullion members.

C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:

    a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
    b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.
    c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
    d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

D. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from hollow metal work immediately after installation.

C. Prime-Coat and Painted Finish Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat, or painted finishes, and apply touchup of compatible air drying, rust-inhibitive primer, zinc rich primer (exterior and galvanized openings) or finish paint.

3.5 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

END OF SECTION

08 11 13

SECTION 08 14 16

FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flush wood doors; flush and flush glazed configuration; fire rated and non-rated.

1.02 RELATED SECTIONS

A. Section 08 11 13 - Hollow Metal Doors and Frames.

B. Section 08 71 00 - Door Hardware.

C. Section 08 80 00 - Glazing.

1.03 REFERENCES

A. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2003.

B. ITS (DIR) - Directory of Listed Products; Intertek Testing Services NA, Inc.; current edition.

C. NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association; 1999.

D. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

E. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; 1998.

F. WDMA NWWDA I.S.1-A - Architectural Wood Flush Doors; Window and Door Manufacturers Association (formerly NWWDA); 2004.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.

C. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria, factory finishing criteria, identify cutouts for glazing and louvers.

D. Samples: Submit two samples of door veneer, 12 x 12 inch in size illustrating wood grain, stain color, and sheen.

E. Manufacturer's Installation Instructions: Indicate special installation instructions.

1.05 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

A. Installed Fire Rated Door and Transom Panel Assembly: Conform to NFPA 80 for fire rated class as indicated.

B. Sustainably Harvested Wood: Certification Organizations shall be accredited by the Forest Stewardship Council (FSC).

1.06 DELIVERY, STORAGE, AND PROTECTION

A. Deliver, store, and handle products as required to prevent damage or deterioration. Conform to manufacturer's recommendations, requirements of referenced standard, and recommendations of NWWDA I.S.1, Appendix, "How to Store, Handle, Finish, Install, and Maintain Wood Doors."

B. Clearly label each door with opening number where door will be installed. Use removable labels or mark on door surface in area that will be concealed from view after installation.
   1. Coordinate door identification with shop drawing designations.

C. Package, deliver and store doors in accordance with specified quality standard.

D. Accept doors on site in manufacturer's packaging. Inspect for damage.

E. 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 veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

1.07 PROJECT CONDITIONS

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

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Provide warranty for the following term:
   1. Interior Doors: Life of installation.

C. Include coverage for delimitation of veneer, warping beyond specified installation tolerances, defective materials, telegraphing core construction, and labor to remove and replace defective doors.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Wood Veneer Faced Doors:

   1. Eggers Industries: www.eggersindustries.com.
   2. Haley Brothers: www.haleybros.com.
   3. Marshfield Door Systems, Inc: www.marshfielddoors.com.
   4. Oshkosh Architectural Door Company: www.oshkoshdoor.com
   5. Algoma Hardwoods, Inc.: www.algomahardwoods.com
   6. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 DOORS AND PANELS

A. All Doors: See drawings for locations and additional requirements.
   1. Quality Standard: AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Section 1300, Premium Grade.
   2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.

B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
   1. Provide solid core doors at all locations.
   2. Fire Rated Doors: Tested to ratings indicated on drawings in accordance with UL 10C or

UBC Standard 7-2-97 ("positive pressure"), category A; UL or WH (ITS) labeled without any visible seals when door is closed.

3. Red Oak veneer facing, stain as selected by Architect to match existing, with factory transparent finish.

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.

B. Fire Rated Doors: Mineral core, Type FD, plies and faces as indicated above.

C. Lumber for Core, Stile and Rail, and Wood Veneer:
   1. Resource Management:
      a. Virgin Lumber: Lumber fabricated from old growth timber is not permitted. Provide sustainably harvested; certified or labeled in accordance with FSC guidelines.

D. Engineered Wood Products: Products shall contain no added urea-formaldehyde

2.04 DOOR FACINGS

A. Wood Veneer Facing for Transparent Finish: Species as specified above, veneer grade as specified by quality standard, plain sliced, book veneer match, balance assembly match; unless otherwise indicated.
   1. Vertical Edges: Same species as face veneer.
   2. Pairs: Pair match each pair; set match pairs within 10 feet of each other when doors are closed.
   3. Provide sustainably harvested; certified or labeled in accordance with FSC guidelines

A. Facing Adhesive: Type II - water resistant; types recommended by flooring manufacturer. Low VOC, low odor, solvent-free, water-based adhesives.

2.05 ACCESSORIES

A. Glazing Stops, Non-fire rated Doors: Wood, of same species as door facing, mitered corners; prepared for countersink style tamper proof screws.

B. Glazing Stops, Fire rated Doors: Rolled steel channel shape, mitered corners; prepared for countersink style tamper proof screws.

2.06 DOOR CONSTRUCTION

A. Fabricate doors in accordance with door quality standard specified.

B. Cores Constructed with Stiles and Rails:

C. Fabricate fire rated doors in accordance with UL requirements. Attach fire rating label to door.

D. Astragals for Non-Rated Double Doors: Steel, T shaped, overlapping and recessed at face edge.

E. Astragals for Fire Rated Double Doors: Steel, T shaped, overlapping and recessed at face edge, specifically for double doors.

F. Provide solid blocks at lock edge and top of door for closer for hardware reinforcement.

1. Provide solid blocking for other through-bolted hardware.

G. Fit door edge trim to edge of stiles after applying veneer facing.

H. Vertical Exposed Edge of Stiles - Veneer Faces: Of same species as veneer facing.

I. Fit door edge trim to edge of stiles after applying veneer facing.

J. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

K. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
1. Exception: Doors to be field finished.

L. Provide edge clearances in accordance with AWI Quality Standards Illustrated Section 1700.

2.07 FACTORY FINISHING - WOOD VENEER DOORS

A. Factory finish doors in accordance with specified quality standard:
1. Transparent catalyzed polyurethane, Premium quality, matte sheen.

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.
1. Install fire-rated doors in accordance with NFPA 80 requirements.

B. Factory-Finished Doors: 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. Prefit Doors: Minimize field fitting to procedures that are necessary to complete in the field and that provide trouble free operation. Do not attempt of field modify doors to conditions which were not originally scheduled or intended. Doors prepared incorrectly for openings shall be replaced, not modified.

F. Coordinate installation of glazing.

G. Install door louvers plumb and level.

3.03 INSTALLATION TOLERANCES

A. Conform to specified quality standard for fit and clearance tolerances.

B. Conform to specified quality standard for maximum diagonal distortion.

C. Maximum Diagonal Distortion (Warp): 1/8 inch measured with straight edge or taut string, corner to corner, over an imaginary 36 by 84 inches surface area.

D. Maximum Vertical Distortion (Bow): 1/8 inch measured with straight edge or taut string, top to bottom, over an imaginary 36 by 84 inches surface area.

E. Maximum Width Distortion (Cup): 1/8 inch measured with straight edge or taut string, edge to edge, over an imaginary 36 by 84 inches surface area.

3.04 ADJUSTING

A. Adjust doors and hardware for smooth and balanced door movement in coordination with hardware.
B. Replace doors that cannot be properly adjusted.
C. Restore door finishes damaged during installation, in a manner which results in the door showing no evidence of the restoration. If refinished door cannot be made to match other doors, refinished door will be replaced at the contractor's expense.

D. Adjust closers for full closure.

END OF SECTION 08 14 16

SECTION 08 38 10

SOUND CONTROL WINDOWS

1.0 GENERAL

1.1 DESCRIPTION OF WORK

A. Furnish and install FACTORY PREGLAZED Sound Control Windows specified herein and per the locations and orientations shown on the Contract Documents-site installation of glazing into frames is not acceptable. Verify all dimensions and requirements and coordinate with other trades as necessary

1. Sound Control Windows, Frames, Stops, Glazing, Sound Absorbing Material and Concealed Fasteners
2. Installation of Sound Control Windows.

1.2 RELATED SECTIONS:

A. Specified elsewhere:

1. Section 06 10 00 – Rough Carpentry
2. Section 08 80 00 – Glazing
3. Section 09 90 00 – Painting and Coatings

1.3 QUALITY ASSURANCE

A. Acoustic Performance:

1. The manufacturer shall submit certified laboratory test results indicating a Sound Transmission Class (STC) rating of at least 53 when tested in accordance with ASTM E 90-90 and E413-87.

B. Warranty:

1. The window systems shall be guaranteed against defective materials and/or workmanship for a period of one (1) year from date of acceptance of the installations.

1.4 SUBMITTALS

A. Submit shop drawings, manufacture’s data, and product performance certification in accordance with General Conditions.

B. Shop drawings:

1. Provide full size details of frames and sound gasket components.

2. Provide installation details applicable to the construction in which the Sound Control Windows will be installed.

3. Indicate construction, sizes, thicknesses, reinforcing, anchoring, and finishes of all materials.

C. Manufacturer's data:

1. Provide illustrations and descriptions of all frame details that will be exposed on window units for design review by Architect and project Acoustics Consultant.

2. Provide complete installation and adjustment information.

D. Certification:

1. Provide certified laboratory test reports from a Navlap certified acoustics laboratory showing that a fully operating installation of the specific Sound Control Window assembly proposed for installation has been measured in accordance with ASTM E 90-90 and has met or exceeded the scheduled STC ratings. The test results shall be representative of the performance of the proposed Sound Control Window assembly.

E. Notification of work completion:

1. After installation and prior to acceptance testing, provide a letter to the Architect and the project Acoustics Consultant, co-signed by the General Contractor's project representative, indicating that all Sound Control Window Units have been installed and gaskets have been adjusted to form an airtight seal around the full perimeter of each window unit panel.

1.5 SEQUENCING AND DELIVERY

A. Upon award of contract and before commencement of building construction, submit to the Architect any special requirements (scheduling, opening conditions, etc.) that are necessary to assure successful installation.

B. Protect pre-glazed window units during transit, handling and storage to prevent damage, soiling, and deterioration.

C. Deliver preglazed window units to General Contractor with complete installation drawings and instructions for installation by the General Contractor.

D. Deliver pre-glazed window units to project site only after the building has been closed in. Store window units in the building in a dry location and stack in accordance with manufacture's instructions.

E. Protect pre-glazed window unit assemblies, especially sound gaskets, from damage before, during and after their installation.

2.0 PRODUCTS

2.1 APPROVED MANUFACTURER'S:

A. The acoustical window units shall be QuietLite Sound Control Windows manufactured by Noise Barriers.

Manufacturer:
Noise Barriers Phone: (847) 843-0500 www.noisebarriers.com

Contact:
John Finnegan Phone: (315) 682-3821 info@noisebarriers.com

2.2 MATERIALS

A. Window frames shall be 1 ¼ in. thick fabricated from not less than 12 gauge steel, reinforced and filled with sound-absorbing acoustic fill, Inside and outside corners shall be mitered and interlocked to hairline measurements, made square, continuously welded , and ground smooth, flush, and invisible.

B. Stops shall be up to 1 inch thick and readily removable, fabricated from not less than 16 gauge rolled steel sections predrilled and aligned with frame to form tight square acoustical joint. Stop fasteners shall be concealed.

C. Acoustic seals for glazing shall be vibration-isolating resilient closed-cell polyethylene foam glazing tape. Glazing tape must be designed to withstand environmental breakdown and maintain an effective seal. Self-contained, sound-absorptive interior perimeter of not less than 22 gauge steel shall be perforated and prefinished black. Desiccant material shall be incorporated into multiple glazed units.

D. Assembly of acoustic window units including frames, stop, glazing, acoustic seals, sound-absorbing material, and concealed fasteners shall take place at the factory to insure required noise reduction is achieved. Glazing shall not need to be removed to facilitate fastening or anchoring at the job site.

E. Finish – Unless otherwise specified, steel window frame assemblies shall receive one shop coat of gray primer. Stainless steel shall not be painted.

F. Lights for single-and double-glazed units shall be minimum ¼ in. laminated safety glass consisting of multi-layer clear float with clear plastic interlayer. Note: *This project requires one (1) layer of 3/8" thick laminated safety glass and one (1) layer of 1/2" laminated safety glass in a window unit 6" thick. (adjust as necessary)*

2.3 ACOUSTICAL PERFORMANCE CHARACTERISTICS

A. At least 10 days prior to bidding, manufacturer shall submit laboratory test data certifying Sound Transmission Loss and Sound Transmission Class (STC) when tested in accordance with ASTM E 90-90 of not less than the following:

Sound Transmission Loss, db

	Octave Band Center Frequency, Hz						
Window Type	125	250	500	1K	2K	4K	STC
Double glazed	38	43	49	56	59	62	53

2.4 FABRICATION

A. Assemble windows using all welded construction conforming to pertinent requirements of AWS D1-1. Assembly and adjustment of window units, frames, stop, glazing, acoustic seals, sound-absorbing material and concealed fasteners shall be performed at the factory. Each entire unit shall be shipped to the job site ready for installation and subsequent operation.

B. Reinforce as required to withstand operating loads.

C. Painting and cleaning:

1. On surfaces that are inaccessible after assembly, apply protective coating of the manufacturer's standard rust-inhibitive primer.

2. After assembly, and prior to inspection, thoroughly clean all surfaces.

3. After inspection, and completion of repairs and revisions required by the inspection, apply a shop coat of rust inhibitive primer to exposed surfaces.

3.0 EXECUTION

3.1 EXAMINATION

Before commencing installation, examine the substrate and surrounding conditions to verify that there is nothing to prevent proper and timely execution of the installation. Start of work shall indicate acceptance of the substrate and surrounding conditions.

3.2 INSTALLATION

A. Installation of window units, seals, and final adjustments for window operation and for the design attenuation shall be performed by factory trained personnel or under the supervision of the manufacturer.

B. Install items plumb (or as indicated on the contract documents), straight, square, level, and in their proper elevation, plane and location.

C. Adjust all gaskets to achieve an airtight seal around the entire perimeter of each window unit.

D. Apply resilient caulking at any locations designated by the installation drawings and the entire perimeter of the window frame.

E. After installation, adjust windows for smooth and easy operation.

F. All work shall be complete in every detail and the finished work shall be clean for Architect prior to final acceptance.

3.3 ADJUST AND CLEAN

A. Check and readjust operation finish hardware in work just prior to final inspection. Leave work in complete and proper operating condition. Remove and replace defective work.

B. Immediately after erection, sand smooth all rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.

3.4 ACCEPTANCE TESTING

A. Before acceptance of the installed Sound Control Window Units, and at any time within the project guaranteed period, the Owner, Architect, or project Acoustics Consultant may request that acoustic performance testing of the installations be performed. Ideally, this testing shall be performed by an independent acoustics consultant at the expense of the Installing Contractor under the supervision of the project Acoustics Consultant, and expenses for the project Acoustics Consultant to supervise the testing shall be paid by the Installing Contractor. Alternatively, the project Acoustics Consulting may be independently retained by the Installing Contractor to perform this testing.

B. The installations shall be deemed acceptable if the Sound Control Window Units meet or exceed a Noise Isolation Class (NIC) that is not more than six (6) points below the specified STC rating.

END OF SECTION

SECTION 087100

DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.
2. Sliding doors.
3. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.
2. Electromechanical door hardware.
3. Automatic operators.
4. Cylinders specified for doors in other sections.

C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. UL/ULC and CSA C22.2 - Standards for Automatic Door Operators Used on Fire and Smoke Barrier Doors and Systems of Doors.
8. State Building Codes, Local Amendments.

D. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:

1. ANSI/BHMA Certified Product Standards - A156 Series.
2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
3. ANSI/UL 294 - Access Control System Units.

4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."

2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.

3. Content: Include the following information:

   a. Type, style, function, size, label, hand, and finish of each door hardware item.
   b. Manufacturer of each item.
   c. Fastenings and other pertinent information.
   d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
   e. Explanation of abbreviations, symbols, and codes contained in schedule.
   f. Mounting locations for door hardware.
   g. Door and frame sizes and materials.
   h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:

1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

   a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
   b. Complete (risers, point-to-point) access control system block wiring diagrams.

c. Wiring instructions for each electronic component scheduled herein.

2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

E. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Automatic Operator Supplier Qualifications: Power operator products and accessories are required to be supplied and installed through the Norton Preferred Installer (NPI) program. Suppliers are to be factory trained, certified, and a direct purchaser of the specified power operators and be responsible for the installation and maintenance of the units and accessories indicated for the Project.

F. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.

2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

G. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

H. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage and software.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

I. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning, and demonstration procedures

J. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.

C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:

1. Ten years for mortise locks and latches.
2. Five years for exit hardware.
3. Twenty five years for manual overhead door closer bodies.
4. Two years for electromechanical door hardware, unless noted otherwise.

1.8 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:

   a. Two Hinges: For doors with heights up to 60 inches.
   b. Three Hinges: For doors with heights 61 to 90 inches.
   c. Four Hinges: For doors with heights 91 to 120 inches.
   d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

   a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
   b. Sizes from 3’1” to 4’0”: 5” standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:

   a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
   b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

4. Hinge Options: Comply with the following:

a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

5. Manufacturers:

a. McKinney (MK) - TA/T4A Series, 5 knuckle.

B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:

a. Pemko (PE).

2.3 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.

1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
2. Furnish dust proof strikes for bottom bolts.
3. Surface bolts to be minimum 8” in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.

5. Manufacturers:

a. Rockwood (RO).

B. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.

5. Manufacturers:

a. Rockwood (RO).

2.4 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.

C. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:

1. Threaded mortise cylinders with rings and cams to suit hardware application.
2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
4. Tubular deadlocks and other auxiliary locks.
5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
6. Keyway: Manufacturer’s Standard.

D. Patented Cylinders: ANSI/BHMA A156.5, Grade 1 Certified Products Directory (CPD) listed cylinders employing a utility patented and restricted keyway requiring the use of a patented key. Cylinders are to be protected from unauthorized manufacture and distribution by manufacturer’s United States patents. Cylinders are to be factory keyed with owner having the ability for on-site original key cutting.

1. Patented key systems shall not be established with products that have an expired patent. Expired systems shall only be specified and supplied to support existing systems.

2. Manufacturers:

a. Sargent Degree (DG1).
b. Corbin Russwin (Access 3-AP).
c. No Substitution.

E. Keying System: Each type of lock and cylinders to be factory keyed.

1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. New System: Key locks to a new key system as directed by the Owner.

F. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Two (2)
2. Master Keys (per Master Key Level/Group): Five (5).
3. Permanent Control Keys (where required): Two (2).

G. Construction Keying: Provide temporary keyed construction cores.

H. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.5 MECHANICAL LOCKS AND LATCHING DEVICES

A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed.

1. Vertical Impact: Exceed 100 vertical impacts (20 times ANSI/BHMA A156.2 requirements).

2. Furnish with solid cast levers, standard 2 3/4” backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latchbolt.

3. Locks are to be non-handed and fully field reversible.

4. Manufacturers:

   a. Corbin Russwin Hardware (RU) - CLX3300 Series.
   b. Sargent Manufacturing (SA) - 10X Line.

2.6 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.7 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as

required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.

2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.

3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.

4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.

5. Flush End Caps: Provide flush end caps made of architectural metal in the same finish as the devices as in the Hardware Sets. Plastic end caps will not be acceptable.

6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.

    a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
    b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.

7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.

8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.

9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.

10. Rail Sizing: Provide exit device rails factory sized for proper door width application.

11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.

1. Manufacturers:

    a. Sargent Manufacturing (SA) - 80 Series.
    b. Corbin Russwin (RU) – ED5000 Series.

2.8 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.

2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.

3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.

4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.

5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

1. Manufacturers:

a. Norton (NO) – 7500 Series.
b. Corbin Russwin (RU) – DC6000 Series.
c. Sargent (SA) – 351 Series

2.9 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.

2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.

3. Where plates are applied to fire rated doors with the top of the plate more than 16” above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer’s catalog and template book for specific requirements for size and applications.

4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:

    a. Stainless Steel: 300 grade, 050-inch thick.

5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.

6. Manufacturers:

    a. Rockwood (RO).

2.10 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

    a. Rockwood (RO).

2.11 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. Pemko (PE).
2. Zero International (ZI)
3. National Guard Products (NG)

2.12 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.13 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

1. Quantities listed are for each pair of doors, or for each single door.

2. The supplier is responsible for handing and sizing all products.

3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.

4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. Manufacturer’s Abbreviations:

1. MK - McKinney
2. PE - Pemko
3. SA - SARGENT
4. RO – Rockwood

5. WI- WIKK Industries
6. ZI – Zero International
7. NG – National Guard Products

Hardware Sets:

Hardware Set 01

Doors: 112, 121

Each to receive:

3	EA	Hinge, Full Mortise	BB1279 4-1/2" x 4-1/2" US26D	Hager
1	EA	Cylindrical Classroom Lock	Lock10XG37 LL US26D	Sargent
1	EA	Kick Plate	K1050 10" x 34" US32D	Rockwood
1	EA	Wall Stop	409 US32D	Rockwood
1	EA	Threshold	411 x 36"	National Guard
1	EA	Door Bottom	STC411APK x door width	Pemko
1	EA	Sound Seals	107NA x 36" x 84"	National Guard

Hardware Set 02

Doors: 113

Each to receive:

3	EA	Hinge, Full Mortise	BB1279 4-1/2" x 4-1/2" US26D	Hager
1	EA	Cylindrical Classroom Lock	Lock10XG37 LL US26D	Sargent
1	EA	Surface Closer	4040XP .RWPA .689	LCN Closers
1	EA	Kick Plate	K1050 10" x 34" US32D	Rockwood
1	EA	Wall Stop	409 US32D	Rockwood
1	EA	Threshold	411 x 36"	National Guard
1	EA	Door Bottom	STC411APK x door width	Pemko
1	EA	Sound Seals	107NA x 36" x 84"	National Guard

Hardware Set 03

Doors: 122A

Each to receive:

3	EA	Hinge, Full Mortise	BB1279 4-1/2" x 4-1/2" US26D	Hager
1	EA	Cylindrical Lock Classroom Lock	10XG37 LL US26D	Sargent
1	EA	Overhead Holder/Stop Overhead Stop	104S 630	Glynn-Johnson
1	EA	Surface Closer ST1889 Template	4040XP .RWPA .689	LCN Closers
1	EA	Drop Plate	4040XP-18 .689	LCN Closers
1	EA	Kick Plate	K1050 10" x 34" US32D	Rockwood

1	EA	Threshold	411 x 36"	National Guard
1	EA	Door Bottom	STC411APK x door width	Pemko
1	EA	Sound Seals	107NA x 36" x 84"	National Guard

Hardware Set 04

Doors: 108

Each to receive:

3	EA	Hinge, Full Mortise	BB1279 4-1/2" x 4-1/2" US26D	Hager
1	EA	Cylindrical Lock Entry/Office Lock	10XG05 LL US26D	Sargent
1	EA	Surface Closer	4040XP .RWPA .689	LCN Closers
1	EA	Kick Plate	K1050 10" x 34" US32D	Rockwood
1	EA	Wall Stop	409 US32D	Rockwood

Hardware Set 05

Doors: 122B

Each to receive:

3	EA	Hinge, Full Mortise	BB1279 4-1/2" x 4-1/2" US26D	Hager
1	EA	Cylindrical Lock Passage Latch	10XU15 LL US26D	Sargent
1	EA	Surface Closer	4040XP .RWPA .689	LCN Closers
1	EA	Kick Plate	K1050 10" x 34" US32D	Rockwood
1	EA	Wall Stop	409 US32D	Rockwood
1	EA	Threshold	950N x 36"	National Guard
1	EA	Gasketing	107NA x 36" x 84"	National Guard
1	EA	Door Bottom	423NA- 36"	National Guard

END OF SECTION

SECTION 08 80 00

GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glass.

B. Glazing compounds and accessories.

1.02 RELATED SECTIONS

A. Section 07 90 00 - Joint Sealers: Sealant and back-up material.

B. Section 08 11 00 - Steel Doors and Frames: Glazed doors and borrowed lites.

C. Section 08 21 01 - Flush Wood Doors: Glazed doors.

D. Section 08 41 00 - Metal-Framed Storefronts.

1.03 REFERENCES

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.

B. ASTM C 864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 1999 (Reapproved 2005).

C. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 2002.

D. ASTM C 1036 - Standard Specification for Flat Glass; 2001.

E. ASTM C 1048 - Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass; 2004.

F. ASTM C 1193 - Standard Guide for Use of Joint Sealants; 2005.

G. ASTM E 773 - Standard Test Method for Accelerated Weathering of Sealed Insulating Glass Units; 2001.

H. ASTM E 774 - Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units; 1997.

I. GANA (GM) - GANA Glazing Manual; Glass Association of North America; 2004.

J. GANA (SM) - FGMA Sealant Manual; Glass Association of North America; 1990.

1.04 PERFORMANCE REQUIREMENTS

A. Provide glass and glazing materials for continuity of building enclosure vapor retarder and air barrier:
   1. In conjunction with vapor retarder and joint sealer materials described in other sections.
   2. To utilize the inner pane of multiple pane sealed units for the continuity of the air barrier and vapor retarder seal.
   3. To maintain a continuous air barrier and vapor retarder throughout the glazed assembly from glass pane to heel bead of glazing sealant.

1.05 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.

C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.

D. Certificates: Certify that products meet or exceed specified requirements.

E. Manufacturer's Certificate: Certify that insulated types of glass meets or exceeds specified requirements.

1.06 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods.

1.07 PRE-INSTALLATION MEETING

A. Convene one week before starting work of this section.

1.08 ENVIRONMENTAL REQUIREMENTS

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.

1.09 WARRANTY

A. See Section 01780 - Closeout Submittals, for additional warranty requirements.

B. Provide a five (5) year warranty to include coverage for sealed glass units from seal failure, interpane dusting or misting, and replacement of same.

PART 2 PRODUCTS

2.01 FLAT GLASS MATERIALS

A. Manufacturers:
   1. AFG Industries, Inc: www.afgglass.com.
   2. Guardian Glass (Basis of Design - IG):
   3. PPG Industries, Inc: www.ppg.com.
   4. Visteon Glass Systems: www.visteon.com/floatglass.
   5. Substitutions: Refer to Section 01600 - Product Requirements.

B. Clear Float Glass: Clear, annealed.
   1. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).
   2. Comply with ASTM C 1048.
   3. 6 mm minimum thick.

C. Safety Glass: Clear; fully tempered with horizontal tempering.
   1. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select) and ASTM C 1048.
   2. Comply with 16 CFR 1201 test requirements for Category II.
   3. 6 mm minimum thick.

D. Low E Glass: Float type, heat strengthened, clear.
   1. Comply with ASTM C 1036, Type I, transparent flat, Quality Q3 (glazing select).
   2. Comply with ASTM C 1048.

3. 6 mm minimum thick.

E. Spandrel Glass: Heat strengthened, clear.
1. Ceramic fused frit of solid color as selected by Architect on interior back surface, No. 4.
2. Comply with ASTM C 1036 Type I, transparent flat, Quality Q3.
3. Comply with ASTM C 1048.
4. 6 mm thick.

F. Laminated Glass (Acoustic Door Lites): Clear; Tempered
1. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select) and ASTM C 1172 – Standard Specification for laminated Architectural Flat Glass.
2. 5/8” thick: 1 layer (1/4”) + 1 layer (3/8”) tempered glass with 0.76mm (0.030 in.) PVB interlayer.

2.02 SEALED INSULATING GLASS MATERIALS

A. Manufacturers:
1. Any of the manufacturers listed under Flat Glass Materials.

B. Insulated Glass Units: Double pane with glass to elastomer edge seal.
1. Outer pane of clear glass, inner pane of Low E glass.
2. Place Low E coating on No. 2 surface within the unit.
3. Comply with ASTM E 774 and E 773, Class CBA.
4. Purge interpane space with dry hermetic air.
5. Total unit thickness of 1 inch minimum.
6. Visible light transmittance of 68percent, Reflectance out 11%, Reflectance in 12%, U –Value .29 Solar Heat Gain Coefficient .38, Light to Solar Gain 1.80

C. Insulated Spandrel Glass Units: Double pane with glass to elastomer edge seal.
1. Outer pane of clear glass, inner pane of Spandrel glass.
2. Place Low E coating on No. 2 surface within the unit.
3. Comply with ASTM E 774 and E 773, Class CBA.
4. Purge interpane space with dry hermetic air.
5. Total unit thickness of 1 inch minimum.

2.03 FIRE RATED GLASS MATERIALS INSTALLED AS VISION LITES

A. Manufacturers :
1. Fireglass 20 as distributed by Technical Glass Products
2. Schott
3. Firelite
4. Safety First
5. Pilkington
6. Substitutions: Refer to Section 01600 - Product Requirements.

B. Properties:
1. Thickness: 1/4 inch.
2. Weight: 3.0 lbs./sq. ft.
3. Approximate Visible Transmission: 89 percent.
4. Approximate Visible Reflection: 8 percent.
5. Fire-rating: 20 minutes (WITHOUT HOSE STREAM TEST).
6. Impact Safety Resistance: ANSI Z97.1 and CPSC 16CFR1201 (Cat. I and II).

C. Labeling: Permanently label each piece of Fireglass®20 with the Fireglass®20 logo, UL logo and fire rating in sizes up to 6,396 sq. in.

D. Fire Rating: Fire rating listed and labeled by UL for fire rating scheduled at opening locations on drawings, when tested in accordance with NPFA 252 and UL10C

2.04 GLAZING COMPOUNDS

A. Manufacturers:
   1. Bostik, Inc: www.bostik-us.com.
   2. GE Plastics: www.geplastics.com.
   3. Pecora Corporation: www.pecora.com.
   4. Degussa Building Systems: www.chemrex.com.
   5. Substitutions: Refer to Section 01600 - Product Requirements.

B. Butyl Sealant: Single component; ASTM C 920, Grade NS, Class 12-1/2, Uses M and A; Shore A hardness of 10 to 20; black color; non-skinning.

C. 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; color as selected.

D. 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; color as selected.

2.05 GLAZING ACCESSORIES

A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness, ASTM C 864 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; 10 to 15 Shore A durometer hardness; coiled on release paper; black color.
   1. Manufacturers:
      a. Pecora Corporation: www.pecora.com.
      b. Saint-Gobain Performance Plastics: www.plastics.saint-gobain.com.
      c. Substitutions: Refer to Section 01600 - Product Requirements.

D. Glazing Clips: Manufacturer's standard type.

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. Prime surfaces scheduled to receive sealant.

D. Install sealants in accordance with ASTM C 1193 and FGMA Sealant Manual.

E. Install sealant in accordance with manufacturer's instructions.

3.03 INSTALLATION - EXTERIOR WET METHOD (SEALANT AND SEALANT)

A. Place setting blocks at 1/4 points and install glazing pane or unit.

B. Install removable stops with glazing centered in space by inserting spacer shims both sides at 24 inch intervals, 1/4 inch below sight line.

C. Fill gaps between glazing and stops with sealant to depth of bite on glazing, but not more than 3/8 inch below sight line to ensure full contact with glazing and continue the air and vapor seal.

D. Apply sealant to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.04 INSTALLATION - INTERIOR WET METHOD (COMPOUND AND COMPOUND)

A. Install glazing resting on setting blocks. Install applied stop and center pane by use of spacer shims at 24 inch centers, kept 1/4 inch below sight line.

B. Locate and secure glazing pane using glazers' clips.

C. Fill gaps between glazing and stops with glazing compound until flush with sight line. Tool surface to straight line.

3.05 CLEANING

A. Remove glazing materials from finish surfaces.

B. Remove labels after Work is complete.

C. Clean glass and adjacent surfaces.

END OF SECTION 08800

SECTION 09 21 16

GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Metal stud wall framing.
B. Metal channel ceiling framing.
C. Fire rated area separation walls.
D. Gypsum wallboard.
E. Glass mat faced gypsum sheathing.
F. Joint treatment and accessories.

1.02 RELATED SECTIONS

A. Section 04 22 00 – Concrete Unit Masonry
B. Section 05 40 00 – Cold Formed Metal Framing
C. Section 07 21 00 – Board and Batt Insulation: Thermal and acoustic insulation.
D. Section 07 90 00 – Joint Sealers: Acoustic sealant.
E. Section 09 21 19 – Gypsum Board Acoustic Accessories
F. Section 13 48 00 – Sound Control Ceiling Components
G. Section 13 48 01 – Sound Control Floor Components

1.03 REFERENCES

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. AISI SG-971 - Specification for the Design of Cold-Formed Steel Structural Members; 1996, with 2000 Supplement.
C. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2004a.
D. ASTM C 475/C 475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002.
E. ASTM C 645 - Standard Specification for Nonstructural Steel Framing Members; 2004a.
F. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2004.
G. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board; 2004a.
H. ASTM C 954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2004.
I. ASTM C 1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2004.
J. ASTM C 1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2004.
K. ASTM C 1177/C 1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2004.

L. ASTM C 1396/C 1396M - Standard Specification for Gypsum Board; 2004.
M. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 1997a.
N. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2000.
O. GA-226 - Application of Gypsum Board to Form Curved Surfaces; Gypsum Association; 1996.
P. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2003.

1.04 SUBMITTALS

A. See Division 1 for submittal procedures.
B. Product Data: Provide data on metal framing, gypsum board, glass mat faced gypsum board, accessories, and joint finishing system.
C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

1.05 QUALITY ASSURANCE

A. Perform in accordance with ASTM C 840. Comply with requirements of GA-600 for fire-rated assemblies.
B. Applicator Qualifications: Company specializing in performing gypsum board application and finishing, with minimum 3 years of documented experience.

1.06 REGULATORY REQUIREMENTS

A. Conform to applicable code for fire rated assemblies as indicated on drawings.

PART 2 - PRODUCTS

2.01 METAL FRAMING MATERIALS

A. Manufacturers - Metal Framing, Connectors, and Accessories:
   1. Clark Steel Framing Systems: www.clarksteel.com.
   2. Dale/Incor: www.daleincor.com.
   3. Dietrich Metal Framing: www.dietrichindustries.com.
   4. Marino-Ware: www.marinoware.com.
   5. Substitutions: See Section 01 60 00 - Product Requirements.
B. Metal Framing Connectors and Accessories:
   1. Same manufacturer as framing.
   2. The Steel Network Inc: www.SteelNetwork.com.
   3. Substitutions: See Section 01 60 00 - Product Requirements.
C. Non-Loadbearing Framing System Components: ASTM C 645; galvanized sheet steel, of size and properties necessary to comply with ASTM C 754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
   1. Studs: "C" shaped with flat or formed webs.
   2. Runners: U shaped, sized to match studs.
   3. Ceiling Channels: C shaped.
   4. Furring: Hat-shaped sections, minimum depth of 7/8 inch.
D. Loadbearing Studs for Application of Gypsum Board: As specified in Section 05 40 00.
E. Ceiling Hangers: Type and size as specified in ASTM C 754 for spacing required.
F. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
   1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.

2. Material: ASTM A 653/A 653M steel sheet, SS Grade 50, with G60/Z180 hot dipped galvanized coating.
3. Provide components UL-listed for use in UL-listed fire-rated head of partition joint systems indicated on drawings.
4. Provide top track preassembled with connection devices spaced to fit stud spacing indicated on drawings; minimum track length of 12 feet.

2.02 GYPSUM BOARD MATERIALS

A. Manufacturers:
   1. G-P Gypsum Corporation: www.gp.com/build.
   2. National Gypsum Company: www.nationalgypsum.com.
   3. USG: www.usg.com.
   4. BPB America Inc.: www.bpb-na.com
   5. Substitutions: See Section 01 60 00 - Product Requirements.
B. Gypsum Wallboard: ASTM C 1396/C 1396M. Sizes to minimize joints in place; ends square cut.
   1. Special Type X: Fire resistant in excess of ASTM C 1396/C 1396M requirements, UL or WH rated.
      a. Application: Where required for fire-rated assemblies, unless otherwise indicated.
      b. Thickness: as indicated.
      c. Edges: Tapered.
   2. Ceiling Board: Special sag-resistant type.
      a. Application: Ceilings, unless otherwise indicated.
      b. Thickness: as indicated.
      c. Edges: Tapered.
   3. Abuse-Resistant Type: Gypsum wallboard especially formulated for increased impact resistance, with enhanced gypsum core and heavy duty face and back paper.
      a. Application: Heavy Duty, Level 3.
      b. Core Type: Regular and Type X, as indicated.
      c. Thickness: as indicated.
      d. Edges: Tapered.
   4. Acoustically Enhanced Gypsum Wallboard –
      a. Basis of Design: QuietRock 530 by Pabco Gypsum www.QuietRock.com
      b. Application: STC Rated Walls, Level 3.
      c. Core Type: Steel.
      d. Thickness: as indicated.
      e. Edges: Tapered.
   5. Acoustically Enhanced Gypsum Wallboard –
      a. Basis of Design: QuietRock ES by Pabco Gypsum www.QuietRock.com
      b. Application: STC Rated Walls, Level 3.
      c. Thickness: as indicated.
      d. Edges: Tapered.
C. Water-Resistant Gypsum Backing Board: ASTM C 1396/C 1396M; ends square cut.
   1. Application: Vertical surfaces behind thinset tile, except in wet areas.
   2. Edges: Tapered.
D. Exterior Gypsum Soffit Board: ASTM C 1396/C 1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Ceilings and soffits in protected exterior areas, unless otherwise indicated.
   2. Core Type: Regular.
   3. Thickness: as indicated.
   4. Edges: Tapered.

2.03 FIBERGLASS FACED BOARD MATERIALS

A. Glass Mat Faced Gypsum Board: Gypsum panels with moisture-resistant core and coated inorganic fiberglass mat back surface designed to resist growth of mold and mildew, per ASTM D 3273.

1. Fiberglass Mat Faced Board: Comply with performance requirements of ASTM C 1396/C 1396M for water-resistant gypsum backing board and ASTM C 1177/C 1177M for sheathing; tapered long edges.
   a. Standard Type: Thickness 5/8 inch.
   b. For use as exterior wall sheathing behind masonry veneer.
   c. For use as exterior wall sheathing behind exterior insulation finish system.

2.04 ACCESSORIES

A. Insulation: As specified in Section 07 21 00.
B. Air and Moisture Barrier: As specified in Section 07 25 00.
C. Acoustic Sealant: As specified in Section 07 90 00.
D. Building Paper: Asphalt impregnated, No. 15 building felt, conforming to ASTM D 226, Type I.
E. Finishing Accessories: ASTM C 1047, galvanized steel or rolled zinc, unless otherwise indicated.
   1. Types: As detailed or required for finished appearance.
   2. Special Shapes: In addition to conventional cornerbead and control joints, provide U-bead at exposed panel edges.

F. Joint Materials: ASTM C 475 and as recommended by gypsum board manufacturer for project conditions.
   1. Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
   2. Ready-mixed vinyl-based joint compound.
   3. Chemical hardening type compound.

G. 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 increased abrasion and impact resistance.
   1. Product: Tuff-Hide manufactured by USG Abuse-Resistant Systems.
H. Screws: ASTM C 1002; self-piercing tapping type.
I. Screws: ASTM C 954; steel drill screws for application of gypsum board to loadbearing steel studs.
J. Reveal Molding:
   1. Extruded Aluminum – alloy 6063 T5, with chemical conversion coating
   2. Fry Reglet “F” Reveal Molding; # DRMF-625-625 or equal.

PART 3 - EXECUTION

3.01 EXAMINATION

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

3.02 FRAMING INSTALLATION

A. Metal Framing: Comply with ASTM C 754 and manufacturer's instructions.

B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
   1. Level ceiling system to a tolerance of 1/600.
   2. Laterally brace entire suspension system.
   3. Install bracing as required at exterior locations to resist wind uplift.
C. Studs: Space studs as indicated.
   1. Extend partition framing to structure in all locations and provide diagonal bracing as necessary to maintain wall deflection requirements.
   2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
   3. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical

devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.

D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.
E. Standard Wall Furring: Install at masonry walls scheduled to receive gypsum board, not more than 4 inches from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 24 inches on center.
   1. Orientation: Horizontal.
   2. Spacing: As permitted by standard.
F. Acoustic Furring: Install resilient channels at maximum 24 inches on center. Locate joints over framing members.
G. Furring for Fire Ratings: Install as required for fire resistance ratings indicated and to GA-600 requirements.
H. Blocking: Install blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, hardware, and countertops. Bolt or screw steel channels to studs.

3.03 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.
   1. Place one bead continuously on substrate before installation of perimeter framing members.
   2. Place continuous bead at perimeter of each layer of gypsum board.
   3. In non-fire-rated construction, seal around all penetrations by conduit, pipe, ducts, and rough-in boxes.

3.04 GYPSUM BOARD AND GLASS MAT FACED BOARD INSTALLATION

A. Comply with ASTM C 840 and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
   1. Exception: Tapered edges to receive joint treatment at right angles to framing.
C. Double-Layer Non-Rated: Use gypsum board for first layer, placed parallel to framing or furring members, with ends and edges occurring over firm bearing. Use glass mat faced gypsum board at exterior walls and at other locations as indicated. Place second layer perpendicular to framing or furring members. Offset joints of second layer from joints of first layer. Screw attached. Adhesive alone is not acceptable.
D. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of listing authority.
E. Gypsum Soffit Board: Install perpendicular to framing, with staggered end joints over framing members or other solid backing.
F. Glass Mat Faced Gypsum Board: Install in strict accordance with manufacturer's instructions.
G. Installation on Metal Framing: Use screws for attachment of all gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.
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 and exterior gypsum soffit board with sealant.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
   1. Not more than 30 feet apart on walls and ceilings over 50 feet long – unless noted otherwise.
   2. At exterior soffits, not more than 30 feet apart in both directions, unless noted otherwise.
B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.

3.06 JOINT TREATMENT

A. Glass Mat Faced Gypsum Board: Use fiberglass joint tape, bedded and finished with chemical hardening type joint compound.
B. Paper Faced Gypsum Board: Use fiberglass joint tape, bedded with ready-mixed vinyl-based joint compound and finished with ready-mixed vinyl-based joint compound.
C. Finish gypsum board in scheduled areas in accordance with levels defined in ASTM C 840 and as scheduled below.
D. 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 fixed cabinetry and ful-height backsplashes.
    3. Taping, filling and sanding is not required at base layer of double layer applications.
E. Spray apply high build drywall surfacer over entire surface after joints have been properly treated to achieve Level 5 finish in areas indicated.

3.07 TOLERANCES

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

3.08 FINISH LEVEL SCHEDULE

A. Level 1: Above finished ceilings concealed from view.
B. Level 2: Utility areas and areas behind cabinetry.
C. Level 3: Walls scheduled to receive textured wall finish.
D. Level 4: Walls and ceilings scheduled to receive flat or eggshell paint finish.
E. Level 5: Walls and ceilings scheduled to receive semi-gloss or gloss paint finish.

3.09 SITE ENVIRONMENTAL PROCEDURES

A. Indoor Air Quality:
    1. Temporary ventilation: Provide temporary ventilation for work of this Section.
B. Waste Management:
    1. Select panel sizes and layout panels to minimize waste; reuse cutoffs to the greatest extent possible.

END OF SECTION 09 21 16

09 21 19
GYPSUM BOARD ACOUSTIC ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Neoprene Sound Isolation Clips

B. Acoustical Outlet Backer Pad (Putty Pads)

1.02 RELATED SECTIONS

A. Section 03 30 00 – Cast-in-Place Concrete

B. Section 04 22 00 – Concrete Unit Masonry

C. Section 05 40 00 – Cold Formed Metal Framing:

D. Section 07 21 00 – Board and Batt Insulation: Thermal and acoustic insulation.

E. Section 07 90 00 – Joint Sealers: Acoustic sealant.

F. Section 09 21 19 – Gypsum Board Acoustic Accessories

G. Section 13 48 00 – Sound Control Ceiling Components

H. Section 13 48 01 – Sound Control Floor Components

1.03 QUALITY ASSURANCE

A. The products shall be designed and fabricated at the facilities of a manufacturer having a minimum of five years' experience in furnishing similar sound control products.

B. Furnish all labor, materials, tools, and equipment to install sound isolated walls and/or ceilings. Construct walls and/or ceilings using the sound isolation clip where shown on contract drawings.

C. The partition isolation pad and anchor isolator must meet the requirements for use in Underwriters Laboratory (UL) 2-hour rated head-of-wall joint system assemblies, HW-D-0031 (single stud) and HW-D-00447 (double stud).

1.04 SUBMITTALS

A. Submit product data

1. Catalog cut sheet.

2. Sound Transmission Loss Test Report per ASTM E90-99.

3. Sound test reports must be from an independent laboratory accredited by the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP).

B. Submit details, installation guidelines, and related information as required for project.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials undamaged in manufacturer's clearly labeled, unopened containers, identified with brand, type, and UL label.

B. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job-site.

C. Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements, including temperature restrictions.

D. Comply with recommended procedures, precautions or remedies described in material safety data sheets as applicable.

E. Do not use damaged or expired materials.

PART 2 PRODUCTS

2.01 NEOPRENE SOUND ISOLATION CLIPS

A. Product: Model Iso-Max Sound Isolation Clips by Kinetics Noise Control, Dublin, Ohio.

B. The isolation clips shall consist of a rubber element into which a standard galvanized steel furring channel, 7/8 in. x minimum 25 gauge, is captured. The channel legs snap fit into the rubber element without any metal-to-metal or other rigid contact with building elements.

C. Vertical Load capacity. Clips shall have sufficient capacity to support wall or ceiling weights as constructed.

D. The isolation clip is attached to the wall/ceiling framing or other structural substrate through galvanized steel brackets on each side of the rubber isolation element. The brackets shall be of sufficient strength to carry the wall weight without bending or failure.

2.02 MULTI-FUNCTIONAL ISOLATION BRACKET

A. Product: UniBrace L, Double-L, F, & Double-F by Kinetics Noise Control, Inc.

B. Isolation brackets consists of stamped L-shaped steel bracket(s) captured and held securely by a neoprene element with two anchoring points. Brackets are used to resiliently decouple and support partitions, head-of-wall, soffits, plumbing, and fixtures in sound control ceilings and walls as shown in contract drawings and/or indicated in contract documents

C. Kinetics UniBrace L:

1. Manufacturer: Kinetics Noise Control, Inc., Dublin, OH.
2. WEBSITE: www.kineticsnoise.com. Visit Noise Control Building Materials.
3. Local Contact Information: http://www.kineticsnoise.com/arch/rep/.
4. Allowable Loads:
    a.) Shear: 35-lbs Total
    b.) Tensile: 50-lbs Total

D. Kinetics UniBrace Double L:

1. Manufacturer: Kinetics Noise Control, Inc., Dublin, OH.
2. WEBSITE: www.kineticsnoise.com. Visit Noise Control Building Materials.
3. Local Contact Information: http://www.kineticsnoise.com/arch/rep/.
4. Allowable Loads:
    a) Shear: 50-lbs Total
    b) Tensile: 100-lbs Total

E. Kinetics UniBrace F:

5. Manufacturer: Kinetics Noise Control, Inc., Dublin, OH.
6. WEBSITE: www.kineticsnoise.com. Visit Noise Control Building Materials.
7. Local Contact Information: http://www.kineticsnoise.com/arch/rep/.
8. Allowable Loads:
    a.) Shear: 35-lbs Total

F. Kinetics UniBrace Double F:
1. Manufacturer: Kinetics Noise Control, Inc., Dublin, OH.
2. WEBSITE: www.kineticsnoise.com. Visit Noise Control Building Materials.
3. Local Contact Information: http://www.kineticsnoise.com/arch/rep/.
4. Allowable Loads:
    a) Shear: 50-lbs Total

2.03 ACOUSTICAL OUTLET BACKER PAD

A. Putty Pads: Kinetics Noise Control Model IsoBacker by Kinetics Noise Control, Dublin, Ohio.

B. Wall opening protective materials for use with U.L. listed metallic and specified nonmetallic outlet boxes.

C. Sized to cover outlet boxes in acoustic walls

PART 3 EXECUTION

3.01 Installation

A. General – Install work in accordance with the manufacturer’s approved product installation procedures.

B. Stud Wall Partition Isolation Mat Installation

1. Installation of sound isolation materials specified herein shall be accomplished following Kinetics's and/or the Design Team’s written instructions. Installation instructions shall be submitted to the Design Team for approval prior to beginning of work.

2. Model Wallmat shall not be installed in wet conditions or wherever exposed to moisture. Area shall be flat and smooth, and then clean and free of debris.

3. The installing contractor shall carefully examine conditions at the job site before commencing specified work. Any surfaces not properly prepared to receive work of this section shall be reported to the Design Team's representative and work shall not commence until conditions are satisfactory.

4. Install Model Wallmat continuously along base and top plate of partition where identified per construction document plans, and details. Model Wallmat is positioned to decouple the base and top plates from the non-isolated structure.

5. Frame partition per standard construction practices and building code requirements. Allow for the 1/2-inch thickness, top and bottom (as required), of Model Wallmat during construction of partition.

6. Drill 3/4-inch diameter hole through stud plate to seat neoprene element at specified anchor spacing. Drill 3/8-inch diameter hole through Model Wallmat in center of cutout in base and top plate. Install Model KAI Anchor Isolator Rubber Bushing Assembly with carbon steel spacer inserted through 3/8-inch diameter hole and bushing resting on Model Wallmat. Position fender washer atop bushing.

7. Install proper 1/4-inch diameter anchor for substrate and/or building code through carbon steel spacer and tighten against fender washer/spacer to secure base and/or top plate(s) into position.

C. Neoprene Sound Isolation Clips & Multi-Functional Isolation Bracket Installation

1. Spacing and location of sound isolation clips shall be determined by the manufacturer based on wall type. Installation drawing details shall be provided by the manufacturer to assure optimum sound control and structural integrity of the system.

D. Acoustical Outlet Backer Pad Installation

1. Comply with manufacturer's instructions for installation of backer pads.
2. Peel off release paper from one side of backer pad
3. Position backer pad on the back side of outlet after electrical wires have been installed
4. Wrap backer pad around entire outlet
5. Peel off release paper from second side
6. If part of outlet still exposed use a second pad to wrap the rest of the outlet
7. Examine sealed outlet to ensure proper installation before concealing or enclosing areas.

END OF 09 21 19

SECTION 09 65 00
RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Resilient base.

B. Installation accessories.

1.02 REFERENCES

A. ASTM E 648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2004.

B. ASTM F 710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2005.

C. ASTM F 1066 - Standard Specification for Vinyl Composition Floor Tile; 2004.

D. ASTM F 1303 - Standard Specification for Sheet Vinyl Floor Covering with Backing; 2004.

E. ASTM F 1861 - Standard Specification for Resilient Wall Base; 2002.

F. ASTM F 1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing; 2004.

G. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; National Fire Protection Association; 2006.

1.03 SUBMITTALS

A. See Division 1 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. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.

D. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.04 SURPLUS MATERIALS

A. Contractor to provide a minimum quantity of 2% overage, in addition to the amount necessary for installation, of each material specified for the owner’s future use.

1.05 DELIVERY, STORAGE, AND PROTECTION

A. Protect roll materials from damage by storing on end.

1.06 ENVIRONMENTAL REQUIREMENTS

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

2.01 MATERIALS - BASE

A. Resilient Base: ASTM F 1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove, and as follows:
   1. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
   2. Height: 4 inch
   3. Thickness: 0.125 inch thick.
   4. Finish: Satin.
   5. Length: Roll.
   6. Color: As selected by architect from manufacturer's standards.
   7. Accessories: Premolded external corners and end stops.
   8. Manufacturers:
      a. Johnsonite, Inc: www.johnsonite.com
      b. Roppe Corp: www.roppe.com.
      c. Mannington: www.mannington.com
      d. Substitutions: See Division 1.

2.02 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.

C. Sealer: Types recommended by flooring manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. 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.

B. 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.

C. Verify that sub-floor surfaces are dust-free and free of substances which would impair bonding of adhesive materials to sub-floor surfaces.

D. Verify that concrete sub-floor surfaces are ready for resilient flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F 710; obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. All required floor preparation required for proper, level and smooth installation, is the responsibility of the flooring contractor. No exceptions. A field visit is required to assess current conditions and must be done prior to providing a bid price.

B. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates. 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.

C. Prohibit traffic until filler is cured.

D. Clean substrate.

E. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

3.03 INSTALLATION - BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.

C. Install base on solid backing. Bond tightly to wall and floor surfaces.

D. Scribe and fit to door frames and other interruptions.

3.04 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean, seal, and wax resilient flooring products in accordance with manufacturer's instructions.

END OF SECTION 09 65 00

SECTION 09 68 00

CARPETING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Carpet, direct-glued.

B. Accessories.

1.02 REFERENCES

A. CRI 104 - Standard for Installation of Commercial Textile Floorcovering Materials; Carpet and Rug Institute; 2002.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.

C. Samples: Submit two samples 12 x 12 inch in size illustrating color and pattern for each carpet and cushion material specified.

D. Manufacturer's Installation Instructions: Indicate special procedures.

E. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

1.04 SURPLUS MATERIALS

A. Contractor to provide a minimum quantity of 2% overage, in addition to the amount necessary for installation, of each material specified for the owner’s future use.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet with minimum three years documented experience.

B. Installer Qualifications: Company specializing in installing carpet with minimum three years experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A Mold and mildew prevention: Store on raised surface off concrete floors.

1.07 SITE CONDITIONS

A. Store materials in area of installation for minimum period of 24 hours prior to installation.

B. Maintain minimum 70 degrees F ambient temperature 24 hours prior to, during and 24 hours after installation

C. Provide temporary ventilation during installation and after installation

1.08 SEQUENCING

A. Install high-VOC-emitting materials before low-VOC-emitting materials.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Carpet:
1. Shaw Contract Group: www.shawcontractgroup.com (Basis of Design)
2. Interface, Inc: www.interfaceinc.com.
3. Patcraft: www.patcraft.com
4. Mannington Commercial: www.mannington.com
5. Monterey Carpets: www.montereycarpets.com
6. Substitutions: See Section 01600 - Product Requirements.

2.02 CARPET

A. General

1. Recycled content: minimum 8% post-industrial, 12% post consumer recycled materials.
2. Materials: all materials shall be high quality and of the type generally accepted for use in the industry. When used as intended, the materials shall be non-toxic, non-allergenic and free of similar health hazards. These materials include, but are not limited to, adhesives, cleaners, solvents, etc.
3. Recyclability: The carpet must be 100% recyclable.
4. Carpet shall inhibit the growth of fungi, gram-positive and gram-negative bacteria, in accordance with AATCC 138 or AATCC 174, parts 2 and 3.

C. Carpet: CPT-1
1. Manufacturer: See Finish Schedule
2. Style: See Finish Schedule
3. Color: See Finish Schedule
4. Size: See Finish Schedule
5. Wear Rating: Heavy
6. Fiber: Ecosolution Q100 Nylon
7. Backing: Non-woven Synthetic, EcoWorx Tile
8. Adhesive: Per manufacturer recommendations
9. ASTM E648: Class I
10. ASTM E662: Less than 450
11. See Drawings for location and pattern

2.03 ACCESSORIES

A. Sub-Floor Filler: Type recommended by carpet manufacturer.

B. Transition Strips: See drawings.

C. Cushion – Recycled foam – Low VOC

D. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer. Low VOC, low odor, solvent-free, water-based contact adhesives meeting the requirements set forth in the applicable EGC Criteria.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive carpet.

B. Verify that sub-floor surfaces are dust-free and free of substances which would impair bonding of adhesives to sub floor surfaces.
C. Verify that concrete sub-floor surfaces are ready for carpet installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by carpet manufacturer and adhesive materials manufacturer.
D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Remove existing carpet and carpet cushion.
B. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
C. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
D. Clean substrate.

3.03 INSTALLATION - GENERAL

A. Install carpet and cushion in accordance with manufacturer's instructions and CRI 104.

B. Verify carpet match before cutting to ensure minimal variation between dye lots.

C. Lay out carpet and locate seams in accordance with shop drawings:
   1. Locate seams in area of least traffic, out of areas of pivoting traffic, and parallel to main traffic.
   2. Do not locate seams perpendicular through door openings.
   3. Align run of pile in same direction as anticipated traffic and in same direction on adjacent pieces.
   4. Locate change of color or pattern between rooms under door centerline.
   5. Provide monolithic color, pattern, and texture match within any one area.

D. Install carpet tight and flat on subfloor, well fastened at edges, with a uniform appearance.

3.04 DIRECT-GLUED CARPET

A. Double cut carpet seams, with accurate pattern match. Make cuts straight, true, and unfrayed. Apply seam adhesive to cut edges of woven carpet immediately.
B. Apply contact adhesive to floor uniformly at rate recommended by manufacturer. After sufficient open time, press carpet into adhesive.
C. Apply seam adhesive to the base of the edge glued down. Lay adjoining piece with seam straight, not overlapped or peaked, and free of gaps.
D. Roll with appropriate roller for complete contact of adhesive to carpet backing.
E. Trim carpet neatly at walls and around interruptions.
F. Complete installation of edge strips, concealing exposed edges.

3.05 CUSION AND CARPET

A. Install per manufacturer’s instruction.
B. Stagger seaming of carpet and cushion.
C. Locate seams in areas of least traffic.
D. Run pile in same direction – do not change direction of pile in any room.

3.06 CLEANING

A. Remove excess adhesive from floor and wall surfaces without damage.

B. Immediately after installation, clean carpet thoroughly with a high-efficiency particulate air (HEPA) filtration vacuum.

END OF SECTION 09 68 00

SECTION 09 90 00

PAINTING AND COATING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints and other coatings.

C. Field painting of exterior steel

D. Painting of exposed mechanical ductwork and conduit identification.

E. Pavement markings.

F. Schedule - Surfaces to be finished at end of this Section.

1.02 RELATED SECTIONS

A. Section 32 17 23 - Pavement markings.

B. Section 05 12 00 – Structural Steel Framing

C. Section 05 50 00 - Metal Fabrications: Shop-primed items.

D. Section 09 21 16 - Gypsum Board Assemblies: Gypsum Board.

E. Section 23 05 53 - Mechanical Identification: Painted identification.

F. Section 23 31 00 - Mechanical Ducts: Paint Exposed Ductwork.

G. Section 26 05 53 - Electrical Identification: Painted identification.

1.03 REFERENCES

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. ASTM D 16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2003.

C. ASTM D 523 - Standard Test Method for Specular Gloss; 1999.

D. ASTM D 4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 1992 (Reapproved 2003).

E. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Fourth Edition.

1.04 DEFINITIONS

A. Conform to ASTM D 16 for interpretation of terms used in this section.

B. Terms flat, eggshell, semi-gloss and gloss used in this section and drawing Finish Schedule refer to the following gloss ranges when tested in accordance with ASTM D 523 test method:
   1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at a 85 degree meter.
   2. Eggshell refers to a low-sheen finish with a gloss range between 5 and 20 when measured at a 60 degree meter.
   3. Satin refers to low-sheen finish with a gloss range below 15 and 35 when measured at a 60

degree meter.

4. Semigloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60 degree meter.
5. Full gloss refers to a high-sheen finish with a gloss range more than 65 when measured at a 60 degree meter.

C. Gloss Ranges: Ranges indicated in the Finish Schedule take precedence over ranges indicated in this section.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on all finishing products, including VOC content.

C. Manufacturer's Instructions: Indicate special surface preparation procedures and substrate conditions requiring special attention.

D. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

E. Certification: Provide certification that all coatings supplied are non-combustible and rated Class A for flame spread, fuel contribution, smoke development, and are compatible with materials, shop primers and coatings indicated.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum ten years documented experience.

B. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

1.07 REGULATORY REQUIREMENTS

A. Conform to applicable code for flame and smoke rating requirements for products and finishes.

1.08 DELIVERY, STORAGE, AND PROTECTION

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.09 ENVIRONMENTAL REQUIREMENTS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

C. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

D. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

1.10 EXTRA MATERIALS

A. See Section 01 60 00 - Product Requirements, for additional provisions.

B. Supply 5 gallons of each color and type; store where directed.

C. Label each container with color, type, and room locations in addition to the manufacturer's label.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Paints:
   1. Sherwin Williams Company: www.sherwin-williams.com.
   2. ICI Paints North America: www.icipaintsinna.com.
   3. Benjamin Moore & Co: www.benjaminmoore.com.
   4. PPG Architectural Finishes, Inc: www.ppgaf.com.
   5. Grahams Paint: www.grahampaint.com
   6. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 MATERIALS

A. Paint Coatings: Provide the best quality line of low-VOC paint from manufacturers listed.
B. Color Standard: Sherwin Williams designations used to establish color and quality level.
C. Provide same brand of prime coats as succeeding coats throughout the work. Do not mix paints of different manufacturers.
D. Compatibility: Provide block fillers, primers, finish coat and related materials compatible with one another and substrates indicated under conditions of service and application. As demonstrated by manufacturer based on testing and field experience.

2.03 PAINTS AND COATINGS - GENERAL

A. Paints and Coatings: Ready mixed, except field-catalyzed coatings. Prepare pigments:
   1. To a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
   2. For good flow and brushing properties.
   3. Capable of drying or curing free of streaks or sags.

B. Chemical Content: The following compounds are prohibited:
   1. Aromatic Compounds: In excess of 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
   2. Acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate, dimethyl phthalate, ethylbenzene, formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, vinyl chloride.

2.04 PAINT SYSTEMS - EXTERIOR

A. Ferrous Metals, Unprimed, Latex, 3 Coat:
   1. One coat of latex primer; 2.5 mils TDFT.
   2. Semi-gloss: Two coats of Macropoxy 646 Fast Cure Epoxy; 5.0-10.0 mils TDFT.

B. Ferrous Metals, Primed, Latex, 2 Coat:
   1. Touch-up with rust-inhibitive primer recommended by top coat manufacturer.
   2. Semi-gloss: Two coats of Macropoxy 646 Fast Cure Epoxy; 5.0-10.0 mils TDFT..

C. Galvanized Metals, Latex, 3 Coat:
   1. One coat galvanize primer as recommended by the manufacturer.
   2. Semi-gloss: Two coats of Macropoxy 646 Fast Cure Epoxy; 5.0-10.0 mils TDFT..

D. Pavement Marking Paint:
   1. Yellow: One coat; Traffic Marking Paint, 7 mils TDFT.

2.04 PAINT SYSTEMS – LOW-VOC INTERIOR

A. Wood, Opaque, Latex, 3 Coat:
   1. One coat of latex primer sealer; 1.6 mils TDFT.
   2. Semi-gloss: Two coats of latex enamel; 1.4 mils TDFT.

B. Concrete Masonry Units (CMU), Opaque, Epoxy, 3 Coat:
   1. One coat of water based epoxy block filler; 10.0 mils TDFT.
   2. Semi-gloss: Two coats of high solids epoxy; 2.5 mils TDFT.

C. Ferrous Metals, Unprimed, Latex, 3 Coat:
   1. One coat of latex primer; 2.5 mils TDFT.
   2. Semi-gloss: Two coats of latex enamel; 1.4 mils TDFT.

D. Ferrous Metals, Primed, Alkyd, 2 Coat:
   1. Touch-up with alkyd base; 2.0 mils TDFT.
   2. Semi-gloss: One coat of alkyd interior enamel; 1.6 mils TDFT.

E. Galvanized Metals, Latex, 3 Coat:
   1. One coat galvanize primer as recommended by the manufacturer.
   2. Semi-gloss: Two coats of latex enamel; 1.4 mils TDFT.

F. Gypsum Board/Plaster, Latex, 3 Coat:
   1. One coat of latex primer sealer; 1.6 mils TDFT.
   2. Semi-gloss: Two coats of latex enamel; 1.4 mils TDFT.
   3. Eggshell: Two coats of latex enamel; 4.6 mils TDFT.
   4. Flat: Two coats of latex enamel; 1.6 mils TDFT.

2.06 ACCESSORY MATERIALS

A. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified; commercial quality.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive Work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   1. Plaster and Gypsum Wallboard: 12 percent.
   2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
   3. Interior Wood: 15 percent, measured in accordance with ASTM D 4442.

3.02 PREPARATION

A. Surface Appurtenances: Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

B. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.

C. Marks: Seal with shellac those which may bleed through surface finishes.

D. Impervious Surfaces: Remove mildew by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

E. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter in compliance with SSPC-SP13. Allow to dry.

F. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.

G. Aluminum Surfaces to be Painted: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.

H. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

I. Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent in compliance with SSPC-SP1.

J. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.

K. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

3.03 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.

C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

D. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.

E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

3.04 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

A. Refer to Division 23 and Division 26 sections for schedule of color coding of equipment, duct work, piping, and conduit.
B. Paint shop-primed equipment, where indicated.
C. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
D. Finish equipment, piping, conduit, and exposed duct work in utility areas in colors according to the color coding scheme indicated.
E. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.05 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection.
B. Owner will provide field inspection and testing.
C. Inspect and test questionable coated areas in accordance with Owner's requirements.

3.06 CLEANING

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

3.07 SCHEDULE - SURFACES TO BE FINISHED

A. Do Not Paint or Finish the Following Items:
   1. Items fully factory-finished unless specifically noted.
   2. Fire rating labels, equipment serial number and capacity labels.
   3. Stainless steel items.

B. Mechanical and Electrical: Use paint systems defined for the substrates to be finished.
   1. Paint all insulated and exposed pipes occurring in finished areas to match background surfaces, unless otherwise indicated.
   2. Paint all equipment, including that which is factory-finished, exposed to weather or to view on the roof and outdoors.
   3. Paint shop-primed items occurring in finished areas.
   4. Paint interior surfaces of air ducts that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
   5. Paint dampers exposed behind louvers, grilles, to match face panels.

C. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.

END OF SECTION 09 90 00